

Citation metrics and research quality in economics

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Agenda

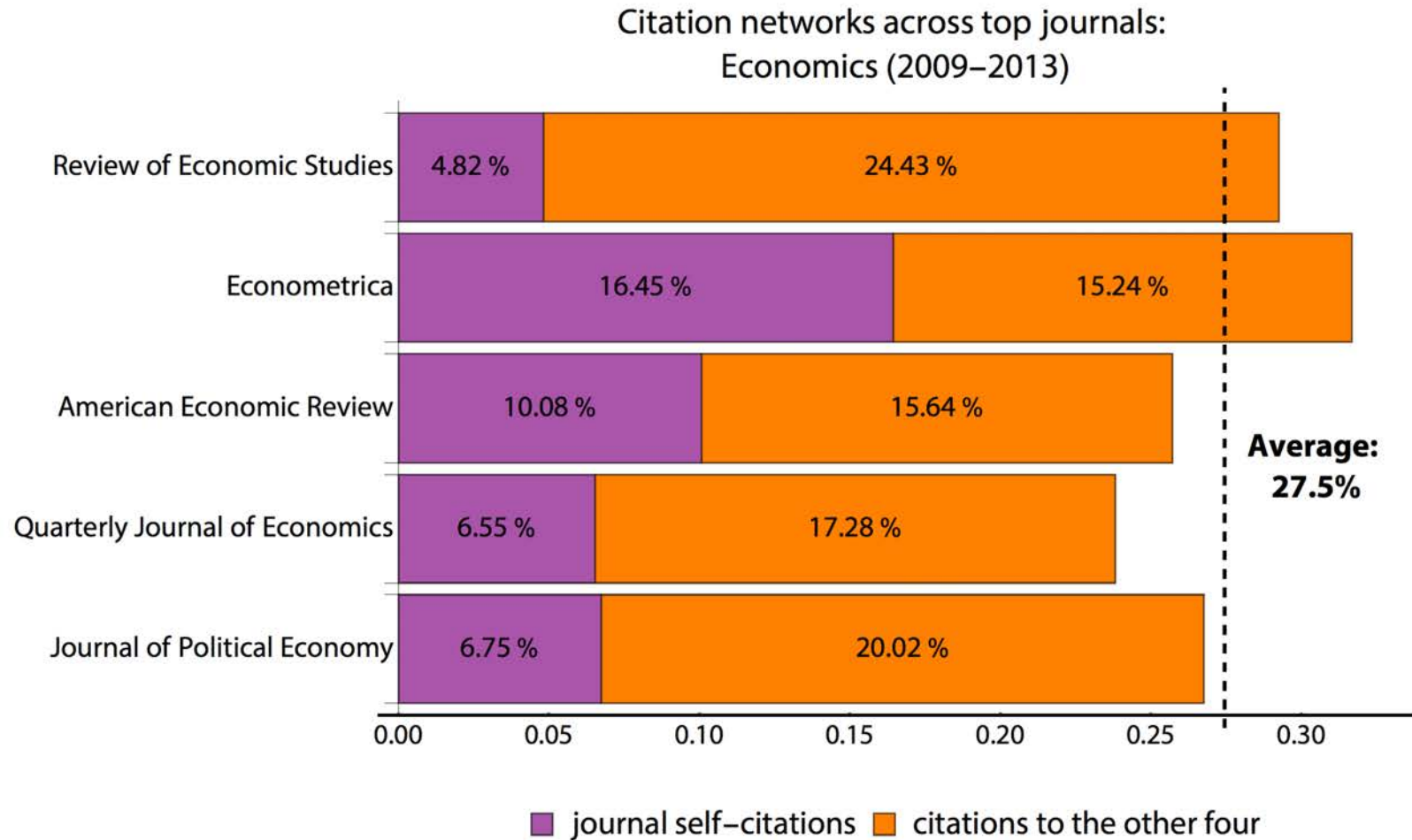
- Two views on **research quality and reputational stratification** in economics
- How well can we assess **the quality of individual contributions**?
- **Which signals play a role** in determining publication decisions and citation behavior?

**Two perspectives on research quality
and citation data**

Why „two perspectives“?

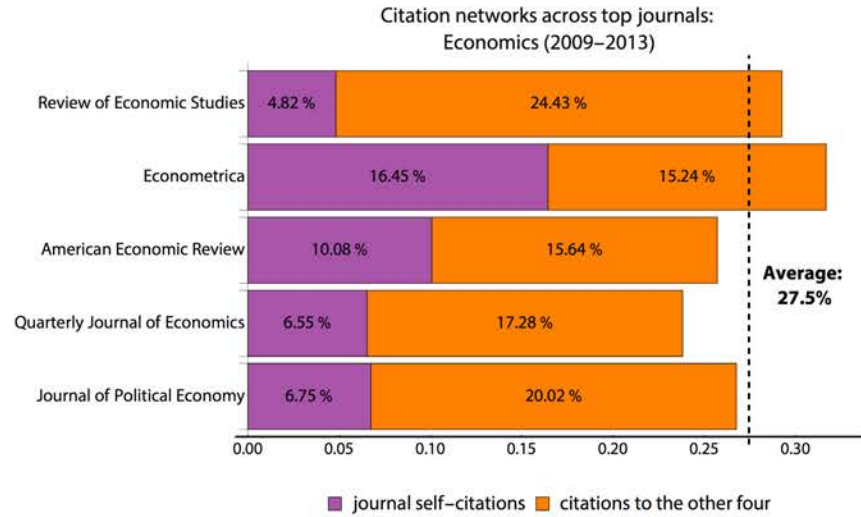
- Citation data is used either positively or normatively...
 - ...to analyze the properties of scientific conversation as well the development of scientific fields: **cognitive scientometrics**
 - ...to evaluate scientific „performance“ on various levels: **evaluative scientometrics**
- **Decisive Differences:** What is a „group of highly talented geniuses“ from one perspective, might look like a „citation cartel“ from the other.

Reputational stratification in economics: Economists' „Top Five” - a „good-old-boys network”?



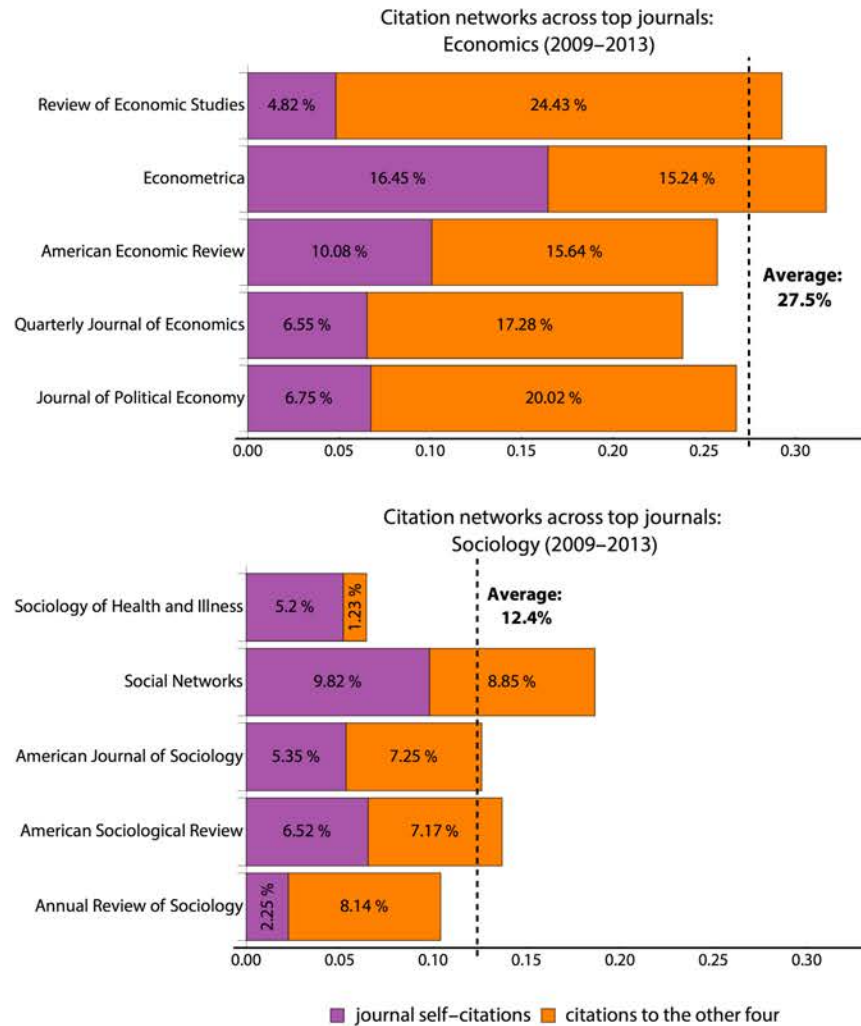
Reputational stratification in economics

