Economist studies how higher gas price affect consumer behavior

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A dollar is a dollar is a dollar, so goes the economic theory of fungibility. But do people really act that way? In a new working paper, Brown University economist Justine Hastings and Jesse Shapiro of Chicago Booth School of Business find striking evidence that basic consumer choice behavior violates this bedrock theory.

"Fungibility is an important assumption in many economic models, but we have a lot of laboratory evidence suggesting that people don't, in fact, treat a dollar as a dollar," said Hastings, associate professor of economics. "People instead try to manage their budgets based on rules of thumb, which is a divide-and-conquer strategy."

Otherwise known as "mental accounting," that strategy means households often budget things like rent money, gas money, and grocery money separately. While a significant body of laboratory and experimental evidence shows that households maintain mental budgets, Hastings says that until now, it's been tough for economists to demonstrate this model of consumer behavior in the real world.

In their paper, "Mental Accounting and Consumer Choice: Evidence from Commodity Price Shocks," Hastings and Shapiro analyzed individual-level data on purchases of gasoline from a large grocery chain from January 2006 through March 2009. A clear pattern emerged: People behaved as if they were much poorer, buying cheaper gasoline as if a $2 increase in gasoline prices had decreased their annual income by tens of thousands of dollars.

Does this behavior go beyond the pump? Because some customers held retailer loyalty cards with the grocery store, Hastings and Shapiro were able to track other purchases. They looked at sales of half-gallon cartons of orange juice. They found that while customers were drastically scaling back from premium to regular gasoline, this behavior did not spill over into drastically different orange juice purchases. Gasoline prices affect orange juice purchases in the same way that changes in income do.

Hastings says this real-life demonstration of mental accounting isn't just about gasoline. "It uses gasoline to make a more technical, deeper point about economic behavior and modeling, and I think that's important for everything from macro- to micro-economic models."

As for what to expect this summer, a season when gasoline prices typically jump, Hastings says gas prices could eat into the nation's economic recovery.

"There is actually an overall income effect for non-gas purchases. While people may overreact with mental accounting and what types of grade gasoline they will purchase, there's not much they can do to save money on the gasoline purchasing margin," she said.

In prior work using similar data, Hastings and Shapiro examined the regular income effect of gasoline prices on non-gasoline purchases and showed that households move expenditures in categories from restaurants to grocery purchases to make up for decreased income. The higher gas prices get, the less disposable income there is for other goods and services, and "that could really eat into an already strained economy."

Provided by Brown University