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Seventh Framework Programme (FP7)

FP7 NEWSROOM

How pressure to publish impacts research quality

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New EU-funded research shows that the ever-growing pressure to produce publishable results can adversely impact the quality of scientific research. Support for the work came from the OBJECTIVE SCIENCE ('Quantifying objectivity in the natural and social sciences') project, which received more than EUR 161,000 under the People Specific Programme of the Seventh Framework Programme (FP7) to assess the level of bias in the natural and social sciences. The research findings are published in the Public Library of Science (PLoS) ONE journal.



Researchers worldwide produce more than 1.4 million scientific articles each year. By investigating over 1,300 papers from disciplines ranging from physics to sociology that declared to have tested a hypothesis, Dr Daniele Fanelli of the University of Edinburgh in the UK found that researchers report more 'positive' results for their experiments if they are based in US states where academics publish more frequently.

'Scientists face an increasing conflict of interest, torn between the need to be accurate and objective and the need to keep their careers alive,' explained Dr Fanelli, who was awarded a Marie Curie Intra-European Fellowship with the objective of quantifying the objectivity in the natural and social sciences. 'While many studies have shown the deleterious effects of financial conflicts of interests in biomedical research, no one has looked at this much broader conflict, which might affect fields.'

Dr Fanelli used data from the US-based National Science Foundation (NSF) to verify whether the papers' conclusions were in any way connected to the productivity of US states, measured by the average number of papers published by each academic.

He found that authors working in more 'productive' states were more inclined to support the tested hypothesis regardless of their research domain and whether or not funding was allocated to them. Dr Fanelli's research findings also hint that academics who carry out research in more competitive and productive environments are more likely to make their results look more 'positive'.

'The outcome of an experiment depends on many factors, but the productivity of the US state of the researchers should not, in theory, be one of them,' Dr Fanelli said. 'We cannot exclude that researchers in the more productive states are smarter and better equipped, and thus more successful, but this is unlikely to fully explain the marked trend observed in this study.'

Dr Fanelli found that positive results were less than 50% of the total in the US states of Nevada, North Dakota and Mississippi. The US states that had between 95% and 100% positive results included Michigan, Ohio and Nebraska, as well as the District of Columbia.

The conclusions of the study could be applied to all scientifically advanced countries. 'Academic competition for funding and positions is increasing everywhere,' Dr Fanelli said. 'Policies that rely too much on cold measures of productivity might be lowering the quality of science itself.'

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