Is a Credibility Crisis on the Horizon for Agricultural Economics?



Median measure of statistical power in recent empirical agricultural economics studies



Statistical power is the likelihood that a research study will detect an effect of one variable on another outcome. In a survey, agricultural economists predicted the median power would be 66%. The conventional target for statistical power in research is 80%.

LIMITED STATISTICAL POWER

94%

Agricultural economists who reported engaging in one or more research practices that can result in misleading conclusions



QUESTIONABLE PRACTICES



This study assessed the prevalence of research practices that could be symptoms of a looming credibility crisis in agricultural economics by examining 289 recent studies (2018 -2020) from four top journals in the field.



Agricultural Economics

American Economic Review

American Journal of Agricultural Economics

Food Policy

THIS STUDY



Estimated proportion of effects reported in agricultural economics studies that are exaggerated by a factor of two or more



limited statistical power detect an effect, the magnitude tends to be exaggerated. Publication bias favors reporting of these exaggerated results.





Analysis of recent agricultural economics studies shows an unusual dip in the distribution of test statistics around the conventional threshold for significance. This pattern is consistent with selective reporting of only statistically significant effects.

UNUSAL DISTRIBUTION OF TEST STATISTICS

These findings, which are not unique to this field, might reduce confidence in research, but the authors do not believe we are in a crisis



yet. Rather, the findings highlight how norms and incentives might skew researchers' behaviors. To avert a credibility crisis, the authors suggest some remedies:

Emphasize research designs and questions, not results.

Encourage pre-registration of studies. Reward replication and reporting of

imperfect, small, null, and "messy" results.

Raise awareness about the ethics of statistical research practices.

CAN WE AVERT A CRISIS?

Want to learn more?

Ferraro, Paul J., Pallavi Shukla. 2022. Credibility Crisis in Agricultural Economics. *Applied Economic Perspectives & Policy.*

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