NOAH BERGER

People in Economics

# A Causal Pioneer

Gary Seidman profiles Stanford economist **Guido Imbens**, who is reshaping how researchers establish cause and effect in the real world

**THERE HAVE BEEN A COUPLE OF TIMES** in Guido Imbens' life when he has been seriously underestimated. Once, as a diligent schoolboy in The Netherlands, young Guido was unceremoniously banished for weeks from his first economics class after clashing with a teacher over a textbook. Years later, during a faculty interview at Harvard University, a combative associate professor—who ultimately became Imbens' closest friend and corecipient of the Nobel Prize in Economics—voted against hiring him. "He thought the work I was doing in my thesis was boring," Imbens says. "It was very dry and technical," Joshua Angrist recalls with a chuckle three decades later.

There are some things in life and in economics that you can't fully know. Imbens shared the 2021 Nobel Prize with Angrist, of the Massachusetts Institute of Technology, and labor economist David Card, of the University of California, Berkeley, for transforming how economists understand cause and effect. Imbens and Angrist developed tools to answer life's *What if?* questions, not only to explain what actually occurred but also to use natural experiments to estimate what would have happened if circumstances had been different. Take a basic question: *Does going to college really cause people to earn more money over their careers?* You can't run a perfect experiment by sending the same person down two different life paths—one where they go to college and one where they don't—to see what happens. That's impossible. At the

Imbens' research on causation has significant implications across diverse fields, including economics, health, education, and other domains.

same time, you can't send two people down different life paths solely for the purpose of an experiment; that would be unethical.

So Imbens and his colleagues designed and tested sharper tools to work with real-world data—messy, imperfect, observational data—to estimate outcomes that otherwise can't be directly observed. They pioneered causal inference, which, for example, compares similar people who, by chance or circumstance, make different choices.

For instance, during the Vietnam War, a draft lottery randomly assigned young men draft numbers. Those holding low numbers were more likely to face conscription. Many young men could avoid military service by enrolling in college. The draft lottery thus created a kind of natural experiment, allowing researchers to compare outcomes, such as earnings, between similar individuals—some who served in the military and some who didn't—primarily because of their randomly assigned draft number and its influence on their likelihood of being drafted, rather than solely on personal motivation. Why does that matter? Because correlation isn't enough. If a government wants to expand opportunities and boost incomes, it needs to know whether college really causes higher earnings—not just that they often go together. Today, these methods help policymakers, doctors, businesses, and researchers make better decisions based on real-life evidence.

## Fruitful friendships

The turning point in Imbens' career came in the early 1990s at Harvard, when—despite a rocky start—he struck up a collaboration and lasting friendship with Angrist. Their partnership took shape not in a classroom but in a local laundromat. The two were junior faculty members who often found themselves folding shirts and trading ideas to the hum of tumbling clothes dryers on Saturday mornings. "It's more fun to work with your friends," says Angrist. "I tell my students that you want to pick your collaborators as carefully and thoughtfully as you pick your spouse," he joked to NobelPrize.org. That friendship led to their most influential contribution, the development of the Local Average Treatment Effect (LATE) framework. It offers a rigorous way to estimate how an intervention—like going to college—affects people who experience it only because of some random circumstance, such as winning a scholarship.

Today, LATE is a standard tool for turning messy data into credible insights. Imbens describes it as a way to focus not on everyone, but specifically on the people whose choices are shifted by an outside force—a law, a rule, or a change in circumstance. Policymakers, for example, use it to assess how the availability—by law—of government-paid health insurance at age 65 impacts health care use and to measure the earnings effect of staying in school longer because of compulsory education laws. In industry, Silicon Valley uses it to evaluate new features in tech platforms through randomized rollouts. By focusing on the people whose behavior is nudged by real-world events, LATE has helped move economics from theoretical models to practical, evidence-based policy.

Imbens credits the foundational work of statistician Donald Rubin—another Harvard colleague and friend—with helping shape the way he and Angrist thought about causality. He says the approach built on earlier studies, including Angrist's collaboration with the late Alan Krueger, a pioneering labor economist. Their 1991 paper estimates the causal effect of education on earnings using people's quarter of birth and US school-entry laws. That paper "was very influential" for advancing causal economics, Imbens emphasizes. Those early natural experiments laid the groundwork for the credibility revolution in economics in the 1990s, when researchers began questioning assumptions and insisting on plausible comparisons. They began asking, What would have happened if circumstances had been different? It was an empirical shift that Imbens helped define with new tools and sharper identification strategies.

Card, who shared the Nobel with Imbens and Angrist for his use of natural experiments in labor markets, notes that Imbens occupies a rare middle ground between theory and practice. "I'm more of a practitioner. He's more of a methodology guy. But he's among the methodology people who are most interested in what applied people are doing," Card says. Together, their work helps bridge the gap between what is happening in the world and how we can reliably understand why it's happening. Imbens says, "We wanted to make econometrics useful for empirical people in a way that we thought wasn't quite there yet."