Interdisciplinary comparisons



Reputational stratification in economics

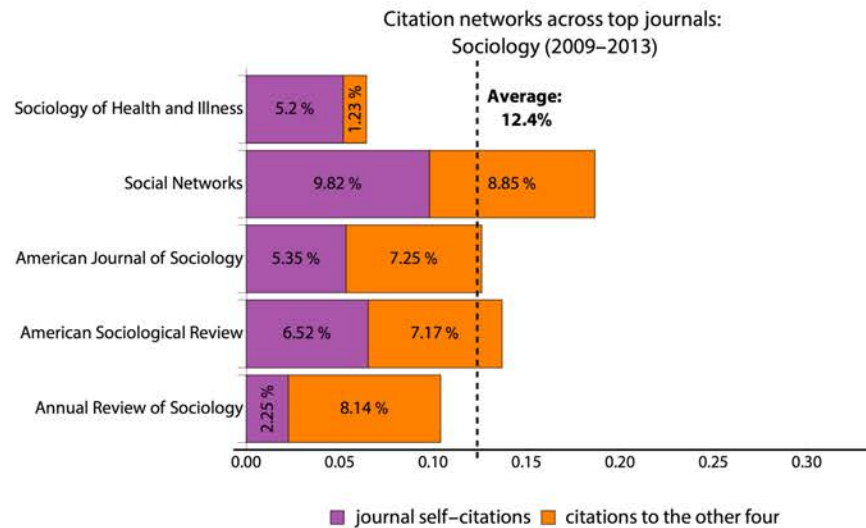
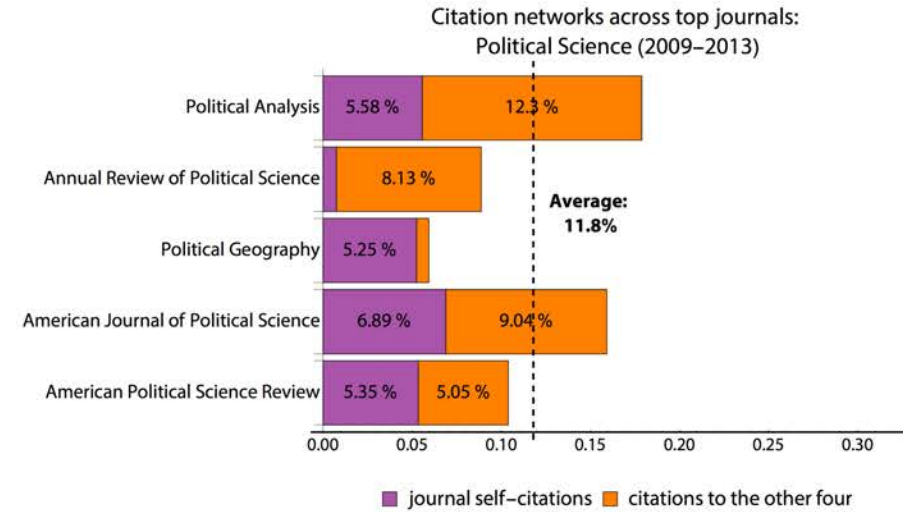
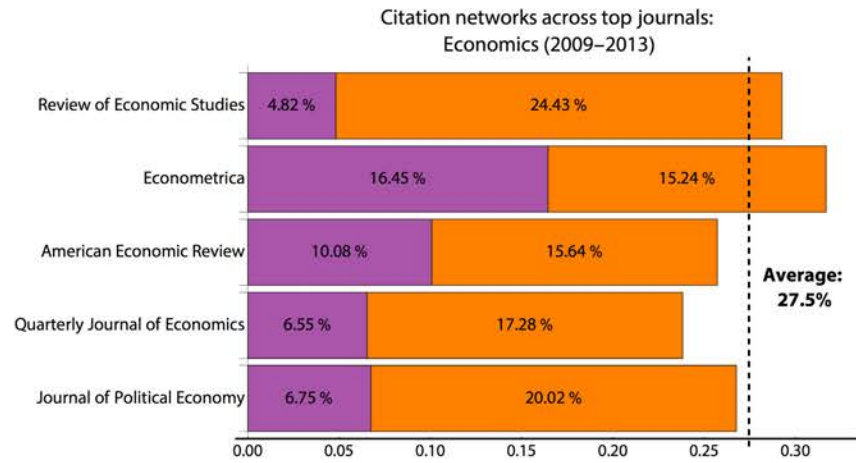
Interdisciplinary comparisons



Aistleitner/Kapeller/Steinerberger (2017): Citation Patterns in Economics and Beyond: *ICAE-Working Paper #60*

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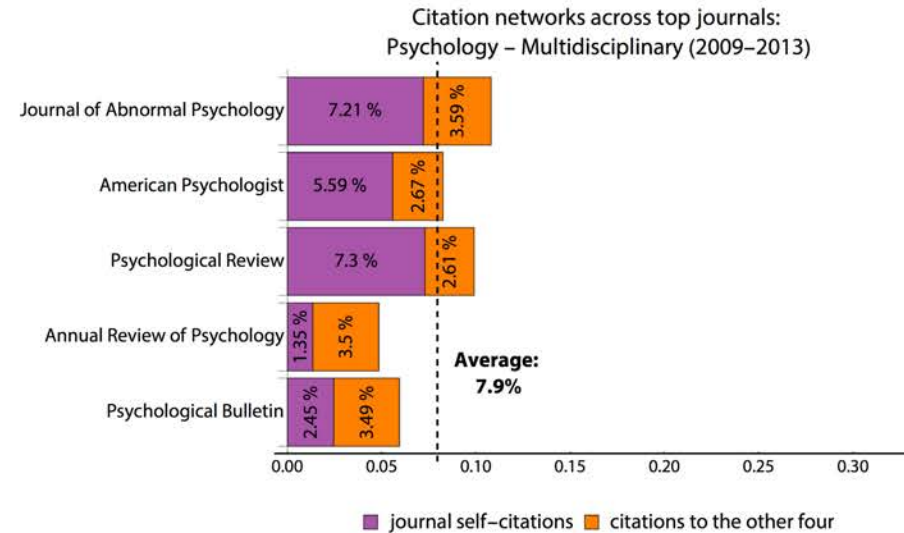
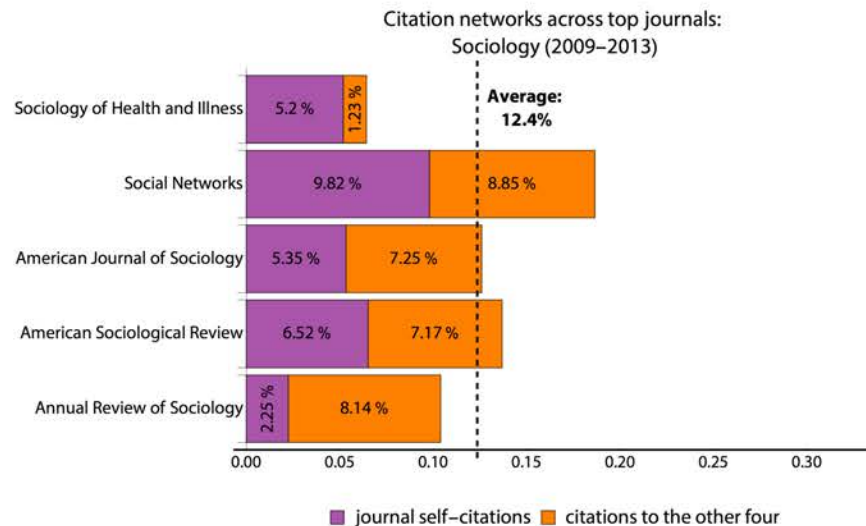
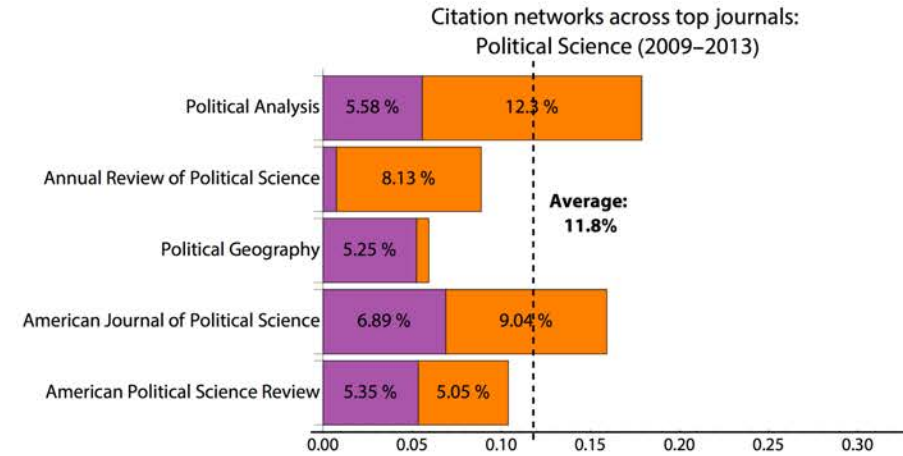
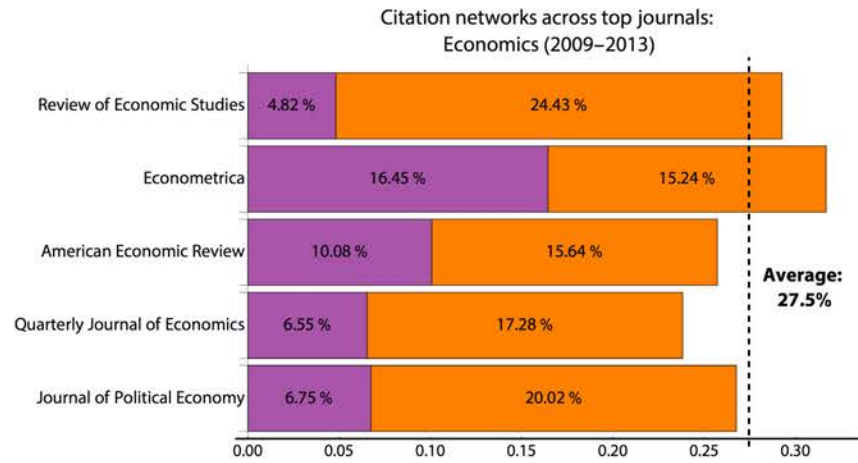
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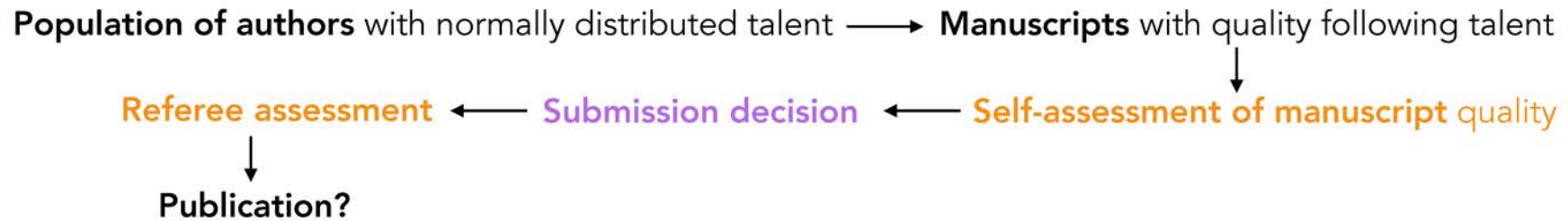
Two interpretations

