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ANALYSIS

The 'neighbor effect': Simulating dynamics in consumer preferences for new vehicle technologies

Paulus Mau[a,1], *Jimena Eyzaguirre*[a,1], *Mark Jaccard*[a,*], *Colleen Collins-Dodd*[b,2], *Kenneth Tiedemann*[a,1]

[a]*Simon Fraser University, School of Resource and Environmental Management, 8888 University Drive, Burnaby, BC, Canada V5A 1S6*
[b]*SFU Business, Simon Fraser University Vancouver, 515 West Hastings Street, Vancouver, BC, Canada V6B 5K3*

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ABSTRACT

Understanding consumer behaviour is essential in designing policies that efficiently increase the uptake of clean technologies over the long-run. Expert opinion or qualitative market analyses have tended to be the sources of this information. However, greater scrutiny on governments increasingly demands the use of reliable and credible evidence to support policy decisions. While discrete choice research and modeling techniques have been applied to estimate consumer preferences for technologies, these methods often assume static preferences. This study builds on the application of discrete choice research and modeling to capture dynamics in consumer preferences. We estimate Canadians' preferences for new vehicle technologies under different market assumptions, using responses from two national surveys focused on hybrid gas-electric vehicles and hydrogen fuel cell vehicles. The results support the relevance of a range of vehicle attributes beyond the purchase price in shaping consumer preferences towards clean vehicle technologies. They also corroborate our hypothesis that the degree of market penetration of clean vehicle technologies is an influence on people's preferences ('the neighbor effect'). Finally, our results provide behavioural parameters for the energy-economy model CIMS, which we use here to show the importance of including consumer preference dynamics when setting policies to encourage the uptake of clean technologies.

1. Introduction

Policymakers committed to achieving environmental goals face significant risks in deciding among policy options, and require credible information to support the design of effective policies that minimize societal costs over the long-run. In cases where long term environmental goals are at stake, information for policymakers about the potential effects of alternative policies tends to be scarce and uncertain, and policymakers often rely on energy-economic simulation models to make the best use of limited information. To be useful to policymakers, energy-economic simulation models must provide the most realistic projections possible, based on the best available data. The model CIMS incorporates consumer behaviour in its modeling capabilities to realistically simulate policies aimed at causing profound technological change in the long-run (Jaccard et al., 2003). Over the past few years, CIMS' ability to portray consumer behaviour has improved for specific technologies and applications in

* *Corresponding author.* Tel.: +1 604 291 4219; fax: +1 604 291 4968.
E-mail address: Jaccard@sfu.ca (M. Jaccard).
[1] Tel.: +1 604 291 4659; fax: +1 604 291 4968.
[2] Tel.: +1 604 291 5293; fax: +1 604 291 4920.

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