



PHOTO: NOAH BERGER

Questioning Assumptions

Peter J. Walker profiles Berkeley's Emi Nakamura, who delves into details to answer big questions

One of Emi Nakamura's favorite movies growing up in Alberta, Canada, was the 1987 docudrama *The Race for the Double Helix*. Fast-paced and infectious in its enthusiasm for the scientific method, it tells the story of how James Watson and Francis Crick discovered the structure of DNA. "There's nothing worse than a wrong fact," quips Crick in the movie, exasperated by all the incorrect theories clouding his thinking (before Rosalind Franklin's X-ray images of DNA led him and Watson down the right path). It is a quote that Emi recalls her economist parents repeating to emphasize the importance of sound data.

Now a professor of economics at the University of California, Berkeley, the 42-year-old Nakamura is best known for investigating macroeconomic questions using micro data—data that provide information about characteristics of individual people, households, and businesses. She has long been seen as a rising star in economics. In 2018, *The Economist* listed her among the decade's eight best young economists. A year later she won the John Bates Clark Medal—awarded to the most influential American economist under the age of 40—for her research on fiscal stimulus and price stickiness, a measure of how often prices change.

"Emi's work has illuminated foundational questions in macroeconomics—for example, on price setting, the nature of inflation, and the effects of fiscal policy," Berkeley professor and former IMF chief economist Maury Obstfeld tells F&D. "The

hallmarks of her work are painstaking attention to data and a seamless melding of theory with empirical methods, yielding more convincing identification of economic mechanisms."

Before joining Berkeley in 2018, Nakamura was professor of economics at Columbia University, and earned her PhD at Harvard University. Nakamura and her husband, fellow Berkeley economics professor Jón Steinsson, met when they were undergraduates taking graduate econometrics at Princeton University. "She was clearly extremely talented, and intellectually she was very mature for her age," recalls Emi's Princeton advisor, Bo Honoré. "I had no doubt that she would be highly successful no matter which area of economics she specialized in."

Nakamura's personal and professional lives are closely intertwined. She routinely coauthors papers with her husband, and from time to time with her parents, Alice and Masao Nakamura. They are economists, too—Alice at the University of Alberta and Masao at the University of British Columbia.

Alice and Masao met at Johns Hopkins University in 1969 while Masao was on a Fulbright scholarship from Japan. Both have had stellar academic careers. Alice is a leading scholar on labor economics and economic measurement, while Masao is well known for his work on international business and Asian economies. Cross-generational collaboration began long ago with kitchen table conversations about how to construct statistics on measures like GDP and inflation.

Buried treasure

The question of how to measure big things would become the bedrock of Nakamura's academic mission. One solution is to answer macro questions using micro data, something that "seems to be a reflex for me," she says. "There often aren't enough data points in the macro data to make convincing arguments about causality. Looking at micro data is a natural way to expand the data set."

One of Nakamura and Steinsson's first major forays into extending data sets involved using micro data related to price stickiness. "Price-setting assumptions are key," she says. "Whether prices are sticky or completely flexible is a big dividing line between neoclassical models of the economy where monetary policy has no effect and Keynesian models where monetary and fiscal stimulus have large effects. It seemed natural to look at micro data to get more information on these questions."

A previous study by the University of Rochester's Mark Bilal and Stanford University's Peter J. Klenow (2004) found that prices change more frequently than previously estimated, with half of prices lasting less than 4.3 months—but while theirs was the first study using Bureau of Labor Statistics (BLS) micro data, they used only an extract of the data for two years, 1995–97. In "Five Facts about Prices" (2008), Nakamura and Steinsson's most-cited paper, they used actual BLS micro data and expanded the data set to cover 1988 to 2005.

It was a painstaking task that involved sifting through reams of dusty paper in a windowless room at the BLS, but by distinguishing between temporary price cuts for sales and regular pricing, they found that regular prices were stickier than Bilal and Klenow estimated. In other words, when promotional discounts were taken out of the equation, prices were shown to change less in response to supply and demand than their predecessors had estimated.

"Price changes in the data were much more complicated than in macro models," Nakamura notes. "A lot of these price changes were temporary sales that returned to the original price—so they didn't look like the kind of *perfect price flexibility* that people imagined. At the same time, if you looked at *regular* prices excluding sales, things lined up well with the predictions of some of the models. Prices changed much more frequently in times of high inflation." These findings have several implications, including for how to accurately monitor economy-wide price changes and for the

importance of policy intervention in managing the economy.

The analysis related to price changes and inflation was tempered somewhat by the fact that the database spanned a relatively low-inflation period. A decade on, in "The Elusive Costs of Inflation" (2018), Nakamura, Steinsson, and coauthors examined the higher-inflation period between 1977 and 1988. In this case, data collection was even more onerous and involved commissioning a custom-made microfilm converter, but the effort paid off. The researchers conclusively confirmed that regular prices were indeed adjusted more frequently in periods of higher inflation, in line with standard models.

