

Janet Currie

Editor's Note: This is an abbreviated version of EF's conversation with Janet Currie. For additional content, go to our website: www.richmondfed.org/publications

Princeton University economist Janet Currie began her career studying collective bargaining and arbitration systems. “But as I got further along in my career and started thinking about what I really wanted to do,” she says, “I realized I wanted to work on a question that everyone agrees is important: How can society improve children’s well-being? Most of my research since then has been motivated by the factors that affect children.”

Those factors are extremely varied; her work has looked at issues as diverse as pollution, prescription drugs, and school meal programs. In the process, she has made major contributions to our understanding of the effects of social safety net programs, the links between socioeconomic status and health, and the intergenerational transmission of health and human capital. More recently, Currie has studied the legal and economic forces that govern the health care system, including how those forces might influence access to care for different groups. Over the course of her career, Currie has gained a reputation for answering longstanding questions in innovative ways, such as using the introduction of EZ Pass highway tolls to study the effects of pollution or comparing data on hurricanes and births to understand the impact of maternal stress.

In addition to being the Henry Putnam Professor of Economics and Public Affairs at Princeton, she is the co-director of the university’s Center for Health and Wellbeing and chair of the economics department. Currie also co-directs the Program on Children at the National Bureau of Economic Research and is a member of the National Academy of Medicine and of the American Academy of Art and Sciences.

Jessie Romero interviewed her at her office at Princeton in February 2017.



EF: Regardless of the topic, a common element in much of your research is using a novel approach or dataset to study questions where the possibility of reverse causation or omitted variables, for example, has made it difficult for other researchers to tease out cause and effect. Is that intentional?

Currie: I wouldn’t say that my intention is to be novel, necessarily. But much of my work has focused on the environmental factors and social programs that affect women and children, and it is often the case that those are the kinds of problems to be overcome in trying to figure out whether something works or not.

A classic example is Head Start. Almost all the kids in Head Start are poor, so if you just compare their outcomes to other children’s outcomes, they’re worse, which might lead you to think the program isn’t working. But the question is, what is that counterfactual? Is the program actually helping them to do better than they would have otherwise? I did do some early work on Head Start and found that it closed about one-third of the gap between Head Start kids and other kids. That seems to have been verified in subsequent research.

EF: You mentioned environmental factors, and you’ve done a lot of research on the effects of pollution. How can economics inform the study of pollution?

Currie: Pollution is a classic example of an externality, where one person, in the course of an activity such as producing a good, also produces something that harms another person. Because economics emphasizes both the costs and the benefits of the activity, it can help us think about useful approaches to regulation. One approach is very legalistic: We just forbid people to engage in a certain activity. But that ignores the fact that in some circumstances, there might be some benefit to the activity. A more economic approach would be to try to get people to weigh those costs and benefits themselves, for example by making the polluter pay for part of the costs of the cleanup.

Environmental protections can be viewed very much in terms of who has the right to do what. Do I have the right to breathe clean air? Or do you have the right to use the air to produce whatever it is you want? The law is supposed to decide. One way to decide could be based purely on economic grounds, and in some places the cost of giving people clean air is going to be very high and in other places it's going to be low. It depends on the baseline: If you start fracking in a national park, that has a high cost in terms of degrading the environment. If you start fracking in an area where they've been drilling for oil and gas for 100 years, the costs are much lower. A purely economic view might be that your rights should depend on the cost of providing them. But you can also argue that everyone should have the right to clean air; someone might have an absolute right to something even if the short-run costs, at least, are higher than the benefits of giving them that right.

EF: Is there a relationship between socioeconomic status and exposure to pollution?

