# How price shocks in formative years scar consumption for life

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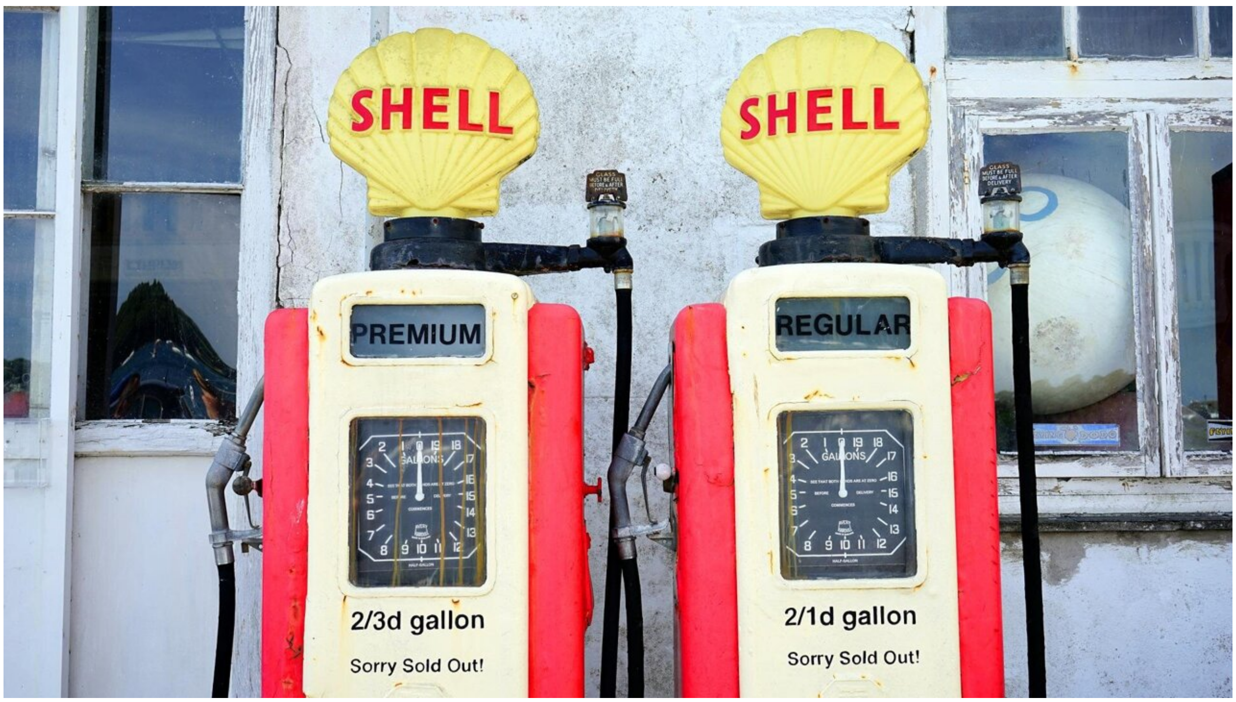


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Were you a teenager in the 1970s when gasoline got costlier and later found yourself driving less? If yes, you may be part of a generation whose "later-life travel behavior" was shaped by gas price shocks in its formative years, according to a research paper titled "Formative Experiences and the Price of Gasoline" by Christopher Severen, a senior economist at the Federal Reserve Bank of Philadelphia and Arthur van

Benthem, Wharton professor of business economics and public policy.

The 1970s saw two major oil price shocks. The first was in 1973–74 when Arab countries imposed an oil embargo on the U.S. that caused oil prices per barrel to soar four-fold in four months to $11.65 a barrel. With that, gasoline prices in the U.S. climbed 14 cents to 53 cents a gallon. The bigger shock came in 1979–80 when oil supplies ran short of strong global demand in the aftermath of the Iranian Revolution. Between late 1978 and early 1981, drivers in the U.S. saw the price at the pump nearly double from 63 cents to $1.31 a gallon. "It was the first time gasoline in the U.S. sold at more than a dollar a gallon," said van Benthem.

Those shocks scarred their gas consumption for life. "Those who came of driving age during the oil crises of the 1970s drive less in the year 2000," the paper found. The doubling of gasoline prices in the late 1970s saw that generation drive 3.6% to 8.7% less than those born earlier or later, according to data the study tracked on miles traveled and vehicle ownership; a smaller group of 0.4% did not buy cars and used public transit.

## The power of 'first impressions'

"Individuals respond to price changes during their formative driving years much more so than to price levels," the paper stated. "[Those] effects are not explained by recessions, income, or costly skill acquisition (learning to drive) and are inconsistent with recency bias, mental plasticity, and standard habit-formation models. Instead, they likely reflect formation of preferences for driving or persistent changes in its perceived cost."

"The lack of an effect of gasoline price shocks outside this formative window suggests that initial experiences are more important than cumulative experience in some settings," the paper continued. "First impressions … matter a lot."

For sure, many teens in the 1970s may have had their parents foot their gasoline bills, but the price of gas would certainly have been dinner-table conversation, van Benthem said. "Gasoline is one of these unusual commodities where the price is on a massive screen. It's extremely visible to you."

The authors embarked on their study while exploring the driving patterns of millennials, given that many of them prefer to live in cities that have mass transit options and therefore may drive less. They discovered a "weird little dip" in driving by people that were born around 1964, and decided to delve deeper, said van Benthem. That got them started on what he saw as the central question of their study: "Could a big shock to the price of gas scar your consumption behavior for life if it happens exactly during what we call the formative years, like your teenage years in which you learn to drive?"

The study used data on how people commuted to work from the census and the American Community Survey; vehicle and driver data from the National Household Travel Survey; Energy Information Administration data on gas prices; as well as driver licensing data from the Minimum Driving Age Database and the Insurance Institute for Highway Safety.

"Even though we use the oil crises to motivate our finding that gas prices matter decades after you learn how to drive, our main study is not really about those two oil crises," van Benthem said. The focus of the study is on how any gasoline price shock in formative years can shape later-life driving behavior, he explained—and there have been many more than just the two oil crises in the 1970s. He noted that prior research has studied that aspect of scarred consumption in different contexts.

The behavioral patterns rooted in the formative years may play out in other settings, too, van Benthem said. For instance, the electricity price spikes in Texas in early 2021 may have been "scarring events," even though they aren't about occurrences in formative years. "I would imagine that people who live through those sorts of experiences will be more sensitive to electricity prices and maybe more likely to insulate their homes and be more careful about energy consumption when they buy their next home. In all kinds of similar contexts, I would expect similar phenomena."

## Americans have an affinity for driving

Unlike in western Europe, the U.S. is "a notably automobile-friendly nation," the paper noted. Data shows that about 76% of workers commute alone in a private vehicle (85% including carpoolers), compared with 56% (64% including carpoolers) in the U.K. Also, it is possible in most U.S. states to obtain a "full-privilege" driver's license before the age of 18, which is the minimum age for those licenses in most of Europe. In the late '70s, the minimum age to get a driver's license was 15 or 16 in most U.S. states, van Benthem said.

That degree of affinity for automobiles has meant that "it's extremely difficult to get Americans out of car transport into public transit," van Benthem continued. "Even very dramatic changes in gas prices don't seem to convince Americans to leave their cars at home, although they drive a little less. Rather than trying to push Americans towards mass transit, it will be much easier to reduce transport-related pollution and congestion by setting strict regulations for fuel economy, tailpipe emissions, and electric vehicles."

**More information:** Formative Experiences and the Price of Gasoline

Provided by University of Pennsylvania