- **cognitive scientometrics:** economic discourse at the very top of the discipline is rather self-contained, but still serves as an important authority for the rest of the field.
- **evaluative scientometrics:** economics has a small set of highly regarded journals, which are able to select the papers with the highest merits. Hence, high-quality research is easy to locate and intensely referenced.

**„Selecting the paper with the highest merits“
Does it work?**

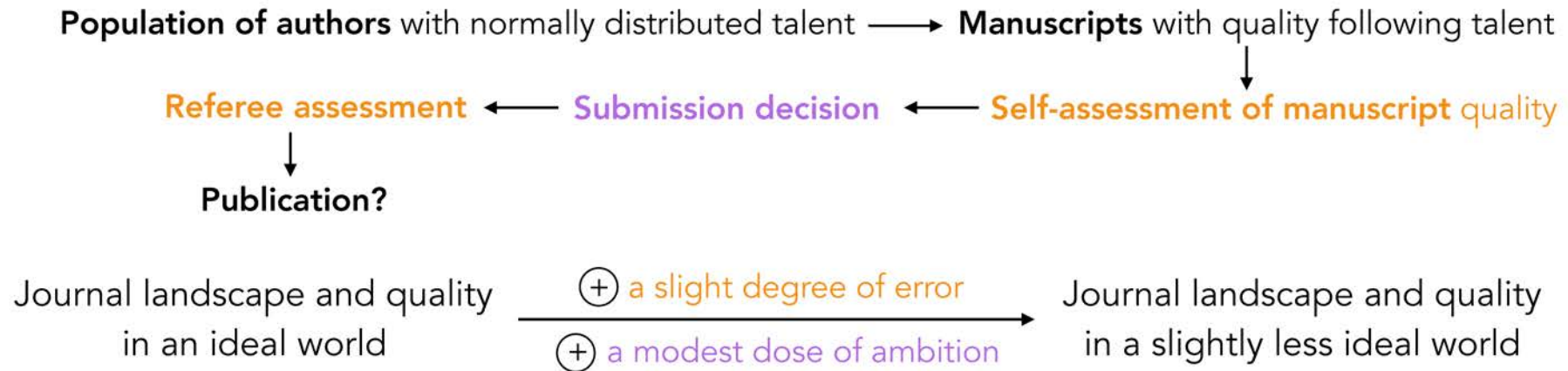
The fate of top papers?

- An agent-based model



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Population of authors with normally distributed talent → Manuscripts with quality following talent

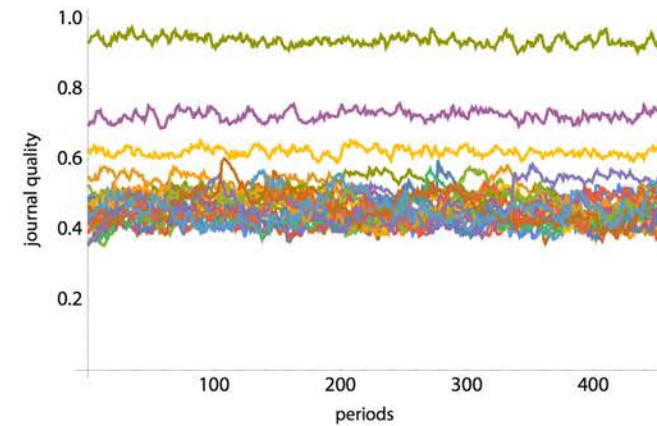
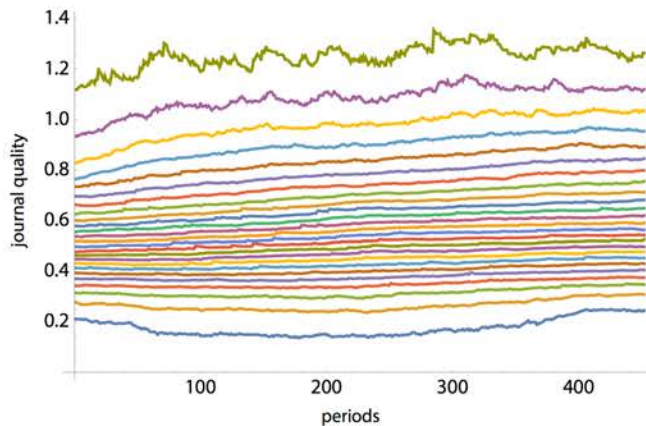
Self-assessment of manuscript quality ← Submission decision ← Referee assessment

Publication?

Journal landscape and quality in an ideal world

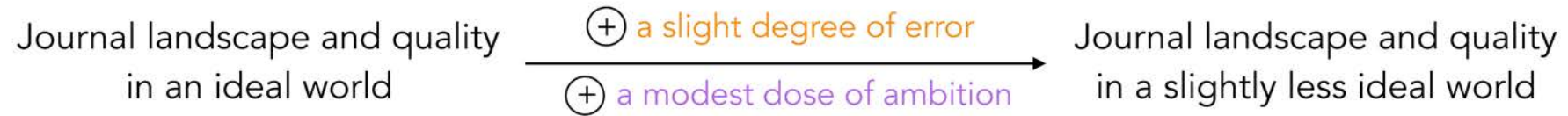
⊕ a slight degree of error
⊕ a modest dose of ambition

Journal landscape and quality in a slightly less ideal world



Kapeller/Steinerberger (2016): Emergent phenomena in scientific publishing. *Research Policy*

The fate of top papers?