Currie: There is a large environmental justice literature arguing that low-income and minority people are more likely to be exposed to a whole range of pollutants, and that turns out to be remarkably true for almost any pollutant I've looked at. A lot of that has to do with housing segregation; areas that have a lot of pollution are not very desirable to live in so they cost less, and people who don't have a lot of money end up living there. It also seems to be the case, at least some of the time, that low-income people exposed to the same level of pollutants as higher-income people suffer more harm, because higher-income people can take measures to protect themselves. Think about air pollution. If I live in a polluted place but I have a relatively high income, maybe I have better-quality windows so I have less air coming in, or I can afford to have air purifiers, or I can afford to run my air conditioner.

It could even be the case that lower-income people are more vulnerable to the effects of pollution in the first place. For example, someone who is malnourished is more likely to absorb lead than someone who is not malnourished. So people who are better nourished may be better able physiologically to protect themselves against the effects of pollutants.

EF: You've also found that the current and future effects of climate change vary with socioeconomic status, especially if one compares developed and developing countries. Does that mean wealthy Americans don't need to worry?

Currie: Wealthy Americans will likely be impacted less, but that doesn't mean that they won't be impacted at all. First, if things like polar bears and coral reefs totally disappear from the world, presumably that represents a loss to us as well as to other people. But we're also likely to see a higher prevalence of natural disasters, such as the catastrophic rains in California or the fact that many neighborhoods in Florida are effectively sinking. We all face a higher probability of extreme weather that could damage our homes or cause other losses.

Now, you could say that if you live in Minnesota, a warming climate means your weather is actually going to be much more pleasant. But even if a natural disaster is in a different part of the country, we all pay when the government has to come in and help the people who were affected. And we may all end up paying more for food and for the costs of remediation when we finally realize that climate change and environmental degradation are important problems.

EF: You've also studied how socioeconomic status affects parental investment in children.

Currie: An investment is something where you pay now and get a return later. We end up doing a lot of things for our kids that are not necessarily all that pleasant, such as helping them with their homework or disciplining them. And we do the things that are costly now because we expect some payoff in the future: We want them to graduate from high school, to go to college, to get a good job, to be well-behaved people.

One of the key questions in the area of child and family economics is why parents make the choices they do. There is a tendency to think it's the result of preferences; if one parent chooses to spend a lot of time on education and another parent doesn't, then perhaps those parents just value education differently. But it's important to realize that when we make investment choices, we make them subject to constraints, and different people have different constraints. For example, maybe a single mom doesn't spend as much time doing homework with her children as another mother because she's working 12 hours a day and has a long commute to her job. An interesting question is, if you change people's constraints, to what extent will you change their investment behavior?

In addition to resource constraints, people may face social constraints as well. In some developing countries, women aren't allowed to work or even allowed to go outside the home without an escort. So parents have less incentive to invest in their daughters' educations, because their

daughters may not be able to reap the rewards of an education. Now, if you change those constraints, that might also change parents' choices about whether or not it's worthwhile to educate their daughters. Similarly, here in the United States, for many years disabled people were kept out of the public eye and no one expected they would be able to work, which meant there was less incentive to invest in their education. But as those barriers have come down, opportunities have opened up that change peoples' incentive to invest.

EF: How effective are government assistance programs for children, such as nutrition assistance or medical care?

Currie: Many people have argued that these programs aren't working because the poverty rate in the United States has basically been flat for several decades. But the official poverty rate measures cash income before taxes and transfers, so most of the programs we have in place for poor people are not counted. (See "Drawing the Line," *Econ Focus*, First Quarter 2013.) We give people food stamps, we give people Medicaid, we give people public housing, we give people the Earned Income Tax Credit, and none of those things are counted in the official poverty measure. Essentially, by definition, none of the important things that we do to alleviate poverty can affect the U.S. poverty measure.

If instead you use an alternative poverty measure that counts such programs, you see that those programs have made a big difference in reducing poverty. The next question to ask is, does that have any impact on other indicators of well-being? And I would say yes. Many of these programs have been very well studied, and there is quite a lot of evidence that they have positive impacts. Over the past 20 years we have seen large declines in child mortality, injury rates, crime, and teen pregnancy, to name just a few domains. And we've seen an increase in the number of young adults who've gotten any college education. There are a lot of indicators showing positive movement, and I think we can attribute that to the investments that we've been making in children.