They have returned to the topic of inflation in their most recent work, "The Slope of the Phillips Curve" (2022). The study's genesis lies in analysis carried out by the Macro Policy Lab, which conducts data-driven and policy-relevant research on macroeconomics, and of which Nakamura and Steinsson are both principal investigators. Going back to 1978, along with their coauthors they find that the slope of the Phillips curve, which shows the relationship between unemployment and inflation, is small—and has gotten only modestly smaller since the early 1980s.

The implication is that the early 1980s disinflation was less about higher unemployment and more about people's inflation expectations—which were anchored thanks to the new monetary regime instituted by Federal Reserve Chairman Paul Volcker. "The relevance of this for the present context," Nakamura concludes, "is the emphasis that it puts on long-term inflation expectations and confidence in the monetary regime—maintaining these is key." And today, as central banks attempt to rein in inflation while growth dwindles, these messages carry special weight.

Goal-oriented

Nakamura and Steinsson are no strangers to investigating the issues of the day, as was the case when they illuminated the debate on fiscal stimulus. The Great Recession put fiscal stimulus back on the table, but "in the academic world it was striking how little people knew, and the evidence was really limited," Nakamura recalls, so they set about addressing these gaps in "Fiscal Stimulus in a Monetary Union" (2014).

They identified US military spending as the ideal area to focus on because while it varies by

region, it is also possible to isolate the effect of spending on growth—the fiscal multiplier—given that US regions have a common monetary and tax policy. They were eagle-eyed in their attention to detail, taking note of 40 years of military purchases ranging from the repair of military facilities to the purchase of new aircraft carriers. Nakamura says, “our paper provided evidence in the direction that the fiscal multiplier could be large,” in that fiscal stimulus could significantly boost growth.

While much of their research is focused on the US, Nakamura and Steinsson frequently look abroad. For instance, in “The Gift of Moving” (2022) they drew inspiration from Steinsson’s native Iceland to study a natural experiment related to social mobility. On January 23, 1973, there was a volcanic eruption on the Westman Islands off the south coast of Iceland. It forced the immediate evacuation of all inhabitants. After the eruption, most inhabitants returned, but those whose homes were destroyed were much less likely to do so.

Nakamura, Steinsson, and Jósef Sigurdsson, of Stockholm University, tracked how parents and their children fared economically over the subsequent 34 years. They did so by studying detailed data on income, education, and genealogical linkages available for the Icelandic population. They found that while children who moved had higher levels of education and earnings than if they had stayed put, their parents earned slightly less. A broader, universal implication is that these large costs experienced by parents may discourage them from moving, thus acting as a barrier to social mobility.

Children’s improved life chances were somewhat surprising given that most moved to lower-income areas. As Nakamura explains, “the Westman Islands is an amazing place to be if your skills line up well with the opportunities on the island—the fishing industry, which yields very high incomes—but, if you are a computer genius or a great legal mind, then this will not be the place where your skills will yield the highest returns.”

In terms of what comes next, Nakamura and Steinsson are currently working on studies examining how exchange rate depreciations affect economic activity, the economic effects of unemployment insurance extensions, and the impact of seasonal adjustment methods used for government statistics.

Working together

It could be said that in their studies Nakamura and Steinsson achieve more together than they could alone.

For his part, Steinsson points to Nakamura’s meticulousness. “The overwhelmingly most common response when one tries to explain something to Emi is, ‘I don’t understand,’” he says. “It is harder to explain things to Emi than to anyone else I know. But this really reflects her high standards for what it means to understand something and her dedication to not cut corners when it comes to understanding the important issues in our research.”

“Jón is always introducing me to new ideas and is also fantastic at killing ideas,” Nakamura says. “When I convince Jón to work on something that he didn’t originally think was interesting, the idea becomes unquestionably better because of having to think about how to get around his critiques. These can be difficult conversations—I sometimes think they would threaten our relationship as coauthors if we weren’t married!”

Nakamura has fostered constructive academic partnerships with her students as well. One of the PhD students she supervises, David Bruns-Smith, recalls that when he switched to economics from computer science, Nakamura scheduled a meeting right away to share ideas and identify funding, even though he lacked prior relevant work in economics. Something that shines through for him is that “since Emi has a laser focus on substantive economic meaning, she never seems dogmatic about any particular formal framework—only what the formalism is supposed to represent in the world—and that’s perfect for me since I combine ideas from both computer science and economics.”

Nakamura used to be the one seeking guidance. As a student, she recalls sitting on a sofa in Bo Honoré’s office at Princeton and pondering a sign that said, “Question Assumptions.” In a moment of déjà vu, she would see the same sign again almost 20 years later when being interviewed by Berkeley professor Jim Powell. “Jim explained that the sign wasn’t originally intended from a scientific perspective, but instead came from the hippie counterculture in Berkeley,” she says. “But I still consider it to be great advice.” [FD](#)

PETER J. WALKER is on the staff of *Finance & Development*.