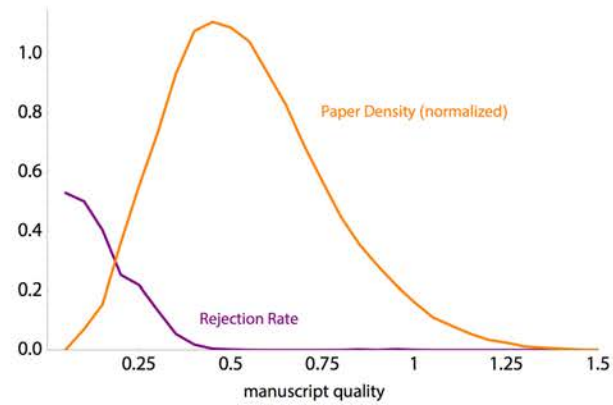


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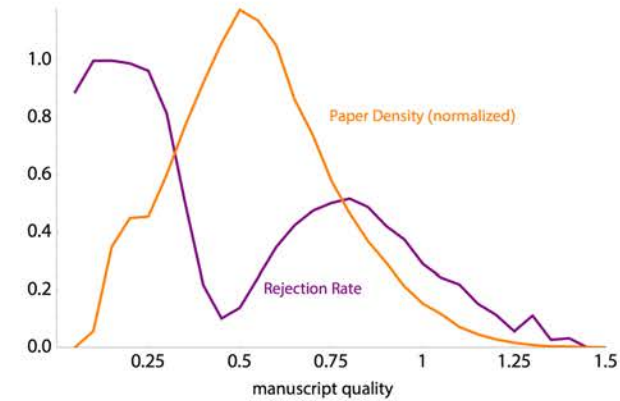
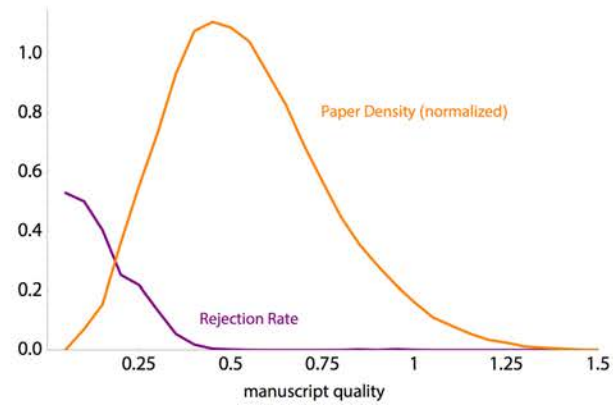


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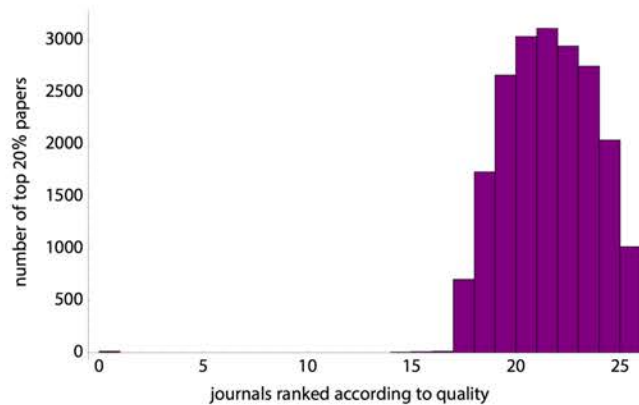
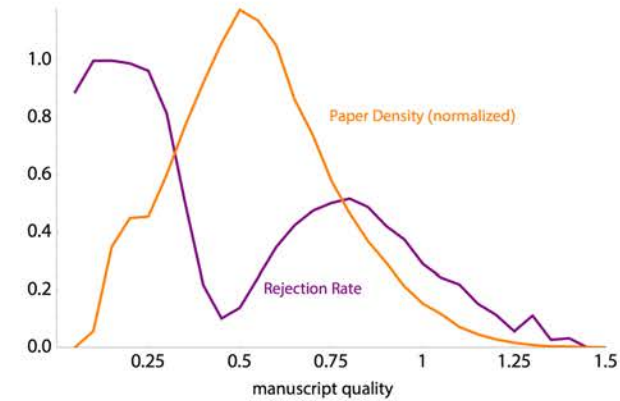
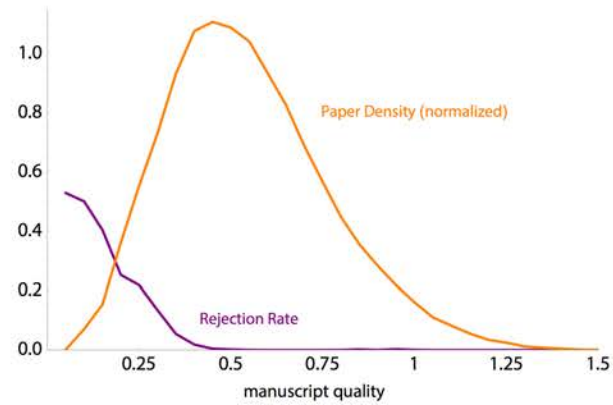


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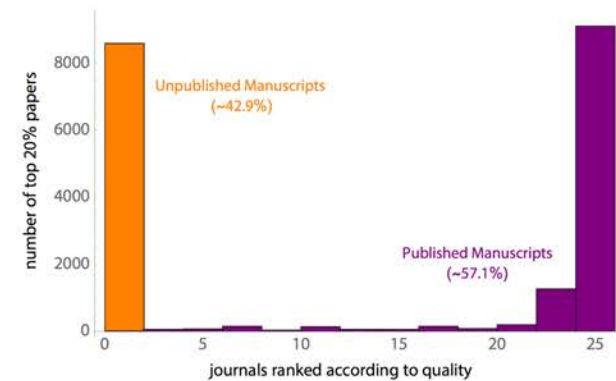
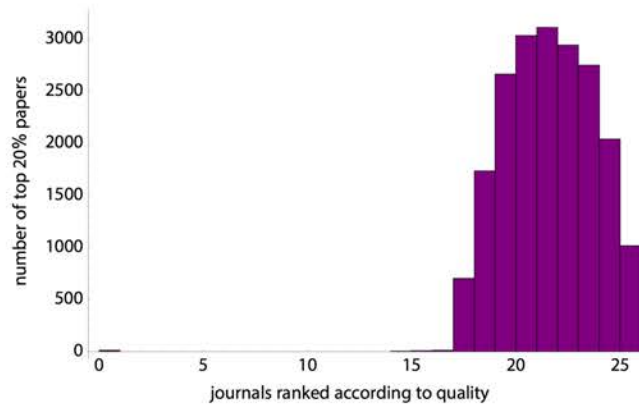
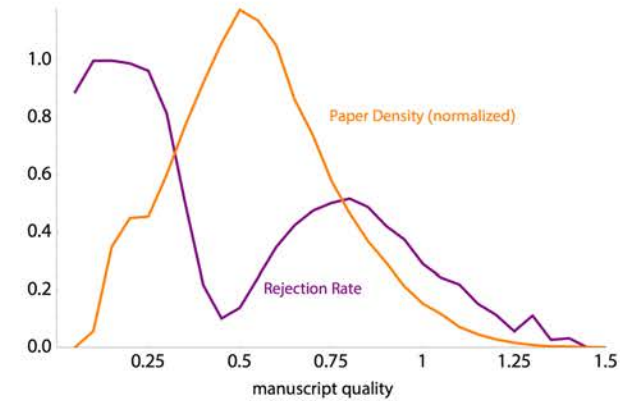
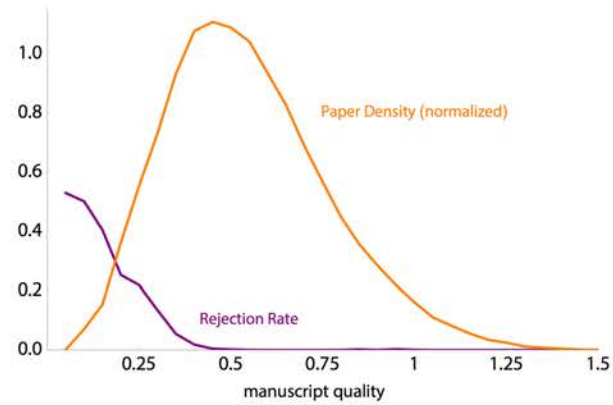
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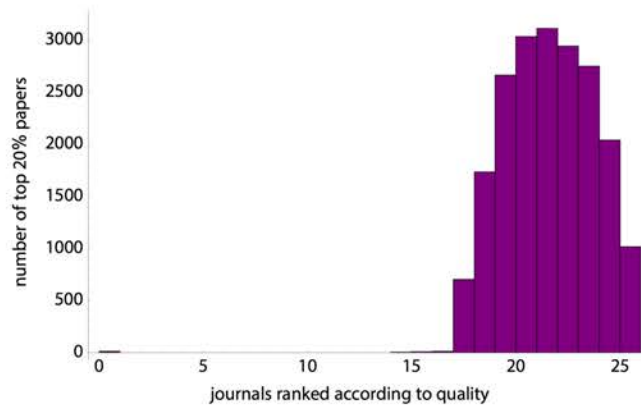
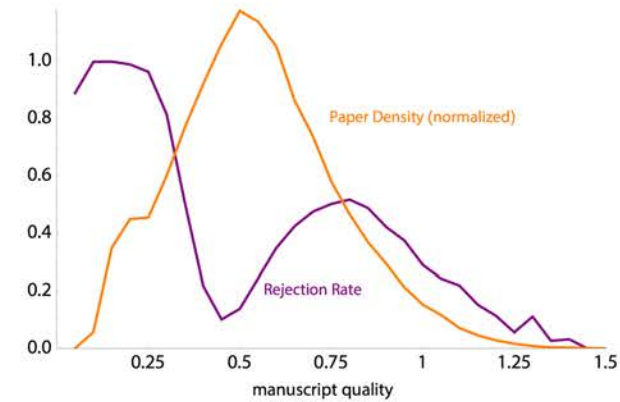
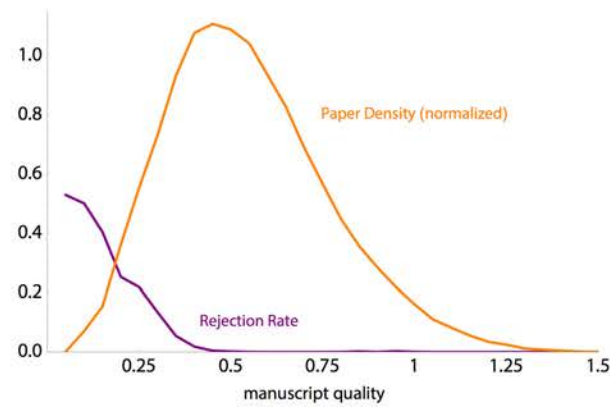
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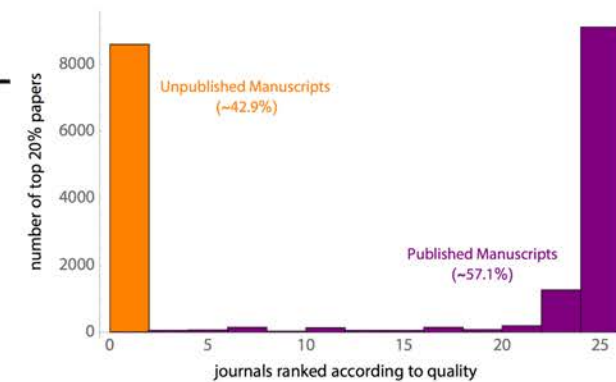
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more than
**40% of the papers with
the highest quality
remain unpublished**



