The role of gender in consumer markets for electric vehicles Dataset

Datasets available at: https://doi.org/10.25338/B80P8D

(This dataset supports report **Across Early Policy and Market Contexts Women and Men Show Similar Interest in Electric Vehicles,** http://dx.doi.org/10.7922/G28S4N77)

This U.S. Department of Transportation-funded dataset is preserved by the University of California in the digital repository Dryad (https://datadryad.org/), and is available at https://doi.org/10.25338/B80P8D.

The related final report **Across Early Policy and Market Contexts Women and Men Show Similar Interest in Electric Vehicles**, is available from the National Transportation Library's Digital Repository at https://rosap.ntl.bts.gov/view/dot/60109.

Metadata from the Dryad Repository record:

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Abstract: This dataset contains data from a survey of new-car buying households in 13 US states conducted December 2014 to January 2015. The original study is described in these technical reports:

Kurani, K S., N. Caperello, J. TyreeHageman New Car Buyers' Valuation of Zero-Emission Vehicles: California, Institute of Transportation Studies, University of California, Davis, Research Report UCD-ITS-RR-16-05 (2016). https://escholarship.org/uc/item/28v320rq

Kurani, K.S., N. Caperello, J. TyreeHageman NCST Research Report: Are We Hardwiring Gender Differences into the Market for Plug-in Electric Vehicles? Institute of Transportation Studies, University of California, Davis, Research Report UCD-ITS-RR-18-05 (2018). https://itspubs.ucdavis.edu/publication_detail.php?id=2888

This dataset is associated specifically with a subsequent technical report:

Kurani, K.S. and K. Buch Across Early Policy and Market Contexts Women and Men Show Similar Interest in Electric Vehicles, National Center for Sustainable Transportation, University of California, Davis, Research Report. 2019. https://escholarship.org/uc/item/9zz8n5x5

Data are from households who had a acquired at least one household vehicle as new (rather than used) since January 2008. The questionnaire was administered on-line to households in the following US states: California, Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Oregon, Rhode, Island, Vermont, and Washington. Most of these states are so called "ZEV states," i.e., they had adopted California's Zero Emission Vehicle

(ZEV) Mandate. Those states that were not ZEV states were included to facilitate regional analysis or because they were otherwise important to the initial launch of retail ZEV sales in 2011. The primary regional analysis was for the Northeast States for Coordinated Air Use Management (NESCAUM). The NESCAUM member states are Connecticut, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, and Vermont. The total sample size is 5,654 for all states; individual state samples sizes are available in the above referenced, Kurani et al (2016).

Analyses were conducted at the state and regional, i.e., NESCAUM, levels. Thus, there are individual data sets for each state for which there is a state-level analysis (California, Delaware, Maryland, Massachusetts, New Jersey, New York, Oregon, and Washington) and NESCAUM. Data for California are included in this release despite the fact its analysis was previously conducted under a separate study. California serves as the reference case because it has the most supportive policy and market context for ZEVs and its analysis is specifically referenced in the report associated with these data sets.

Since the goal was to produce the best possible analysis for each state or region, there are differences in their data sets. While variable names and codes follow consistent rules across all the data sets, which variables are in the data does vary across states and the NESCAUM region. The data released here are those required to replicate the analyses in the associated report.

For each state and region, data are available in two formats indicated by their file extensions: .jmp and .csv. Files with the .jmp extension are proprietary to the JMP© statistics program from SAS Institute. These files contain the data and as well as information about variable coding, variable values, value ordering, and other information in column notes. In effect, the .jmp files contain the data and the code book. The .csv files are generally accessible for import into a wide variety of analytical software but contain no explanatory notes.

Finally, an annotated version of the on-line questionnaire is available as Appendix F of the original report from California (Kurani et al 2016) cited above. The on-line instrument is customized to each respondent as they complete it. More than simple skip patterns, as respondents answer questions content of subsequent questions is populated with information participants provide. Some of this requires calls to data external to the survey instrument; some of these data are proprietary and some are no longer available. Therefore, no “live” version of the on-line questionnaire from 2014 is maintained. The annotated version and the description of the survey provided in the linked report are provided to assist data users.

While household ownership and purchase of all light-duty passenger cars and trucks approach gender parity, to date zero emission vehicles (ZEVs) are being purchased by far more men than women. Prior analysis of data from California finds no reason based in the prospective interest in ZEVs of female and male respondents why this difference should persist. The present report extends the California analysis to 12 other US states with varying ZEV policy and market contexts.

Among many other contextual, socio-economic, demographic, and attitudinal measures, the survey solicited participants’ prospective interest in acquiring an ZEV, that is, their interest in

their next new car. Participants then indicated why they were motivated to select a ZEV or what motivated them to not select one. Factor analysis was used to reduce the dimensionality of participants' prior awareness, experience, knowledge, and assessments of ZEVs. Via nominal logistic regression modeling, differences in prospective interest in ZEVs between female and male respondents are examined. Given their prospective interest, the motivations of female and male respondents are compared.

Overall, no difference between female and male participants in prospective interest in a ZEV rises to the level of the observed differences in real markets. Further, the multivariate modeling indicates no statistically significant effect of a sex indicator on prospective interest in ZEVS almost anywhere in these states. Where there is a difference, female participants are estimated to be more likely to choose a ZEV than their male counterparts.

