



Online-Only Feature: Innovative Faculty Research

By John Barnshaw

The 2015–16 *Annual Report on the Economic Status of the Profession* highlighted the work of several faculty members who attribute their willingness to undertake “risky,” innovative research to the security provided by the tenure system. Following are brief sketches of other tenured and tenure-track faculty members whose accomplishments in research demonstrate the economic value of tenure.

Hadiyah-Nicole Green (Physics), Tuskegee University. Hadiyah-Nicole Green, who is only the seventy-sixth African American woman to earn a doctorate in physics in the United States, became interested in cancer research after losing close family members to the disease. Recently, she earned a \$1.1 million grant from the Department of Veterans Affairs to study laser-based cancer therapy and develop biomarker-specific platforms to target, image, and treat malignant tumors, including head and neck and prostate cancers.

Green is as accomplished outside of her field as she is in it, having organized more than one hundred community service initiatives in an effort to reach young students further down the educational pipeline. When she speaks with students, she often asks them why, when they hear the word *professor*, they think of Albert Einstein but not anyone who looks like her. She tells them, “If I can do this, you can do this.”

Gregory Hancock (Human Development and Quantitative Methodology), University of Maryland–College Park. Gregory Hancock is a leading expert in a type of statistical research known as structural equation modeling, which has great value for fields ranging from medicine to education. Since earning tenure, Hancock says, he has had the freedom to study complex

phenomena in depth, and this understanding directly influences how he mentors students. He regularly attracts students who are interested in taking directed individual studies with him.

Hancock reports that he is quick to recognize potential in graduate students and that he is willing to work with them on projects that will pay off not in the short term but over a career. For one recent project, he studied Bayes nets, a type of statistical modeling rarely used in educational research. After reading extensively on the topic and speaking with economists and other researchers, he was able to create a bridge to his own field. "If I hadn't taken the time to speak their language, we could have an office next to each other and never marry the ideas together," he says. And if Hancock had been on a recurring contractual appointment that expired after one year, it is unlikely that he would have had the opportunity to mentor students as intensively or to build bridges to other research areas.

The tenure system has enabled Hancock and countless other researchers like him to study student learning processes over a period of years rather than months. As Hancock states, "If we are studying something like letter-sound pairings, how you learn the // sound (as in 'llama'), one could teach it one week, test it the next, but that does not guarantee that a student would remember it one month, or one year, or two years from now. . . . From learning to literacy, those basic skills . . . important for reading and comprehension, which matter five and ten years later." Similarly, when children learn mathematical operations, those skills are built one month, one year, three years, and even five years later, as "they form the basis of algebra (which, in turn, forms the basis of much more complex mathematics in a variety of fields)." "Following kids for one month doesn't get at the reason you are teaching them those skills," he says. "Following individuals and tracking them five to ten years out is something that can only be done once you have the type of security tenure provides."

Marc Lipsitch (Epidemiology), Harvard University. Lipsitch's scholarly interests focus on evolutionary biology and, specifically, the DNA sequence of bacteria. His research has led to a better understanding of drug resistance. As Lipsitch explains, "a test might work now, but it might not work a few years in the future, or in a hundred years due to resistant strains." His findings have tremendous implications for antibiotic research and may help in the fight against

diseases such as streptococcus pneumoniae, influenza, and hospital-acquired infections. In addition to being renowned for his research, Lipsitch is a popular teacher and mentor who uses the “privilege of tenure” to advocate for academic freedom.

Tiffany Field (Pediatrics, Psychology, and Psychiatry), University of Miami. Tiffany Field met Saul Schanberg at a National Institutes of Health study section, where she learned of his work on how touch can stimulate growth hormones in laboratory rats and thought it might have some practical value for her own research on neonatal intensive care. Field’s intent was to see what effect, if any, touch could have on stimulating growth hormones for children in neonatal intensive-care units; her research has resulted in nationwide annual health-care savings of \$4.7 billion. She reports that infant massage therapy is now used in nearly 40 percent of US neonatal intensive-care units.

Marc Edwards (Civil Engineering), Virginia Polytechnic Institute and State University. In 2003, Edwards discovered that high levels of lead were present in the Washington, DC, water supply. In 2015, he found even higher levels of lead in the water in Flint, Michigan, and, despite reassurances by state and local authorities to the contrary, his findings were again confirmed. Edwards set up a website, www.flintwaterstudy.org, to share his findings with the public and hold the government accountable. “I didn’t get in this field to stand by and let science be used to poison little kids,” he told the *Washington Post*. “I can’t live in a world where that happens. I won’t live in that world.”