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Which papers to publish? Which papers to cite?

The role of signals

- „**only intrinsic quality matters**“ is implausible — instead we find that **signaling** plays a decisive role.
- Relevant **signals** that serve as a proxy for manuscript „quality“
 - Signaling **social capital**: evidence that professional contacts affect publication prospects (Collussi 2017, *ReEconStat*).
 - Signaling **competence**: evidence that the „Top 5“ are cited, because of their prominent position in the discipline (Aistleitner et al. 2017).
 - Signaling **origin**: evidence that certain PhD-origin and affiliation matter
 - Signaling **membership**: prejudice against heterodox contribution

Signaling origin

Institutional representation in AER, QJE and JPE

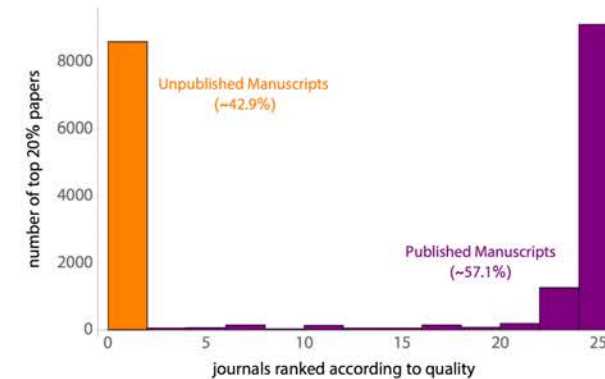
Top 10 Institutions by PhD-origin and affiliation (2014)

	Share of authors (PhD-origin)	Share of authors (affiliation)
USA-Harvard	14.0 %	8.0 %
USA-MIT	11.1 %	4.3 %
USA-Stanford	5.8 %	4.4 %
USA-U Cal Berkeley	3.9 %	2.1 %
USA-Princeton	3.4 %	2.7 %
USA-Yale	3.4 %	2.4 %
USA-Chicago	3.1 %	4.4 %
USA-Northwestern	3.0 %	2.6 %
USA-Pennsylvania	2.5 %	2.0 %
USA-Michigan	2.1 %	—
USA-Columbia	—	2.7 %
Total	52.3 %	35.7 %

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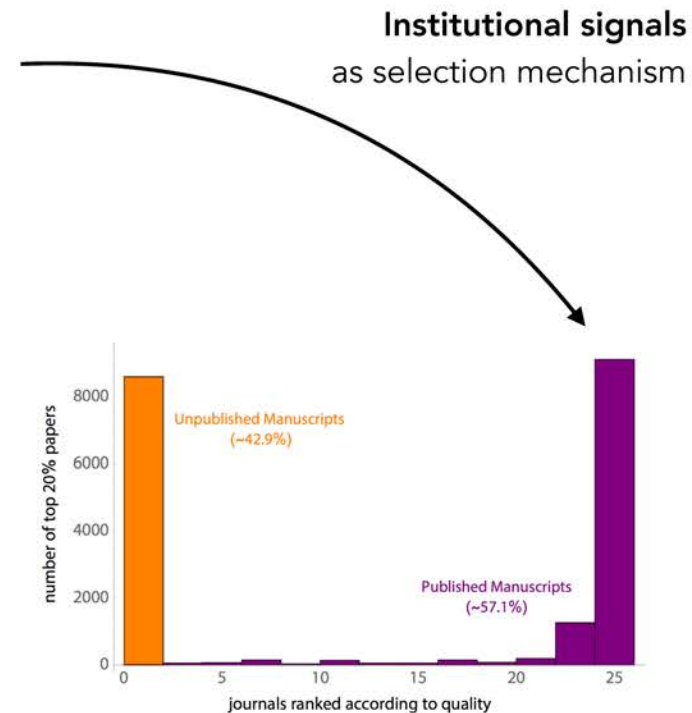
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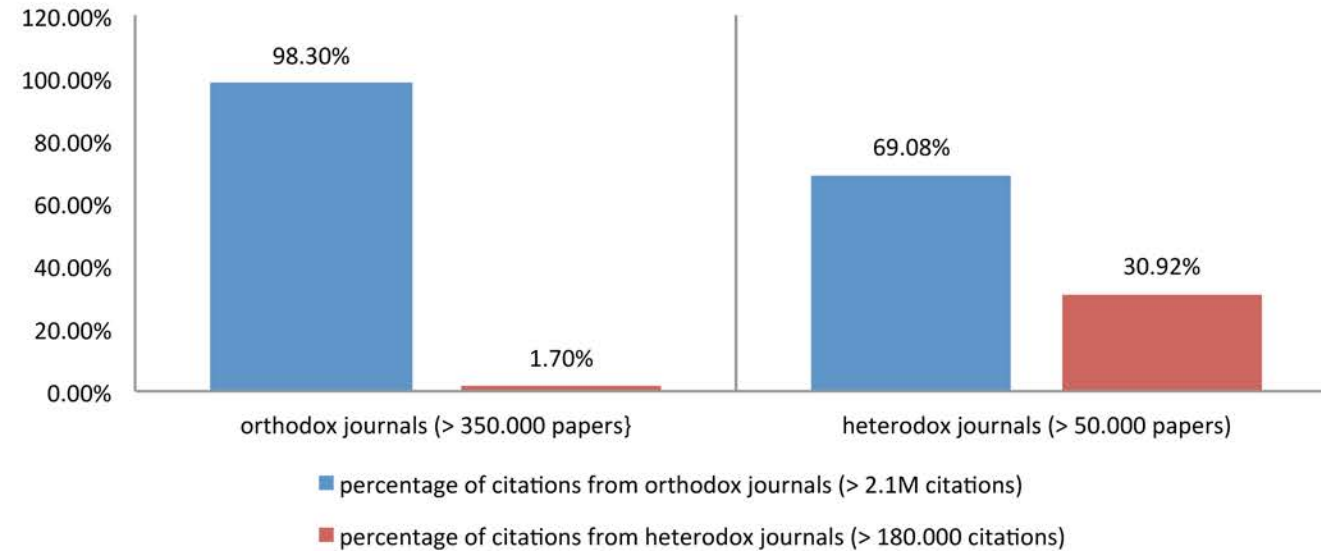
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Signaling membership