But what Imbens brings to a team is far more than just intellectual firepower, says Rubin. "He's just innately friendly." He has a calm presence and collegiality that defuses tension and brings the focus back to the work, Rubin says. "He has a different sort of approach to life in many ways."

## Curious beginnings

Imbens was born in 1963 in Geldrop, in the southern Netherlands. Though his parents were not academics themselves—and not university graduates when Imbens was young—they nurtured intellectual exploration. "They stimulated that in us," Imbens says. His father gave him and his two siblings math problems to solve for fun. "We enjoyed doing them," Imbens remembers. It sparked his curiosity and love of logical thinking, skills that would shape his approach to economics years later. "So both my siblings and I ended up going to university. In fact, my brother got a PhD in mathematics."

As a boy, Imbens was captivated by chess, a passion that reflected his love of strategy and analytical thought. He also inherited a streak of independence—and a touch of stubbornness—from his mother, Annie Imbens-Fransen, who later in life became a feminist theologian and an author. He remembers his mother's instinct for nonconformity. "We were living in housing that was owned by Philips," the multinational Dutch electronics firm where his father worked. "Once a year they [Philips] would paint the front doors this vile bright yellow," Imbens recalls. "My mother didn't like that. And so the day

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after they painted the doors yellow, we would paint them black. This was a row of townhouses. There was one house with a non-yellow door."

After high school, Imbens chose to attend Erasmus University Rotterdam, where one of his early influences, fellow Dutch economist and Nobel Prize–winner Jan Tinbergen, had established an econometrics program. He then went on to earn a master's in 1986 at the University of Hull in the UK, under the mentorship of Anthony Lancaster, who ultimately persuaded Imbens to follow him to Brown University, where Imbens received his PhD in 1991. "Getting into Brown for his PhD felt like winning the lottery for Guido," says Susan Athey, Imbens' wife and a fellow economics professor at Stanford University.

Lancaster introduced Imbens to Bayesian econometrics and provided the intellectual tools and, perhaps more important, the network of connections that helped launch Imbens' academic career in the United States.

After a stint at Harvard, Imbens held faculty positions at the University of California, Los Angeles, and Berkeley, and ultimately Stanford, where he now teaches. A landmark use of causal inference occurred when Imbens was at UCLA, in a study with Rubin and Harvard PhD student Bruce Sacerdote. They used lottery data to examine how sudden financial windfalls affect people's work and spending decisions. The results—showing that people don't necessarily quit their jobs after a windfall but that many do work a bit less—helped shift debates around basic income and pensions while also broadening the reach of causal inference beyond education and health.

## Solving problems

Imbens is quick to acknowledge the role of serendipity in his own life. "I do feel very fortunate. I've just been incredibly lucky to be in the right place at the right time." Still, he believes strongly that cultivating meaningful relationships with many of the leading economists of his generation is as critical to his work as technical skill, and he places great importance on his role today of mentoring younger scholars. "I'm trying to influence the profession more generally in a direction that makes sense—where econometricians are working on problems that are important for empirical work," he says. "I try to instill that in my students: It's not always about the mathematics—it's about interesting problems."

In March 2025, Imbens was named faculty director of Stanford Data Science, an initiative that supports research and scholarship through data-driven discovery and data science education across the campus. He sees the role as a chance to encourage young researchers, deepen interdisciplinary ties, and bring data science into closer conversation with real-world policy.

Economic collaboration is never far from home. Imbens' wife, Athey, is a John Bates Clark Medal winner who is known for her pioneering work at the intersection of technology, economics, and machine learning. "Susan is a very broad economist... She's always a source of inspiration for the type of problems I work on," Imbens says. "We've really shared the load all the way through—and shared the fun," Athey says, noting that despite his heavy workload, Imbens leads a very grounded life, biking with colleagues on weekends, tending to his garden, having his students over for events, and when time allows, which is rare these days, preparing memorable meals.

But his most notable achievement is helping to reshape the way economists think about evidence, policy, and uncertainty. In doing so, he has brought clarity to questions that had once seemed unanswerable and opened the door for more credible social science. In a field that often rewards certainty, Imbens has made a career out of working in the messy middle—a place where data are imperfect and intellectual honesty matters most. That, too, is a form of elegance. When the Nobel Prize Museum asked each laureate to donate an item that was meaningful to their research, Imbens chose a container of laundry detergent—a quiet tribute to those early mornings spent folding shirts and trading ideas with Angrist. Few tokens could better capture the spirit of his work—rigorous, collaborative, and firmly grounded in the real world. F&D

**GARY SEIDMAN** *is a Seattle-based journalist who has written for the* Economist, *the* New York Times, *Reuters, CNN, and MSNBC.*