



SCIENTIFIC INTEGRITY

Survey fraud test sparks battle

Pew Research Center challenges statistical test

By John Bohannon

With grants from charitable donations, the Pew Research Center funds dozens of surveys a year, on everything from Americans' views about science and religion to what people in African countries see as national priorities and problems. So it's not surprising that Pew wouldn't take kindly to the suggestion that some, perhaps more than a quarter, of its international surveys are marred by data fabrication. Indeed, the organization is vigorously challenging that claim—from two former Pew researchers.

At a meeting on survey data fabrication in Washington, D.C., last week, the pair, Michael Robbins and Noble Kuriakose, presented an update on a newly developed statistical test that has been roiling the survey research community for the past year. When they apply the test to more than 1000 public data sets from international surveys, about one in five of the surveys fail, indicating a high likelihood of fabricated data. At the meeting, they debuted an analysis focusing on 309 of Pew's international studies that found a failure rate of 30%.

"Robbins and Kuriakose have uncovered a massive problem," says Michael Spagat, an economist at Royal Holloway, University of London, who has investigated high-profile cases of possible survey data fabrication in war zones. But Pew officials dismiss the test, saying it is prone to false

positives. The organization has gone so far as to request Robbins and Kuriakose desist from publishing their original analysis, which is now in press. Pew's actions are "pretty disappointing," says Kuriakose, now a research scientist at SurveyMonkey in Palo Alto, California. "This problem isn't going to just go away."

Robbins and Kuriakose originally met at Pew, which is based Washington, D.C. "Michael was doing methodology work on Pew's international surveys and we connected about data quality," Kuriakose says. Surveying communities in the developing world often requires face-to-face interviews, done house-by-house in dangerous environments. To avoid risk or save time, Robbins says, interviewers sometimes resort to "curbstoning": sitting on the curb and inventing survey responses, often by duplicating answers.

To detect such fabrication, their test looks for highly similar responses from multiple respondents. How similar is too similar? After running a simulation of data fabrication scenarios, they settled on 85% as the cutoff. In a 100-question survey of 100 people, for example, fewer than five people would be expected to have identical answers on 85 of the questions if the data are genuine. The 85% rule isn't appropriate for all kinds of surveys, the pair acknowledges—some types tend to produce more uniform answers. But for the large-scale opinion surveys typically carried out in the developing world "this is

Surveys, like this one collecting family information in Guatemala, may often be marred by fabricated data, a new statistical test suggests.

exactly the appropriate method for detecting fabrication," Kuriakose says.

After he left Pew, Robbins became director of Arab Barometer, which surveys opinion across the Arab world. He tested data from that project and found signs of fabrication, which subsequent investigation confirmed. Wondering about the scale of the problem, Robbins and Kuriakose refined their test and applied it to 1008 international surveys, including many from Pew, though they only reported the aggregate results. Their test flagged 17% as likely to contain a significant portion of fabricated data—and the figure shot up to 26% for surveys done in the developing world.

"We found out about this study and were very alarmed," says Courtney Kennedy, director of survey research for Pew. She and her colleagues used the same test on Pew's surveys and found that a "certain share" failed by Robbins and Kuriakose's standards, Kennedy says, but follow-up investigation left the organization convinced only a "handful" were suspicious.

Late last year, after the pair submitted a paper on their method and findings to the peer-reviewed *Statistical Journal of the LAOS*, one of the field's leading publications, they received an email from Kennedy and other top officials at Pew. "We strongly suggest that you retract the paper," the email stated, "as we believe the analysis is severely underspecified and will give both survey vendors and contractors a false metric for identifying fraud." Kennedy calls the letter "appropriate" because "our organization's reputation is on the line. You can't make cavalier claims like that."

Kuriakose and Robbins did not withdraw their paper. It was accepted in December 2015 and is in press, and at last week's meeting they lobbed a second bombshell: their analysis of Pew surveys. Kennedy responded with an attack on the test's methodology. For example, she points out, it does not account for the number of questions on a survey, the number of respondents, or other factors that can skew the results. (Pew has posted its analysis online.)

Before the meeting, co-organizer Steven Koczela, president of the MassINC Polling Group in Boston and a previous survey research leader for the U.S. State Department told *Science* that the case laid out by Kuriakose and Robbins "seems unassailable." Now that both sides have hashed it out publicly, the community is digging into the issue, he says. "I am encouraged by the sense of momentum and common purpose." ■

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