EF: Many researchers have found that recessions,

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Henry Putnam Professor of Economics and Public Affairs, Princeton University
Chair, Department of Economics, Princeton University
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► Selected Past Positions

Columbia University (2006-2011);
University of California, Los Angeles (1988-1991, 1993-2005); Massachusetts Institute of Technology (1991-1993)

► Education

Ph.D. (1988), Princeton University;
M.A. (1983), University of Toronto;
B.A. (1982), University of Toronto

► Selected Publications

"Diagnosing Expertise: Human Capital, Decision Making and Performance Among Physicians," *Journal of Labor Economics*, 2017 (with W. Bentley MacLeod); "Inequality in Mortality Decreased Among the Young While Increasing for Older Adults, 1990-2010," *Science*, 2016 (with Hannes Schwandt); "Environmental Health Risks and Housing Values: Evidence from 1600 Toxic Plant Openings and Closings," *American Economic Review*, 2015 (with coauthors); "Is There a Link Between Foreclosure and Health?" *American Economic Journal: Economic Policy*, 2015 (with Erdal Tekin)

in particular the Great Recession, have a short-term effect on women's fertility. What did you and Hannes Schwandt find about the long-term effects of recessions on fertility?

Currie: In that paper, we looked at cohorts in the Census over time; a woman who was 10 in 1950 was 20 in 1960 and 30 in 1970, and so on. We also could see how many children the women of different ages had. So we followed each group of women to the point where their fertility would have been completed, and we could see if women who experienced recessions at different ages altered their fertility patterns. Essentially, we followed women across the whole life cycle instead of just making projections based on a point in time.

We knew that you always see a decline in births in a recession. But the unresolved question was, do those births get made up later on, or is there a permanent decline in the number of births? The former is called a tempo effect: I plan to have two kids, and then something causes me to delay my fertility, but I still end up having two kids. There's no change to my completed fertility. For the latter, something could happen that changes my mind about the number of kids I want to have, or my ability to have those kids, and then

there is a difference in my completed fertility.

We found that if women experienced a recession in their early 20s, there did seem to be a permanent decline in the number of births. And rather than just having fewer children, these women were less likely to have children at all. (Our data only looked at live births, so we don't know if there was an effect on how many conceptions resulted in termination or miscarriage.) The key factor seemed to be that women who were affected by a recession in their early 20s were less likely to get married; maybe they were looking around for a partner, but then a recession hit and unemployment increased, and none of the potential partners seemed attractive. For women who experienced recessions at other ages, there was a temporary decline in fertility but the births occurred later.

Distinguishing between tempo effects and a permanent decline is quite important for population projections. It affects planning for schools, forecasting how much money will be coming in to Social Security, or how

many people will need to be supported in old age, among other things. If there's a permanent decline, then the population is going to be permanently lower. If it's just a temporary decline, there will be a dip in the population at the time those births are deferred but then a bump up in the population later to make up for it.

EF: The Great Recession is closely linked to the foreclosure crisis that began around 2006. What motivated you to study the effects of foreclosure on health, and what did you find?

Currie: That paper, which I wrote with Erdal Tekin, was part of a broader research agenda on the effects of acute stress. We were looking for events that we thought would be stressful, and foreclosures just leapt out from the newspapers; there were a lot of anecdotal reports about people committing suicide or having heart attacks. To the extent that a really stressful event could affect someone's health, we thought foreclosure would be a good candidate to study.

