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Poverty's Researcher

MacArthur Foundation "genius" Esther Duflo, PhD '99, field-tests aid programs to find out which ones work-and why.

By Peter Dizikes

A few years ago, economist Esther Duflo, PhD '99, found a problem that threatened to stump her. In the rural villages of Udaipur, a district in northern India with one of the worst child mortality rates in the world, parents were spurning health clinics' offer of free immunizations against deadly diseases such as measles and tuberculosis. Only 2 percent of local children were being immunized by age two.

Duflo, MIT's Abdul Latif Jameel Professor of Poverty Alleviation and Development Economics, specializes in finding unorthodox ways to help the world's poor. So she concocted an experiment with MIT-based collaborators Abhijit Banerjee and Rachel Glennerster, along with officials from Seva Mandir, a local nongovernmental organization. In some villages, they offered parents about two pounds of free lentils when they brought their children in for shots. Before long, families started streaming into these clinics. About four in 10 children got immunized where free lentils were available.

According to mainstream economic thinking, the success of the lentil giveaway made no sense. The shots were already free. The lentils, a cheap staple of the Indian diet, added little value. "The standard theory of human capital accumulation cannot explain why you go from a few percent to 38 percent," says Duflo. "The fact that there is huge responsiveness to such a small thing is contrary to theory."

But that is precisely why she likes to perform experiments. Duflo, 37, a native of France, has gained renown for using the world as a laboratory to see why aid programs succeed or fail. In so doing, she has not just tweaked conventional wisdom but helped revitalize global antipoverty efforts. For these efforts, she was given a 2009 MacArthur Foundation "genius" award in September.

Duflo's field needed rejuvenation. For decades, governments and aid groups have sunk hundreds of billions of dollars into programs intended to improve global welfare, while economists have toiled to identify a formula that would put poor nations on a path to economic self-sufficiency. But the impact of many aid programs remains hard to measure and subject to intense debate, even as the need grows: from 1970 through

2000, the billion people in the world's poorest countries got slightly poorer, while the rest of the global population realized annual gains in wealth between 2 and 5 percent in each decade.

Duflo, Banerjee, and their collaborators do not focus on sweeping theories. Instead, they run rigorous field experiments to find single factors that make aid programs work--factors like the lentils in Udaipur. In Kenya, Duflo and colleagues got farmers to use more fertilizer by providing free delivery right after harvest. In India, she figured out how to improve instructor attendance in rural one-teacher schools; when teachers' salaries were tied to their attendance, monitored by having them take time- and date-stamped photos of themselves, the absence rate fell by half, improving student performance significantly.

Not all these experiments work so decisively. But when they do, Duflo aims to expand their scope. In 2003, she, Banerjee, and Sendhil Mullainathan (now at Harvard) cofounded MIT's Abdul Latif Jameel Poverty Action Lab (J-PAL), of which Duflo is a director, to fund and popularize successful fieldwork. After J-PAL-affiliated researchers Michael Kremer, an economist at Harvard, and Edward Miguel of the University of California at Berkeley demonstrated that ridding children of intestinal worms is a spectacularly cost-effective way of improving school attendance, the lab worked to publicize the results and promote school-based deworming programs; Duflo, Kremer, and others at J-PAL helped start Deworm the World, a nonprofit organization that provided technical assistance to help the Kenyan government treat 3.6 million children in 2009.

Duflo's achievements have brought her broad acclaim, even apart from the MacArthur award. When David Leonhardt of the New York Times surveyed economists in 2008 to see who was most effectively "using economics to make the world a better place," Duflo, Banerjee, and J-PAL were the "runaway winner." In January 2009, Duflo became the youngest woman ever to give lectures at the exalted Collège de France, in Paris, drawing international media attention. One London newspaper, the*Independent*, called her "the new face of French intellectualism."

In public, Duflo has a preferred sound bite--"There are no magic bullets"--but largely shuns rhetorical flourishes. Audiences may hear more stirring appeals about why we should fight poverty from Bono. But few people have been as innovative about how to fight poverty as Duflo. Her insights are getting a wider hearing: in October, she addressed the United Nations General Assembly, offering a typically pragmatic list of "best buys" among field-tested aid programs for poor countries. (For example, she said, making mosquito netting free, not just cheap, dramatically increases its use as a malaria prevention measure.)