Diversity and interparadigmatic competition: A large-scale sample

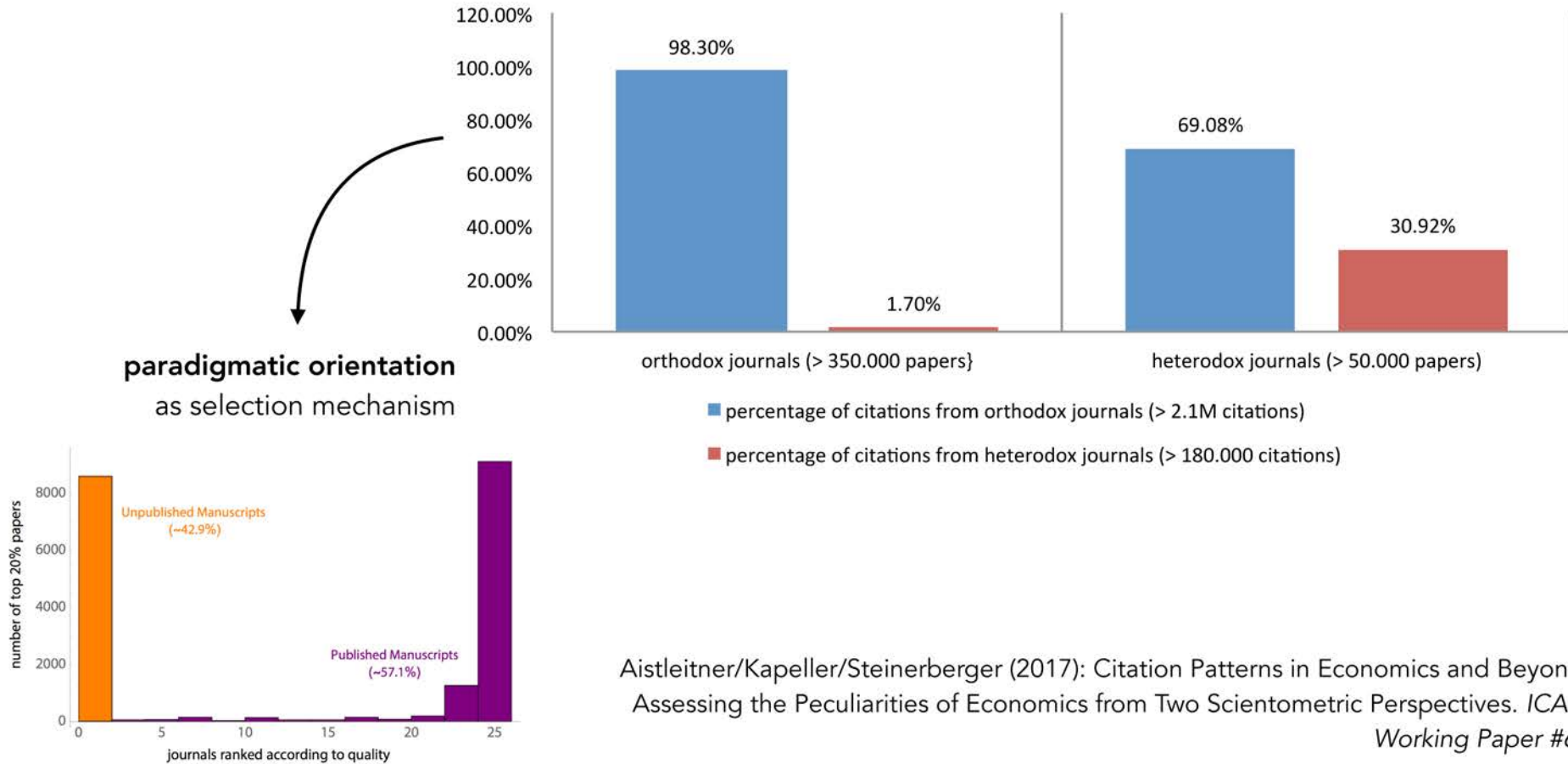
**Interparadigmatic Discourse in Economics (1969-2013):
Analyzing a large-scale sample**



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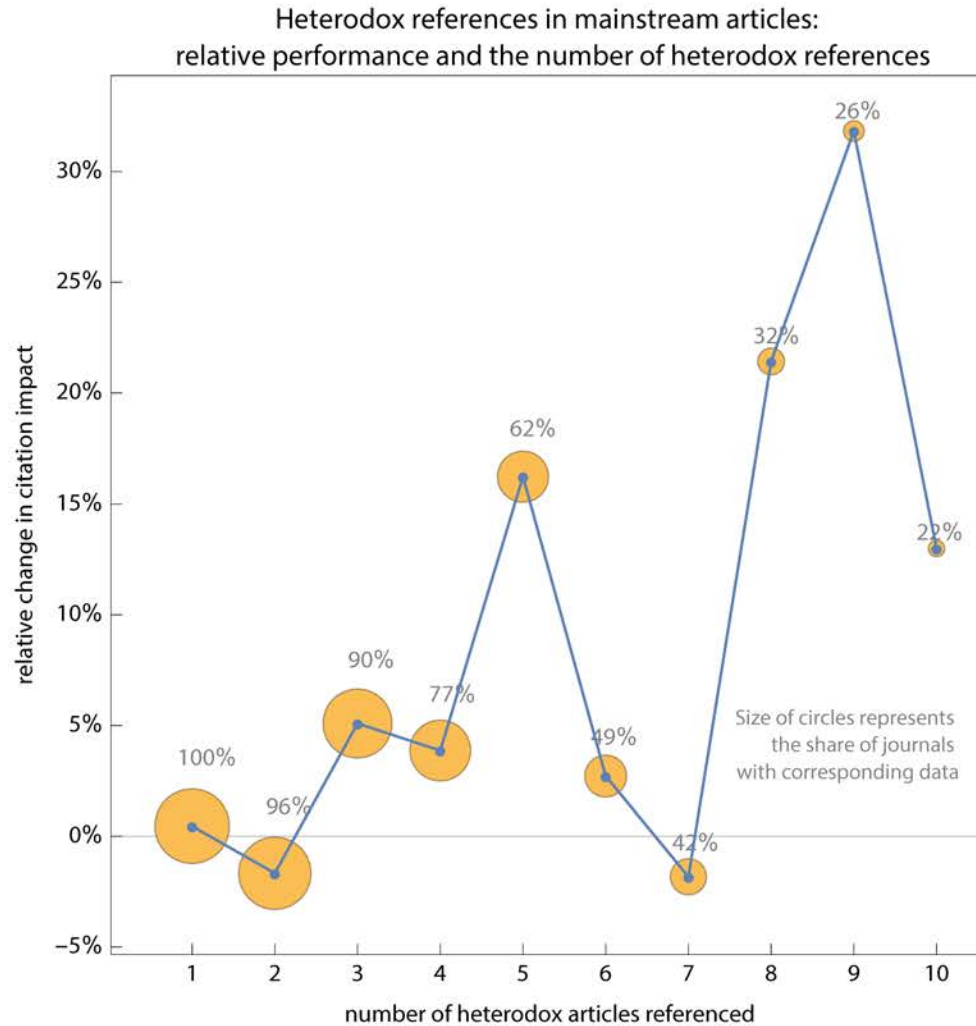
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The neglect of heterodoxy: Prejudice or bad research?

Conditional impact of heterodox references in mainstream papers



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Wrap-Up

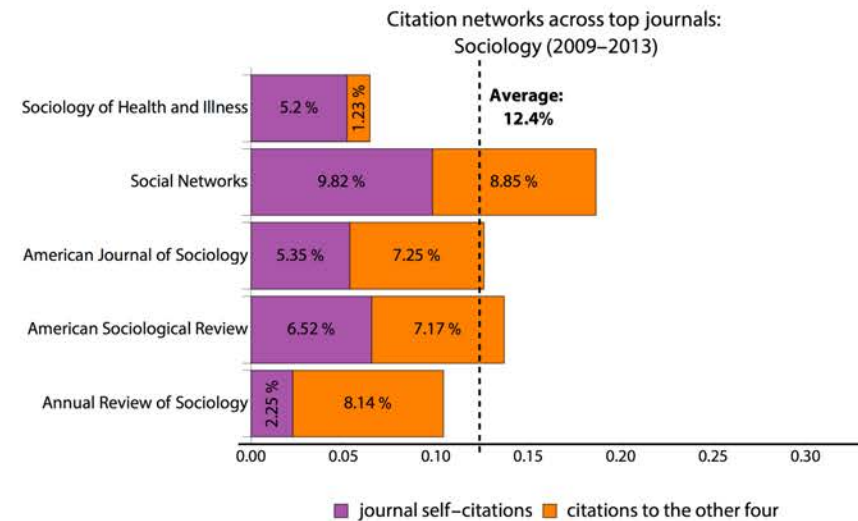
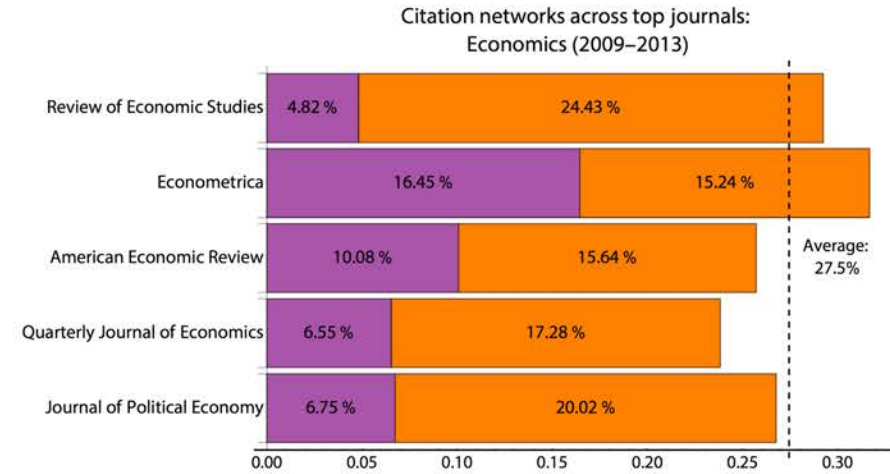
- Two views on research quality & citation-data: **quality vs. social structures**
- Selecting papers purely on merits?
 - Does not work out; even in a very ideal setting.
 - Model shows some **perverse effects** - at least one seems rather important: **many high-quality contributions are ignored.**
- **Ignorance regarding high-quality contributions is not random!**
 - Signaling of social capital, origin, competence and membership
 - Signaling can be at odds with true quality