We found evidence linking increases in foreclosures to an increase in the number of urgent and unscheduled hospital and emergency room visits, at least in part because people appeared to forgo preventive care or to cut back on care for chronic conditions. Of course, it's hard to identify a causal effect of foreclosure, and one thing we looked at was whether we were just picking up the effects of unemployment rather than the effects of foreclosure. But the relationship between foreclosures and hospital visits was strong even at the beginning of the crisis before unemployment started to increase. Another possibility could be that people with financial problems switch from outpatient providers to emergency rooms, but there was an increase in hospital visits for conditions that would typically require an ER visit in the first place, such as a heart attack or a stroke.

It's also possible that poor health could lead to foreclosure. But the foreclosure crisis was unexpected: Prices were rising, everybody was investing, everybody was buying homes. So it's pretty unlikely that the sudden wave of foreclosures was caused by a sudden wave of health problems among American homeowners.

EF: You've looked at reforms that many states have enacted to the rule of joint and several liability in an effort to curb frivolous or expensive lawsuits. One concern about these reforms is that they will reduce people's incentives to take precautions against harm. Is that what's happened?

Currie: Joint and several liability, or JSL, is essentially the "deep pockets" rule: If multiple parties are found to be liable for the harm caused, the plaintiff can collect damages from one or all of the parties, regardless of how each one contributed to the harm. So people sue the deep pocket. A hospital is a good example. When Bentley MacLeod and I first started reading about tort cases related to malpractice

during child delivery, one of the things that struck us as bizarre is that they often talked about the nurse: The nurse was sitting in the nurse's station, she didn't come when I called, she didn't call the doctor. We wondered, why are they spending so much time talking about what the nurse did or didn't do? Surely the doctor was the prime mover in deciding treatment? What we eventually realized was, the nurse is the employee of the hospital, whereas doctors are generally working as independent contractors; so if you want to blame the hospital — the deep pocket — you have to tie the nurse to the lawsuit.

Most of the time, under JSL, the hospital gets sued and the doctor doesn't. If the hospital pays, legally it can try to recover damages from the doctor, but they hardly ever do that. Essentially, under JSL, the doctors are working in a regime where they're never going to get sued. JSL reform makes the payment of damages proportional to the contribution to the harm, which makes it more likely the doctor will be sued. And if the doctor is the decisionmaking agent, then in theory that should improve outcomes.

It's similar in the case of accidents. For example, if someone falls because of a loose railing on a stair, they might sue the landlord because the landlord is the deep pocket. But maybe it was the fault of the contractor who installed the railing. Under JSL, the landlord would have to sue the contractor themselves, which gives the contractor less incentive to take precaution than if the contractor could be sued directly. But by making the probability of being sued closer to the probability that you created the harm, JSL reform can improve the incentives of people to take precaution. It looks like that's what has happened; Daniel Carvell, Bentley, and I looked at data on accidental deaths and found that JSL reforms are associated with reductions in the accidental death rate in the United States.

EF: So the fear of lawsuits appears to make contractors, for example, take more precaution. Does that fear affect doctors' decisionmaking? What other factors influence how they practice?

Currie: In principle, the fear of being sued could impact doctor behavior, as we saw with the JSL example. This is the basis for the idea of "defensive medicine." In fact, though, people are probably too quick to blame fear of lawsuits for doctors' decisions. Most of the time, doctors aren't sued when they make a mistake. When they are, the vast majority of cases are settled out of court, and because doctors have malpractice insurance, it's the insurance company that pays. Doctors' individual premiums aren't experience rated, meaning their premiums aren't affected by lawsuits. I'm sure it's true that doctors don't like to be sued, but both the likelihood of being sued and the cost of being sued seem to be exaggerated as motivators of doctor behavior.

So why do doctors act as they do? One motivator,

although maybe not the primary motivator, is that doctors do have an incentive to do more procedures, because the more procedures they do, the more they get paid. If you take your car in for an oil change and the mechanic says you need a new muffler, you might be suspicious. But if you go in for a checkup and the doctor says you need this, that, and the other thing, you will probably be much more trusting. And yet doctors are subject to the same economic forces as mechanics, in the sense that the more things they sell you, the more money they get.

