

Virginia Tech adjunct and colleagues refute a study on 'racial bias' report in NIH awards

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In a recent [article](#) in the *Chronicle of Higher Education*, the National Institutes of Health (NIH) announced it was considering anonymity in the review of grant applications.

Ge Wang, adjunct professor of biomedical engineering at the Virginia Tech – Wake Forest University School of Biomedical Engineering and Sciences, and seven of his colleagues do not believe this action is necessary if taken to counteract a charge of "racial bias."

For Wang, their study was based on the most recent controversy that began with a report, "[Race, ethnicity, and NIH research awards](#)," that appeared in the Aug. 19, 2011 issue of *Science*. In this paper published by D. K. Ginther of the University of Kansas as the primary author, the economist stated that Asians were four percentage points and black or African American applicants 13 percentage points "less likely to receive NIH investigator-initiated research funding compared to whites."

The paper further stated that "after controlling for the applicant's educational background, country of origin, training, previous research awards, publication record, and employer characteristics, we find that black applicants remain 10 percentage points less likely than whites to be awarded NIH research funding."

Wang's follow-up study, that appeared Jan. 31 in the on line version of the *Journal of Informatics*, is based on some high level mathematical equations, using an axiomatic approach and paired statistical analysis.

Wang and his co-authors began their study using axioms – starting points of reasoning in mathematics to address a lack of rigor in academic assessment regarding the individual contributions of co-authors. Almost all academic papers nowadays have more than one author, yet in the biomedical world "quite commonly, the first author and the corresponding author are considered the most prominent," said Wang and his co-authors in this new study, titled, "A bibliometric analysis of academic publication and NIH funding."

He and Jiansheng Yang of the School of Mathematical Sciences, Peking University, Beijing, China, devised their own mathematical axioms to define "a rigorous solution for academic credit sharing," and created mathematical formulas to individualize scientific productivity measures.

Next, Wang, Yang, Michael W. Vannier of the University of Chicago's Department of Radiology, James Bennett, one of Wang's graduate students, Fang Wang, Yan Deng, Fengrong Ou, and Yang Liu, all of the School of Public Health at the China Medical University, Shenyang, China, targeted for their study the top 92 American medical schools ranked in the 2011 *U.S. News and World Report*. Wang and Liu are the corresponding authors of this study.

Using this ranking, they gathered data from Sept. 1 to Sept. 5, 2011 on black and white faculty members in departments of internal medicine, surgery, and basic sciences from a subset of 31 schools. Further, they categorized the schools into three tiers, according to their ranking among the 92 schools. They found 130 black faculty members, and then selected 40 of them randomly. Then, they paired the 40 black faculty with 80 white faculty peers, yielding 120 samples in their initial pool. The pairing criteria included the same gender, degree, title, specialty, and university.

"The ratio of 1:2 was chosen to represent white faculty members better

since the number of white faculty members is much more than that of black faculty members," Wang said.

Next they collected data sets for the two pools of faculty members based on such statistics as co-authorship of papers, journal impact factors, and citations to their papers, and evaluated scientific productivity.

Initial data were consistent with that obtained by Ginther and her colleagues in the paper in *Science*. Interestingly, when the "total grant amounts and the number of funded projects were racial-group-wise normalized" based on the individual scientific publication measures, "the NIH review process does not appear biased against black faculty members," Wang and his co-authors asserted.

"When the totals and numbers were normalized by the productivity measure in terms of the journals' reputations index, the ratios between black and white [faculty members](#) neared parity," Wang reiterated.

Wang added that his team's mathematical approach, outlined in their journal paper, can be applied beyond the study presented and used for additional academic evaluation in the teamwork context. Wang is now a chaired professor of engineering at Rensselaer Polytechnic Institute.

According to the article in the *Chronicle of Higher Education*, the NIH had an advisory committee perform an analysis of its grant-making processes. One result was the consideration of a pilot program that would force reviewers to evaluate grant applications without knowing who submitted them as one way to eliminate any perception of bias in its grant-making process.

Provided by Virginia Tech

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