"Esther is motivated by real-world issues," says Harvard's Kremer. "Her work forces us

to confront reality." When asked why she studies poverty, Duflo says simply, "I wanted to do something that was relevant."

In her spartan office overlooking the Charles River, Duflo is affable and a bit droll when talking about her work. But she is largely serious-minded. From the age of seven, she says, she wanted to be a historian, and she studied both history and economics as an undergrad at the École Normale Supérieure, in Paris. But when she began graduate work in history, she felt uncomfortable. "Not enough data points," says Duflo, whose father is a mathematician. In 1995, she landed in MIT's PhD program in economics. "I realized that being an economist was a nice way to be in academia and in the world," she says.

Duflo has never left MIT, and her style of economics owes much to its research culture. One of her PhD advisors, professor and labor economist Joshua Angrist, has long argued that economic studies should mimic randomized lab trials. Banerjee, another professor who was an advisor, had already begun using experiments in development economics, and Duflo gravitated to the field. It wasn't long before it became clear that she could make a mark. "It's what we expected from Esther," says Angrist. "She was a great student, and was self-propelled in a way that was unusual. What was unforeseen was the way J-PAL developed. Esther has turned out to be very entrepreneurial as well as a great scholar."

Duflo, Banerjee, and Mullainathan hoped to encourage field experiments in development economics by founding J-PAL, which is funded by Mohammed Abdul Latif Jameel '78, a Saudi Arabian businessman who named the center for his father. Though the lab is based at MIT, its members are economists worldwide. They receive some funding, and the lab's prestige helps their discoveries gain notice. J-PAL has now completed 180 studies.

The lab has established enough credibility, Duflo says wryly, that conducting unusual experiments to fight poverty "is not just what crazy people do. It's what J-PAL does." She pauses. "Well, we are still the same crazy people. But the existence of J-PAL means it goes from being my thing or Abhijit's thing to our thing, a community of people who are all working in this field this way."

That way of working is highly collaborative. For all her individual honors, Duflo has coauthored papers with nearly 30 colleagues, and she's written more than 20 pieces with Banerjee. "We work in very different ways," says Banerjee. "Esther is extraordinarily fast in implementing the conceptual framework we come up with. I work more slowly, polishing that [material] into something we both like."

The experimental method also requires extensive research. "Esther spends a lot of time speaking with people in the villages, not sitting in the capital city talking to donors,"

says Kremer, who has worked with Duflo and others for years to refine the Kenyan fertilizer experiments. And experiments are vital, Duflo emphasizes, because not all ideas pan out: "If a theory is wrong, you are going to find it."

In turn, some discoveries improve the world, which is what matters most to Duflo. Consider the Udaipur lentil giveaway, which J-PAL now aims to test on a larger scale in India. "This is my favorite project," she allows. "I think it could become the best we've ever done, in terms of saving lives."

Upcoming Events

SXSW Interactive (http://www.sxsw.com/)
Austin, TX
Friday, March 12, 2010 - Tuesday, March 16, 2010
http://www.sxsw.com/ (http://www.sxsw.com/)

FEI 2010 – The Annual Front End of Innovation Conference A New Front End: The Era of Collaboration (http://www.iirusa.com/feiusa/fei-home.xml?registration=FEI2010TECHREV)
Boston, MA
Monday, May 03, 2010 - Wednesday, May 05, 2010
http://www.iirusa.com/feiusa/fei-home.xml?registration=FEI2010TECHREV (http://www.iirusa.com/feiusa/fei-home.xml?registration=FEI2010TECHREV)

2010 IEEE Conference on Innovative Technologies for an Efficient and Reliable Electricity Supply (http://www.ieee-energy.org/)
Waltham, Massachusetts
Sunday, September 27, 2009 - Tuesday, September 28, 2010
http://www.ieee-energy.org/ (http://www.ieee-energy.org/)

MIT Sloan CIO Symposium (http://www.mitcio.com)
MIT Campus, Cambridge, MA
Wednesday, May 19, 2010
http://www.mitcio.com (http://www.mitcio.com)

BIO International Convention (http://convention.bio.org)
Chicago, IL
Monday, May 03, 2010 - Sunday, May 10, 2009
http://convention.bio.org (http://convention.bio.org)