While participants from both sexes tend to give high scores to the same ZEV (de)motivations, differences in their rank orders repeat generalizations from other research. On average, female respondents score environmental motivations higher than do male respondents. On average, interest in "new technology" is more motivating to male than female participants. Conversely, on average female respondents who do not select a ZEV score "unfamiliar technology" more highly than their male counterparts.

Within the variation in policy and market contexts represented by the states in this study, no finding here explains why similar prospective interest among female and male participants in ZEVs from the beginning of 2015 has yet to be turned toward equal participation in ZEV markets. Explanations may lie in factors not modeled here.

Methods: Data were collected via on-line survey in the late 2014 and early 2015 under contract with the California Air Resources Board and Northeast States for Coordinated Air Use Management. Data were collected via an online survey and in-home interviews of new-car buying households. There are eight state-level data sets for these states: CA, DE, MD, MA, NJ, NY, OR, and WA. A ninth data set covers the region defined by NESCAUM: CT, ME, MA, NH, NJ, NY, RI, and VT. The versions of these nine data sets required to reproduce the analysis reported here are archived for public use. Data cleaning, recoding, and analysis was done in JMP© from SAS Institute. Second versions of these nine data sets are also provided as comma-delimited text files.

Usage Notes: All of the data are available from a single URL: https://doi.org/10.25338/B80P8D. Files with the suffix .jmp contain data and notes about variable coding, value ordering, and other information. The .csv files may be imported into a wide variety of analytical software but contain no explanatory notes. This is full list of data files:

CA ZEV Survey 12-07-20.csv
CA ZEV Survey 12-07-20.jmp

DE ZEV Survey 12-07-20.csv
DE ZEV Survey 12-07-20.jmp

MA ZEV Survey 12-07-20.csv
MA ZEV Survey 12-07-20.jmp

MD ZEV Survey 12-07-20.csv
MD ZEV Survey 12-07-20.jmp

NJ ZEV Survey 12-07-20.csv
NJ ZEV Survey 12-07-20.jmp

NY ZEV Survey 12-07-20.csv
NY ZEV Survey 12-07-20.jmp

NESCAUM ZEV Survey 12-07-20.csv
NESCAUM ZEV Survey 12-07-20.jmp

OR ZEV Survey 12-07-20.csv
OR ZEV Survey 12-07-20.jmp

WA ZEV Survey 12-07-20.csv
WA ZEV Survey 12-07-20.jmp

To aid those using the .csv files, an annotated version of the on-line questionnaire is available at: https://escholarship.org/uc/item/28v320rq. The on-line instrument is customized to each respondent as they complete it. More than simple skip patterns as respondents answer questions, content of subsequent questions is populated with either the information respondents provide or is based on such information. Some of this requires calls to data external to the survey instrument; some of these data are proprietary and some are no longer available. Given all this, no "live" version of the on-line questionnaire from 2014 is maintained.

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Recommended Citation:
Kurani, Kenneth; Buch, Koral (2021), The role of gender in consumer markets for electric vehicles, Dryad, Dataset, https://doi.org/10.25338/B80P8D

Dataset description:
This dataset contains 1 .zip file collection below.

doi_10.25338_B80P8D__v5.zip:
- WA_ZEV_Survey_12-07-20.jmp
- WA_ZEV_Survey_12-07-20.csv
- OR_ZEV_Survey_12-07-20.jmp
- OR_ZEV_Survey_12-07-20.csv
- NY_ZEV_Survey_12-07-20.jmp
- NY_ZEV_Survey_12-07-20.csv
- NJ_ZEV_Survey_12-07-20.jmp

- NJ_ZEV_Survey_12-07-20.csv
- NESCAUM_ZEV_Survey_12-07-20.jmp
- NESCAUM_ZEV_Survey_12-07-20.csv
- MD_ZEV_Survey_12-07-20.jmp
- MD_ZEV_Survey_12-07-20.csv
- MA_ZEV_Survey_12-07-20.jmp
- MA_ZEV_Survey_12-07-20.csv
- DE_ZEV_Survey_12-07-20.jmp
- DE_ZEV_Survey_12-07-20.csv
- CA_ZEV_Survey_12-07-20.jmp
- CA_ZEV_Survey_12-07-20.csv

File Type Descriptions:

- The jmp file extension is associated with the SAS (Statistical Analysis System), a business analytics and statistical software for Microsoft Windows developed by SAS Institute Inc. The jmp file stores discovery chart-to-statistics data (for more information on .jmp files and software, please visit https://www.file-extensions.org/jmp-file-extension).
- The .csv, Comma Separated Value, file is a simple format that is designed for a database table and supported by many applications. The .csv file is often used for moving tabular data between two different computer programs, due to its open format. The most common software used to open .csv files are Microsoft Excel and RecordEditor, (for more information on .csv files and software, please visit https://www.file-extensions.org/csv-file-extension).

National Transportation Library (NTL) Curation Note:
As this dataset is preserved in a repository outside U.S. DOT control, as allowed by the U.S. DOT's Public Access Plan (https://doi.org/10.21949/1503647) Section 7.4.2 Data, the NTL staff has performed ***NO*** additional curation actions on this dataset. NTL staff last accessed this dataset at https://doi.org/10.25338/B80P8D on 2022-04-19. If, in the future, you have trouble accessing this dataset at the host repository, please email NTLDataCurator@dot.gov describing your problem. NTL staff will do its best to assist you at that time.