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A new study by Carnegie Mellon University researchers finds that mainstream Chinese car buyers are more willing to adopt pure electric vehicles than American consumers.

CMU engineering professors [Jeremy Michalek](http://www.cmu.edu/me/people/jeremy-j-michalek.html) and [Erica Fuchs](http://www.epp.cmu.edu/people/bios/fuchs.html), Ph.D. student John Helveston and their co-authors surveyed automobile consumers in China and the U.S. to understand their preferences and willingness to pay for vehicle attributes.

"China is now the world's largest consumer and producer of automobiles," said Fuchs, an associate professor of [engineering and public policy](http://www.epp.cmu.edu/). "The trends in China's market and the strategies of automakers and government in China have the potential to change the economic incentives for automotive technology development worldwide."

The research team asked prospective car buyers in China and the U.S. to choose among gasoline, hybrid, plug-in hybrid and pure electric vehicles with varying range, performance, cost, brand, styling and recharging capabilities. They then used statistical methods to infer which attributes were driving their choices.

"We found that, on average, American consumers are only willing to purchase a pure electric vehicle if it costs $10,000 to $20,000 less than an otherwise equivalent gasoline vehicle, depending on its range and recharging capabilities," said Helveston, a doctoral candidate in engineering and public policy. "In contrast, we found a smaller average disparity for Chinese consumers, who are willing to pay even more for pure electric vehicles if they have sufficient range and recharging capabilities."

Both countries offer similar subsidies for plug-in vehicles, with the largest subsidies reserved for vehicles with large batteries, like pure electric vehicles, according to the study.

"Given today's vehicle offerings and subsidies, mainstream consumers in both countries prefer gasoline vehicles," Helveston said. "But we find that mainstream Chinese consumers are willing to adopt today's pure electric and most plug-in hybrid electric vehicles at similar rates relative to their respective gasoline counterparts. In contrast, mainstream American consumers prefer low-range plug-in hybrids over pure electric vehicles despite the lower subsidies."

The study, set to appear in the journal *Transportation Research Part A: Policy and Practice*, points out several key factors about the Chinese automotive market that might support adoption of pure electric vehicles: two-thirds of Chinese car buyers are first-time buyers who may not have established vehicle expectations; the Chinese inter-city train system is reliable and inexpensive for long distance travel; and Chinese consumers have more experience plugging in electric bicycles than American consumers.

"There is a potential for mainstream adoption of pure electric vehicles to happen in China first," said Michalek, a professor of engineering and public policy and [mechanical engineering](http://www.cmu.edu/me/). "Last year we saw a surge in Chinese plug-in vehicle adoption—mostly pure electric vehicles produced by domestic manufacturers."

The study, which was funded by the National Science Foundation and Ford Motor Company, notes that earlier adoption in China could have mixed implications.

"The U.S. and China together consume a third of global oil production and import nearly half of what they consume," Michalek said. "Transitioning away from oil has major security implications. But China’s electricity grid is also dirty, and a shift to plug-in vehicles might result in higher air emissions—at least in the near term."

Read the full paper: <http://www.sciencedirect.com/science/article/pii/S0965856415000038>

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