Backup

Signaling competence

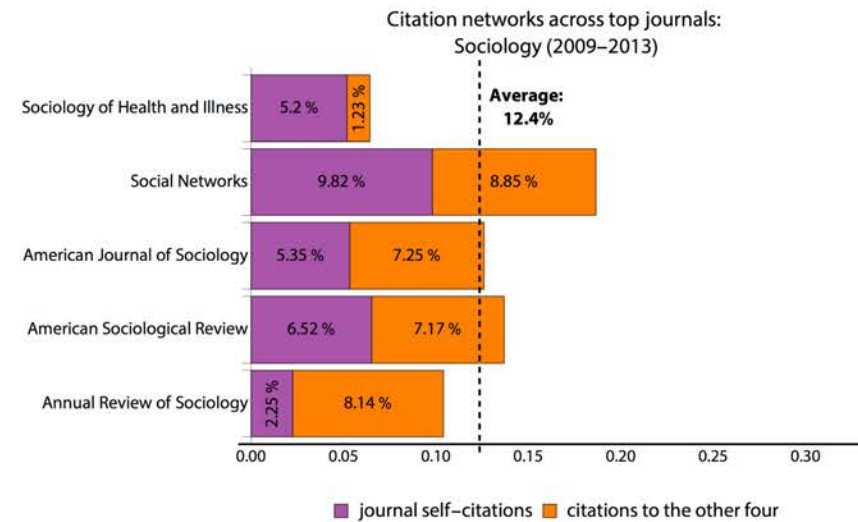
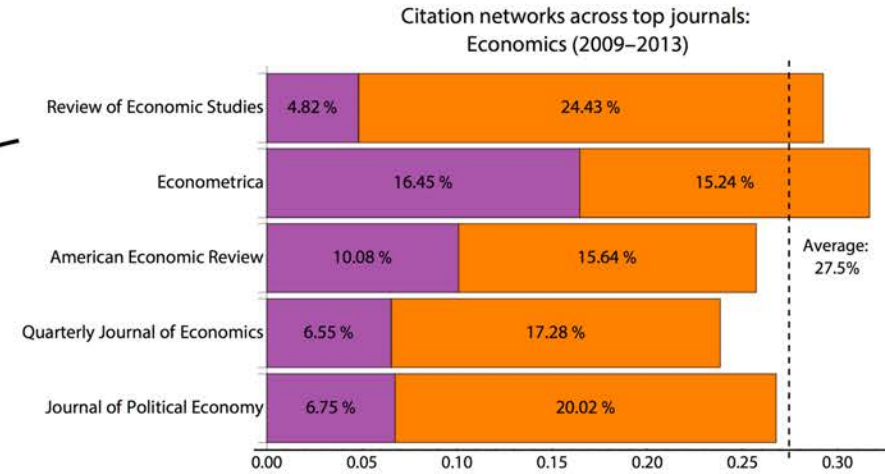
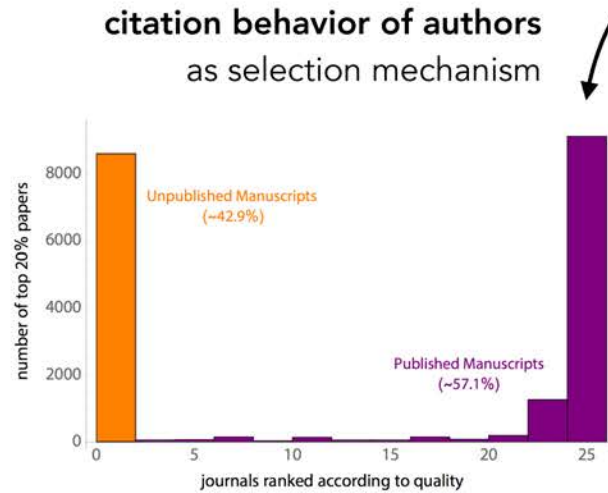
Reputational stratification and signals of competence

- Citations to the top 5 as a „signal of competence“?



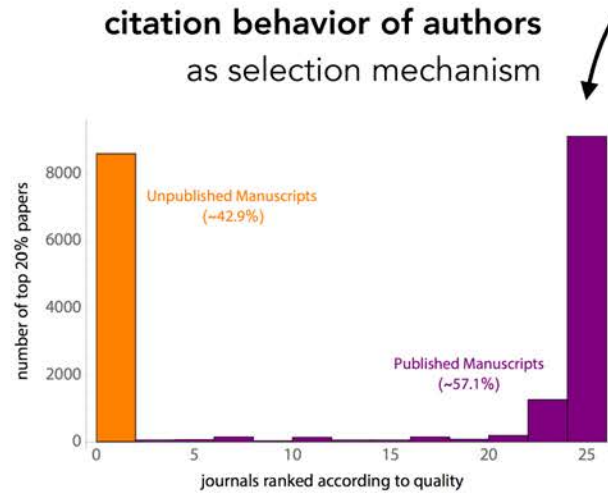
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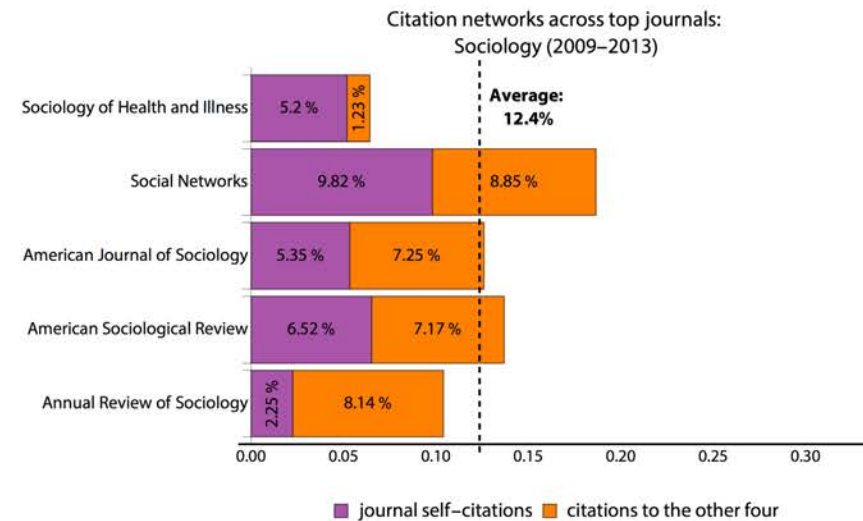
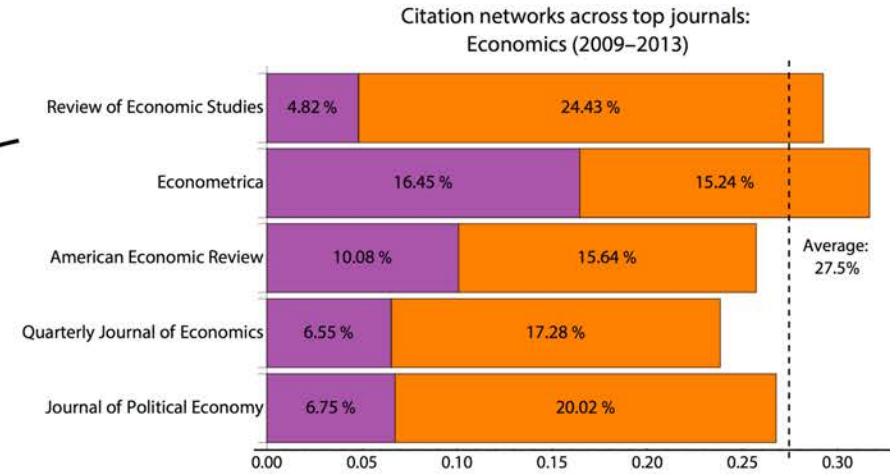


Reputational stratification and signals of competence

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- Signaling competence by referring to the top 5 should work **across the whole discipline.**

