

Janet Currie investigates the building blocks

TRAINED AS A LABOR ECONOMIST, Janet Currie earned her doctorate at Princeton by studying strikes and arbitration. But as she began her academic career in the late 1980s, she shifted her focus to examining the building blocks of success for children, as well as the stumbling blocks that can get in their way.

While the topics are very different, Currie said both benefit from research by economists. “I realized that economics is really more of a method, or a way of thinking, than a set of topics, and I have implemented that by working on issues that can benefit from the tools of economics research,” she said.

Over the nearly three decades since, Currie has used the methods of an economist, her analytical skills and an openness to new ideas to offer important insights into the health and well-being of children. In the terms of economics, she studies the factors that affect children’s human capital — the intangible assets such as health, skills and knowledge that play a role in life outcomes.

Today the Henry Putnam Professor of Economics and Public Affairs at Princeton and chair of the Department of Economics, Currie has tackled research on a wide range of topics, including socio-economic differences in child health, environmental threats to children’s health and the long-term effects of poor health in early childhood.

Beyond the individual findings, Currie said, are broader lessons.

“One would be that very early life is important,” she said. “That is now pretty well accepted and has had an impact on policy, but at the time I was starting to do this research that wasn’t so widely appreciated. Another kind of general conclusion is that pollution at lower levels than Environmental Protection Agency thresholds for concern has measureable and detectable health effects.”

Currie joined the Princeton faculty in 2011 from Columbia University. Previously, she was on the faculty at the University of California-Los Angeles and the Massachusetts Institute of Technology.

At Princeton, Currie is director of the Center for Health and Wellbeing, which fosters research and teaching on aspects of health and well-being in developed and developing countries. She is also a senior editor of the *Future of Children*, a publica-



PHOTO BY DENISE APPLEWHITE

A woman with short brown hair, wearing a red cardigan over a red top and black pants, stands in a park. She is holding a white and black soccer ball in her right hand and has her left hand on her hip. She is smiling at the camera. In the background, there is a playground with colorful equipment, a chain-link fence, and large trees with green foliage. The scene is brightly lit, suggesting a sunny day.

By Michael Hotchkiss

of children's success

tion that translates social science research about children and youth into information that is useful to policymakers, practitioners and other nonacademic audiences.

Sara McLanahan, a Princeton sociologist who works with Currie on projects including the *Future of Children* and shares many of her research interests, said Currie is “one of the most outstanding economists in the country who is doing work on child health.” And, McLanahan added, Currie’s impact goes beyond her research.

“She’s just very willing to give her time and be generous,” said McLanahan, the William S. Tod Professor of Sociology and Public Affairs. “She’s a straight shooter. She tells you what she thinks. She does more than her share, and she wants it to be done right. She’s just a great positive force.”

An economist’s approach

Currie, who earned her bachelor’s and master’s degrees in economics from the University of Toronto before coming to Princeton for her doctoral studies, said several aspects of economics make it useful in studying children and their outcomes.

Among them: a tradition of using models to frame issues, an emphasis on measurement and a focus on establishing causal relationships.

Often, she has applied these principles in natural experiments, which are observational studies where conditions outside a researcher’s control randomly assign some people to an experimental condition and others to a control condition.

For example, interest in the impact of pollution on infant health led Currie and Reed Walker, then a graduate student at Columbia and now an assistant professor at the Haas School of Business at the University of California-Berkeley, to examine the effect of introducing electronic toll collection on the health of children born to mothers who lived near toll plazas. They found that the switch to electronic toll collection, which greatly reduced traffic congestion and vehicle emissions near toll plazas, was associated with a decline in premature and low-birth-weight babies born to those mothers.

That research depended on identifying the roll-out of electronic toll collection as a potential natural experiment, gathering pollution data for the area of toll plazas, and mining birth records for the necessary information about the residences of mothers and birth outcomes.

In another natural experiment, Currie and Maya Rossin-Slater of Columbia used birth records from Texas and meteorological information to identify children born in the state between 1996 and 2008 whose mothers were in the path of a major tropical storm or hurricane during pregnancy. They found that expectant mothers who dealt with the strain of a hurricane or major tropical storm passing nearby

during their pregnancy had children who were at elevated risk for abnormal health conditions at birth.

Keeping an open mind

Hannes Schwandt, who has worked closely with Currie during three years as a postdoctoral research associate at the Center for Health and Wellbeing, said another important aspect of Currie and her work is her openness to new ideas.

“On the one hand, she has this great detailed expertise, given all the work she has done,” Schwandt said. “At the same time, she’s always open to new questions. I think combining her expertise with this view for broad, new directions is what makes her so special.”

Take a paper he and Currie published in 2014 on the effect of recessions on fertility. The idea began, Schwandt said, with a discussion they had about evidence that babies born during recessions are generally healthier than those born in better times.