But doctors don't just always do the highest-paying thing. Another factor that seems to be important is training effects. Even within the same hospital, different cohorts of doctors behave differently, which probably reflects what they were trained to view as good or bad. We also see that doctors vary in how responsive they are, meaning how much attention they pay to whether a procedure is appropriate for a particular patient. Doctors also might have more or less experience with various types of patients, which can shape how they behave. We know that experts in general have lots of cognitive biases that might lead them to overweight the possibility of one type of outcome versus another type of outcome, and I think doctors are subject to the same kinds of biases.

Many people are concerned about overtreatment and excessive spending, but the problem is more subtle. Bentley, Jessica Van Parys, and I studied heart attack patients admitted to emergency rooms in Florida. We found large differences in how doctors allocated procedures across patients; some doctors were much less likely to use aggressive treatments with older or sicker patients who might have been deemed less appropriate candidates for the treatment. Young, male doctors who trained at a top-20 medical school were the most likely to treat all patients aggressively, regardless of how appropriate the patient seemed to be. In the case of heart attacks, it appears that all patients have better outcomes with more aggressive treatment, so treating only the "high-appropriateness" patients aggressively harms the "low-appropriateness" patients.

Similarly, many people are concerned that U.S. doctors perform too many C-sections. But actually, in another paper, Bentley and I found that it looks like too many women with low-risk pregnancies receive C-sections, while not enough women with high-risk pregnancies receive C-sections. So the goal shouldn't necessarily be to reduce the total number of C-sections but rather to reallocate them from low-risk to high-risk pregnancies.

EF: In a recent paper with Diane Alexander, you found that publicly insured children are less likely to be admitted to the hospital than privately insured children. Is that cause for concern?

Currie: Not necessarily. Because what we found was that most of the kids didn't need to be admitted. For

example, many children came into the emergency room with asthma attacks. The doctor would give them the medicine they needed in the ER, and then, for well-insured children, admit them. They wouldn't receive any additional treatment, and then they would go home in the next day or two. You might think, no harm done. But it's very expensive, it is disruptive to the child and the family, and there is always the risk of infection or some other injury in the hospital. So it's not necessarily a good thing to admit children to the hospital just because their health insurance company will pay for it.

EF: What are you working on now?

Currie: Recently, I've been looking at the effects of lead exposure. Anna Aizer, Peter Simon, Patrick Vivier, and I just had a paper accepted where we looked at the effect of small levels of blood lead on children's test scores in Rhode Island. Rhode Island is interesting because they have a very comprehensive lead testing program, and it's possible to link the lead test data to data from the public schools. There were some policy changes that caused differences in lead levels among children, so we were able to see the effects of low levels of lead on academic outcomes. In short, we found that reducing blood lead levels even from very low levels has positive effects on children's reading scores.

I'm working on another paper with Anna Aizer on the relationship between lead and crime, also using Rhode Island data. There, we're taking advantage of the fact that people who lived close to busy roads before gasoline was delead were exposed to a lot of lead, while people who lived farther away from busy roads, or who lived near busy roads after gasoline was delead, got less exposure. That's allowing us to study how lead exposure affects disciplinary problems in the schools and juvenile incarceration.

EF: Which economists have had the greatest influence on your work?

Currie: I think the people who have the greatest influence are the ones you meet when you're young. So I would have to give the credit (or the blame) to people such as my thesis advisers, Orley Ashenfelter, David Card, and Angus Deaton. I really liked that in Angus' Nobel Prize lecture [in 2015], he emphasized the importance of measurement and of learning facts about the world. I was glad to see that process recognized as an important part of economic research.

When I went to UCLA, Finis Welch was my senior professor, and he was the kind of person who really made you think. He challenged all my assumptions and that was very good for me. And then I moved to MIT for a time and was fortunate to have Jim Poterba and Hank Farber as mentors. I'm very lucky to have had people who looked out for me, challenged me, and helped me get where I am today.

EF