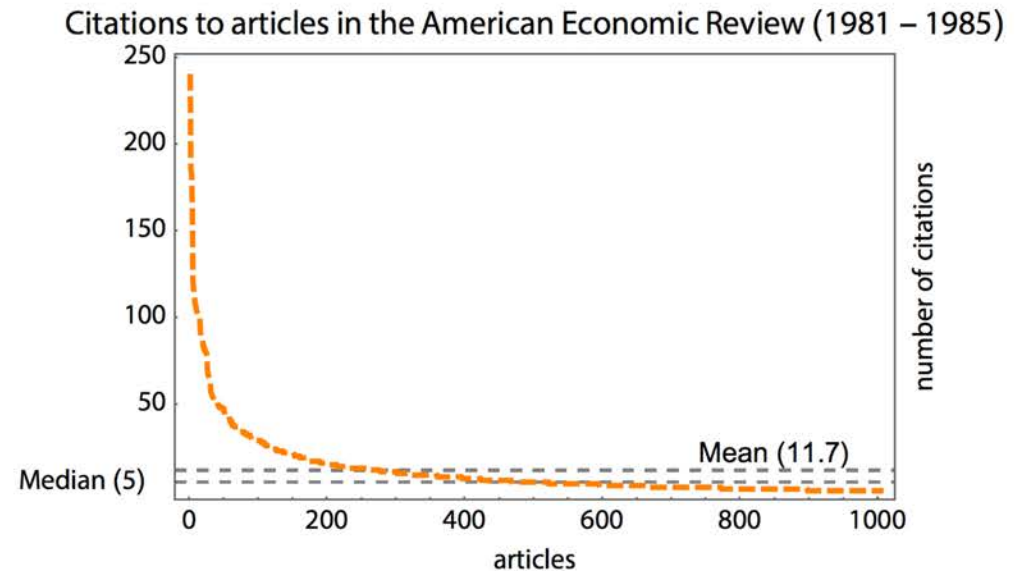


Signaling competence as reactivity

- **Signaling competence tied to the introduction of journal rankings**
 - Both factors **redistribute prestige and attention** from single *authors* and *contributions* to *journals*.
 - As a consequence self-reinforcing effects related to attention in academia (Merton's „*Matthew Effects*“), should affect journals more strongly
 - **Which change in citation patterns do we expect?**

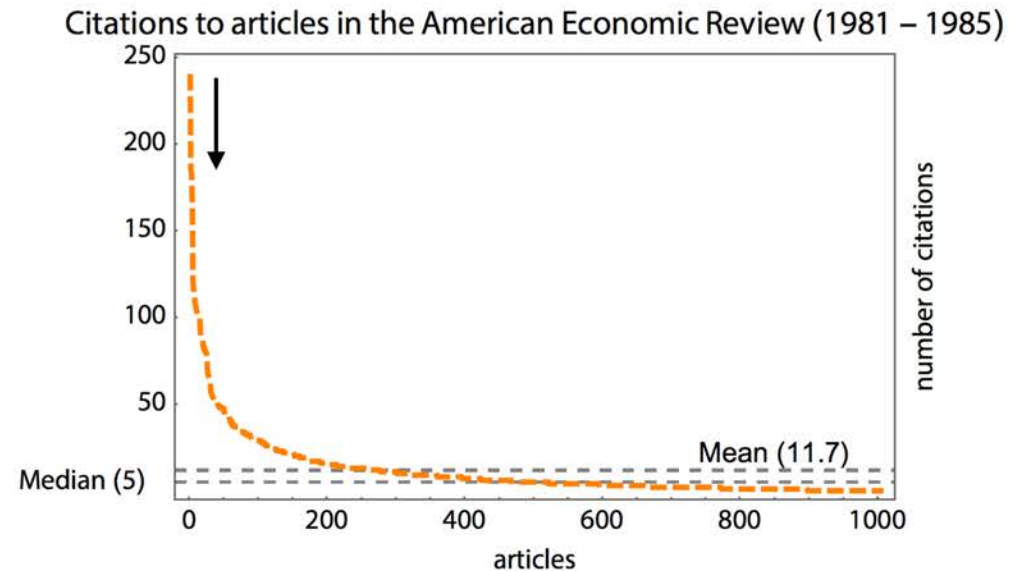
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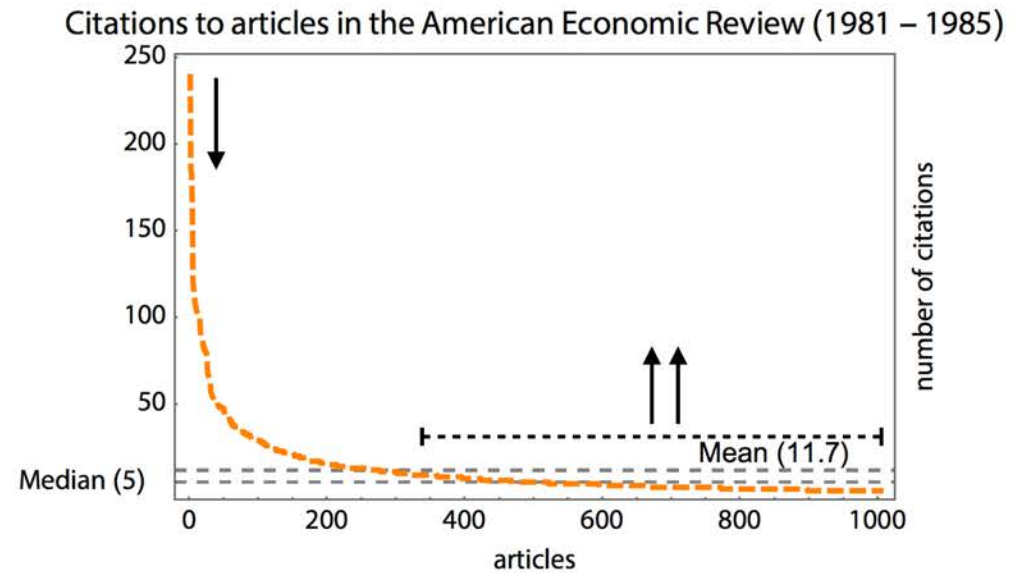
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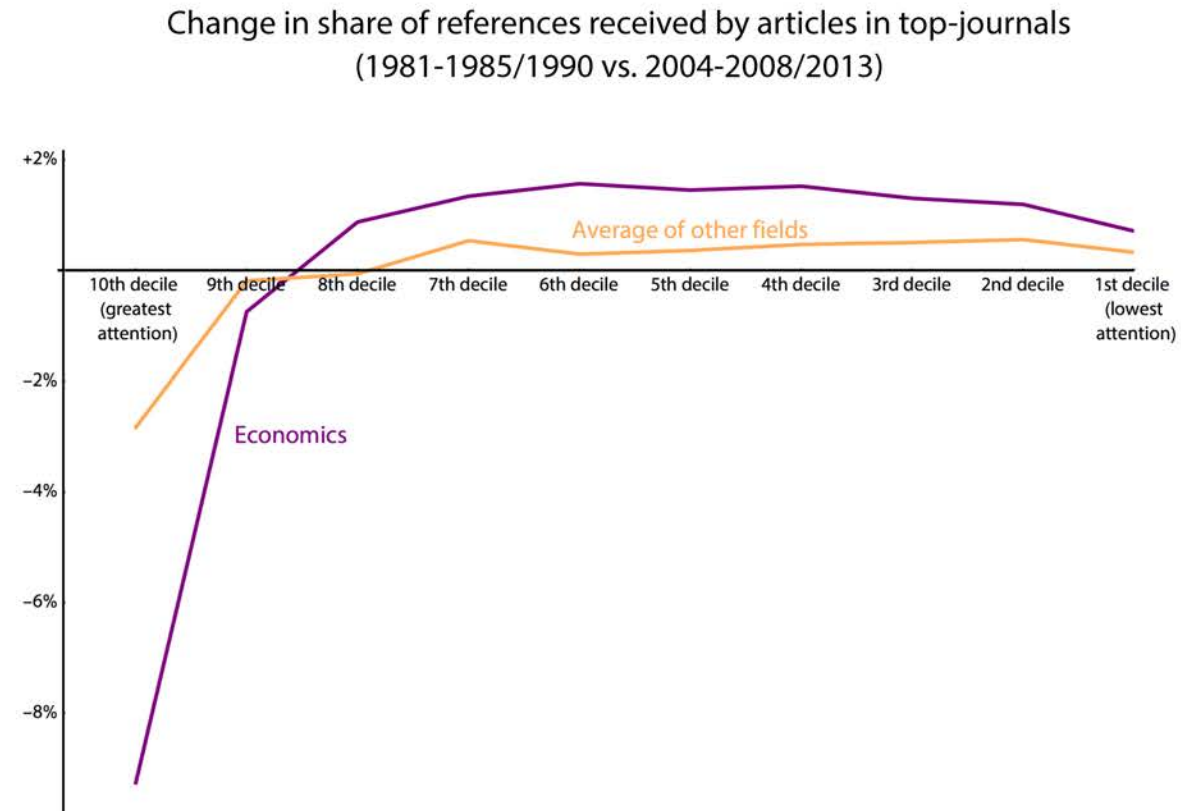
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Signaling competence as reactivity in numbers

- Change in citation patterns within the articles published in top-journals
 - **Economics vs. the average of other fields** (political science, psychology, sociology and physics; five top-journals per field)
 - **Basic idea:** Measuring the intensity of „signaling competence“ and „reactivity to rankings“.



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