Readme: Vehicle Attribute Tradeoffs and the Distributional Effects of US Fuel Economy and Greenhouse Gas Emissions Standards

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Overview

This ReadMe contains a description of the data and programs used for the paper "Vehicle Attribute Tradeoffs and the Distributional Effects of US Fuel Economy and Greenhouse Gas Emissions Standards" The program files in this replication package construct the analyses from various data sources (as described below) using STATA. The program files included in the replication package generate the data for the 8 figures and 7 tables in the paper as well as 3 figures and 8 tables in the online appendix. The replicator should expect the code to run within 48 hours.

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Data Availability Statement

Statement about Rights

☑ I certify that the authors of the manuscript have legitimate access to and permission to use the data used in this manuscript.

Summary of Availability

☐ All data **are** publicly available.

☑ Some data **cannot be made** publicly available.

☐ **No data can be made** publicly available.

Details on each Data Source

The paper uses the New Vehicle Customer Survey administered by InMoment (formerly called MaritzCX). The database was purchased from InMoment. New vehicle registrations purchased from IHS Markit (https://www.spglobal.com/en). Vehicle characteristics data were purchased from Wards Automotive (https://www.wardsauto.com/). These databases are not included in the replication package because they are proprietary. To enable code execution, we provided access to servers at Resources for the Future (RFF), where the data are maintained and must remain under license agreements.

The data and replication files are available on a secure server at Resources for the Future (RFF). To obtain access to the data and replication files on the RFF server, contact Benjamin Leard at leard@rff.org. An RFF account will be established that will enable access to the data and replication code on the RFF servers.

Dataset list for publicly available data

Description	Notes	Citation
Household microdata from the Consumer Expenditure Surveys program	Accessed from https://www.bls.gov/cex/pumd_data.htm	U.S. Bureau of Labor Statistics 2025. Consumer Expenditure Surveys PUMD Data Files. https://www.bls.gov/cex/pumd_data.htm
Gasoline and diesel price data from the U.S. Energy Information Administration	Accessed from https://www.eia.gov/petroleum/gasdiesel/	U.S. Energy Information Administration 2025. Gasoline and Diesel Fuel Update. https://www.eia.gov/petroleum/gasdiesel/
Consumer price index data from the Bureau of Labor Statistics	Accessed from https://www.bls.gov/cpi/data.htm	U.S. Bureau of Labor Statistics 2025. Consumer Price Index. https://www.bls.gov/cpi/data.htm

Computational Requirements

Software Requirements

- Stata (code was last run with version SE 17.0)

Memory and Runtime Requirements

Summary

Approximate time needed to reproduce the analyses on a standard 2025 desktop machine:

☐ <10 minutes
☐ 10-60 minutes
☐ 1-8 hours
☐ 8-24 hours
☑ 1-3 days
☐ 3-14 days
☐ > 14 days
☐ Not feasible to run on a desktop machine, as described below.

Details

Description of code

- All data, replication code, and results are stored in corresponding subfolders in the folder "L:\Project-MaritzCX\Workspace1\Public\CAFE Ex Post Replication".
- The "Data" subfolder contains all the data used for this paper.
- The "Replication Code" subfolder contains 5 do files:
    1. summary_statistics.do computes summary statistics from the sample used for parameter estimation and simulations.
    2. parameter_estimates_summary.do computes reported demand and supply-side parameter estimates and statistics derived from the parameters.
    3. table6_simulations.do simulates the counterfactuals reported in Table 6 in the paper.
    4. table7_simulations.do simulates the counterfactuals reported in Table 7 in the paper.
    5. simulations_report.do computes statistics from the simulations that are reported in figures and tables.
- All do files save a log file and data sets located in the "Replication Code" subfolder.
- Output files generated by the 5 do files are saved in the "Replication Results" subfolder.
- Additional instructions are provided in the do files as to what is being generated by each do file.
- The figure and table names are all numbered the same way as in the paper and in the online appendix, followed by the exhibit's title in the paper and in the online appendix. Output files are numbered in the same way and should be easy to correlate with the manuscript.

Instructions to Replicators

Installation

- To replicate the results in this study, ensure that you have properly installed the required software.
- Download and install the latest version Stata (version used in this study: Stata SE 17.0)
- The installation time typically ranges from 5-30 minutes. For detailed, step-by-step instructions tailored to your operating system, refer to the Stata Installation Guide.

Running the analysis

- As instructed above, contact Benjamin Leard to set up an account that will enable access to the data and code.
- Connect to the servers (as instructed by RFF IT staff), open Stata, and navigate to "L:\Project-MaritzCX\Workspace1\Public\CAFE Ex Post Replication". Stata .do files are located in the "Replication Code" subfolder, and they can be run in any order. The table below explains which do files produce numbers for which figures and tables.
- The programs were last run on 2025/07/28.

The provided code reproduces:

☐ All numbers provided in text in the paper
☑ All tables and figures in the paper
☐ Selected tables and figures in the paper, as explained and justified below.

Figure/Table #	Program	Output files	Note
Figure 1, Table 1, Table 2, Appendix Figure 1, Appendix Table 4, Appendix Table 5	summary_statistics.do	figure1.csv, table2.csv	Requires proprietary data
Figures 2-4, Tables 3-5, Appendix Figure 2, Appendix Figure 3, Appendix Table 7	parameter_estimates_summary.do	figures2_3_4.csv, table3.csv, app_fig1.csv, app_fig2.csv, app_table7.csv	Requires proprietary data
Table 6, Table 7, Figures 5-7, Appendix Tables 1-3	simulations_report.do	figure5.csv, figure6a.csv, figure6b.csv, figure7.csv, figure8.csv	Requires proprietary data