“Janet said we need to step back and look at fertility — who is giving birth — instead of focusing on the health of babies,” Schwandt said. “She immediately made the connection that in the news there is always a discussion that there is decline in fertility during recessions. But no one really knew the long-term effect.”

After examining 140 million births over 40 years, Currie and Schwandt found that recessions are linked to an increase in the number of women who remain childless at age 40.

What’s ahead

Currie is continuing to pursue ways to address issues relating to children and their development.

One project is looking for new evidence of the impact of lead exposure on children and their educational outcomes in Rhode Island. By matching birth records, lead-test results and school records, Currie is examining the impact of a program to reduce children’s exposure to lead.

“One of the really interesting things about this research, I think, is that the program to reduce lead exposure seems to have been pretty effective,” Currie said.

Because African American children were more likely to live in areas with high lead levels, the program brought their lead levels down more quickly than those of white children. At the same time, Currie said, the gap in standardized test scores between the groups narrowed.

The research could offer new clues about the role lead exposure plays in the lower test scores typically recorded by students who live in inner-city areas where lead exposure is more common, Currie said.

Another work in progress takes advantage of the implementation of congestion pricing in Stock-

holm, which levies a tax on most vehicles entering and exiting the city's center, to measure the impact of traffic — and the resulting pollution — on child health. A third is examining state-by-state differences in smoking patterns among pregnant women and the relationship between smoking among pregnant women and low-birth-weight births.

A topic she would like to address in future work: mental health.

"I'm interested in that for a lot of different reasons," she said. "If you look at the U.S. economy, mental health is the leading cause of lost work. That's because it tends to strike people who are of working age, whereas a lot of other health conditions are more for older people. It's important from an economic point of view. It also seems to be very related to a lot of learning issues."

Over the past 20 years, Currie said, a raft of new psychiatric medications has come on the market, many of which are not well understood, and prices are rising.

"It seems like there's this huge black box of things that are happening and no one is really studying, and there's not very good data on it," she said. "That's something I've been struggling with for a while, how to get some purchase on that problem."

Valued as a mentor

Currie is also widely recognized for her work with young researchers and her advocacy for them.

"In addition to all the work she does as a top economist, being willing to work with students is a great benefit," McLanahan said. "Having someone do so well and be so generous is important, especially for the next generation of female economists."

In spring 2015, Currie received a Graduate Mentoring Award from the McGraw Center for Teaching and Learning. Graduate students described Currie as insightful and readily available to help aspiring researchers develop their ideas and present them publicly.

Molly Schnell, a Ph.D. candidate in economics, said Currie is so generous with her time "that she seems to defy the principle of scarcity."

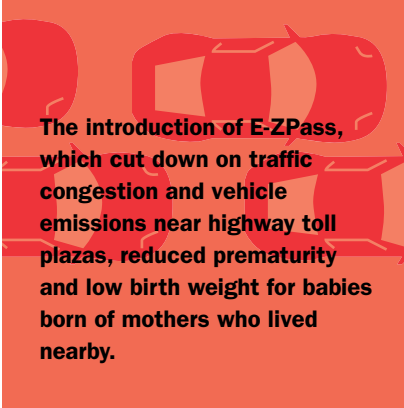
In particular, she pointed to Currie's willingness to co-author papers with graduate students.

"Learning to develop a paper by working through the process with an established researcher is a formative experience, and Janet makes sure that her students have this opportunity," Schnell said.


Schwandt said Currie has helped him grow more confident in tackling new topics.

"One thing I've learned from her is not to worry too much whether other people think something is economics or not," he said. "She always says: 'First, who defines what economics is? And second, why do we really care so long as it is a really important question and we can help answer it?'" **D**


Professor Janet Currie's research uses the tools of economics research to study issues in children's health. Among her findings:



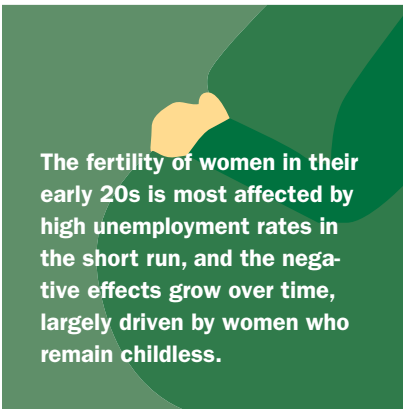
The introduction of E-ZPass, which cut down on traffic congestion and vehicle emissions near highway toll plazas, reduced prematurity and low birth weight for babies born of mothers who lived nearby.



Living in a neighborhood with a spike in foreclosures is associated with significant increases in urgent, unscheduled visits to the hospital and emergency room.



Expectant mothers who dealt with the strain of a hurricane or major tropical storm passing nearby during their pregnancy had children who were at elevated risk for abnormal health conditions at birth.



The fertility of women in their early 20s is most affected by high unemployment rates in the short run, and the negative effects grow over time, largely driven by women who remain childless.