

Female researchers are more read and less cited because they more often engage in research for societal progress

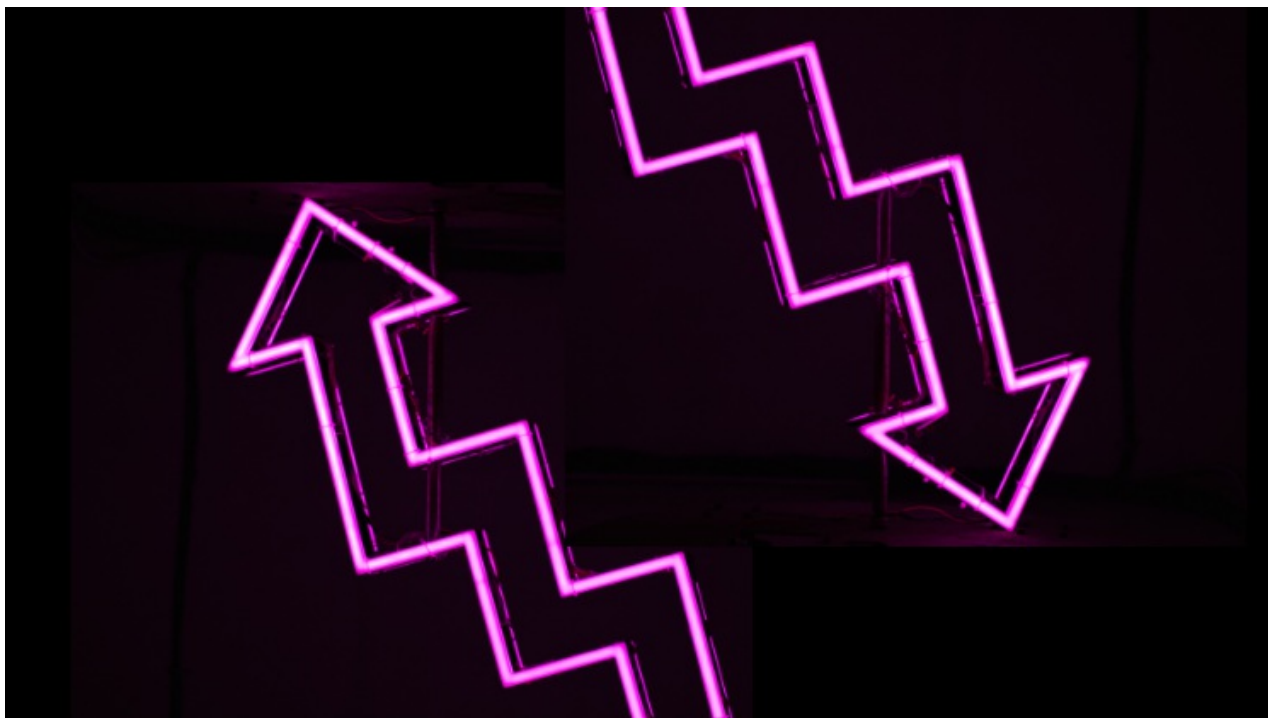
*The gender gap in citations between male and female researchers is well documented. However, the reasons for this gap are less certain and widely contested. Discussing findings from a mixed methods analysis of research publications from Norway, **Lin Zhang** and **Gunnar Sivertsen** find that whilst papers authored by female researchers are less cited, they are more frequently engaged with by readers. Through closer analysis of the abstracts of these papers, they argue that these papers more often involve projects aimed at societal progress, which overall are less valued by academics and receive fewer citations.*

This research project started with an observation that demanded an [explanation](#). After measuring the citation impact of almost 27,000 scientific publications with female and male 1st authors among almost 12,000 researchers at Norway's four major universities, we found a clear gender gap in citation (Norway was chosen because it has a national database with reliable information about the gender, age, positions, affiliations, and publications of all researchers). That [publications by female researchers are less cited](#) was in itself not surprising, as this has been widely observed and discussed. However, with the addition of an alternative indicator of impact, abstract views, we found something more surprising, publications by female academics attracted more interest from readers, yet still they remained less cited.

An obvious possible explanation for this phenomenon was disciplinary, might female researchers favour fields of research that were more socially oriented and accessible to larger audiences, for instance nursing research over mathematics? This explanation was not helpful. We found the same gender difference *within* almost all fields of research. The publications by female 1st authors had attracted less citations and more readers. Why?

After reading one hundred abstracts from the publications in our data, randomly selected from the whole spectrum of disciplines, we arrived at a hypothesis: Male researchers more often engage in research aimed at scientific progress, while female researchers more often engage in research that alongside scientific progress aims at societal progress.

Normally in our field of research, quantitative science studies, we would have used automatic methods for content classification in large sets of publications, but the aims of research are not easy to identify using topical words, shared references, or standard phrases. However, the *genre* of the abstract requires that the aims of research are made explicit, most often at the beginning or at the end.



We selected almost 1,200 abstracts from our data of publications that were either very highly cited, frequently viewed as abstracts, or both. Around one third was in each of the three categories. Then, we read all the selected abstracts, independently and blinded from the previous analysis. We categorised the publications as mainly aimed at scientific progress, mainly aimed at societal progress, or both. Then we compared with the previous results: Publications classified as aimed at societal progress were clearly among those with most interest among readers, and they more frequently had female 1st authors. Publications classified as aimed at scientific progress were more frequently among the highly cited ones and among those with male 1st authors.

Again, our results partly confirmed observations since the seventies: [Basic research is more cited than applied research](#). However, rather than basic/applied, we prefer the distinction between scientific and societal progress, because, it is easier to apply when reading abstracts from all fields of research to find specific expressions of aims within the wide definition of impact in the REF: “[an effect on, change or benefit to the economy, society, culture, public policy or services, health, the environment or quality of life, beyond academia](#).”

What was not known before, is that citation impact versus interest among readers is related to the aims of research, and that there is a gender difference here. We were still curious to understand why female and male researchers to some degree prioritise different aims of research. Is it about values and motivations?

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To answer this question, we could use the results from a [survey](#) that was conducted in 2017-2018 among researchers in cardiology, economics, and physics in five European countries: Denmark, the Netherlands, Norway, Sweden, and the United Kingdom. We collected more than two and a half thousand responses to questions about their research. One question was about motivations for engaging in research and another about what kind of research they considered the best. The answers to both questions clearly indicated that scientific progress is highly valued among all researchers, male and female. However, we found clear indications that female researchers are more motivated than male researchers to also engage in research aimed at societal progress. In addition, female researchers more often rated contributing to societal progress as a characteristic of the best research. This points towards our conclusion:

- *Male researchers more often value and engage in research mainly aimed at scientific progress. They are more cited within the scientific literature.*

- *Female researchers more often value and engage in research that also aims at societal progress. They gain more interest among readers.*

Neither of these points exclude other possible explanations for the same differences. Our concern now is that our findings have implications for evaluation, funding policies and practices within research systems. A critical discussion of how societal engagement versus citation impact is valued, and how funding criteria reflect gender differences, is warranted.

*This blog post is based on the authors' article, [Gender differences in the aims and impacts of research](#), published in *Scientometrics*.*

Note: This article gives the views of the author, and not the position of the LSE Impact Blog, nor of the London School of Economics. Please review our [comments policy](#) if you have any concerns on posting a comment below.

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