README Replication Package for Ricks ⓡ Kay "Time-Limited Subsidies: Optimal Taxation with Implications for Renewable Energy Subsidies"

2025

1. Overview

This repository contains the replication materials for Ricks ⓡ Kay "Time-Limited Subsidies: Optimal Taxation with Implications for Renewable Energy Subsidies" in the *Journal of Political Economy*. The empirical portion of this paper examines how wind energy production changes after the end of firm eligibility for the Production Tax Credit. The replication package includes:

- All publicly available raw data used to produce the analysis files
- All analysis files used to produce the main results
- A dataset of estimates from the main analytical specification
- All code used to clean and analyze the data

2. License

All of the files in this repository are released to the public domain under a BSD-0 license to permit the widest possible reuse. If you use our code or data, we ask that you cite our *Journal of Political Economy* paper.

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3. Data

The main empirical results were generated using the following data:

Table 1: Data

Dataset	Years	Information Content	Access	Citation
Panel A: Wind Data				
EIA 906/920/923 form	2001-2021	Monthly facility-level generation	Public (included)	EIA (2001-2021b)
EIA 860 form	2021	Facility-level capacity	Public (included)	EIA (2021a)
AGS 2023 Replication Data	-	Section 1603 Investment Grant receipt	Public (included)	Aldy et al. (2021)
AWEA WindIQ*	2020	Facility-level repowering data	Proprietary	American Clean Power Association (2020)
Panel B: Appendix Extensions				
Automotive News Data Center	2016-2023	Monthly car sales by model	Proprietary	Automotive News Data Center (2016-2023)
SS 2023 Figure 2 Data	-	Facility-level capacity	By request (included)	Schmacker and Smed (2023)

Note: This table depicts the sources of data used in our analyses. All non-proprietary data are included in our repository. Please be sure to also cite the original authors if you use their data found in our repository.
* After we obtained the AWEA WindIQ data in 2020 it was replaced by the Clean Power IQ dataset. These data are available for purchase from the American Clean Energy Association.

All "included" datasets are in the `data_raw` folder. Furthermore, because some of the raw data are proprietary, the `data_final` folder includes four compiled datasets:

- `analysis_data.dta`: a STATA dataset with firm-by-month observations used for all the main results
- `ev_replication.dta`: a STATA dataset with quarterly GM car sales for Figure A1 (a)
- `soda_replication.dta`: a STATA dataset with quarterly soda consumption for Figure A1 (b)
- `ES_pool.dta`: a STATA dataset with the cohort-average (pooled) event study estimates and 95% CI (since the code used to estimate them can take meaningful time to run)

3.1 Obtaining Proprietary Data

The American Clean Power Association Clean Power IQ data are available by subscription on their website (Link updated 3/2025). The Automotive News Data are available by subscription on their website (Link Updated 3/2025).

4. Code

There replication package includes the following code

1. `00_data_prep.do` Takes the raw data and creates the main analysis data set. The main analysis file created by this code is included in the replication package for your convenience.Calls 5 programs:
   (a) `clean/01_eia923_netgen.do` Cleans electricity generation data from the EIA 906, 920, and 923 (schedule 2-5) forms (2001-2021).
   (b) `clean/02_eia860_capacity.do` Cleans wind facility capacity data from the EIA 860 form (2021).
   (c) `clean/03_eia923_resale.do` Cleans electricity resale data from the EIA 923 (schedule 6-7) forms (2011-2021).
   (d) `clean/04_windiq.do` Cleans repowering data from the proprietary WindIQ data (2020)
   (e) `clean/05_compile.do` Combines data, generates capacity factors, balances panel for firms that exit, and produces analysis data without proprietary fields.
2. `01_empirical_results.do` Takes the main analysis data set and produces Figure 2, Figure 3, and Appendix Table A2. To estimate the vintage-average event study parameters this file calls `analyze/sun_ab_ado.do` to implement the Sun and Abraham (2021) estimation procedure. Because this file can take between 20-60 minutes to run depending on the machine, we also include the resulting cohort-averaged event study coefficients for Figure 2 in `data_final/ES_pool.dta`.

3. `02_replication_figures.do` Takes raw replication data and produces Appendix Figure A1 (a) and (b). For A1(a), the data source is the proprietary Automotive News Data Center data used in Lohawala (2023), but we provide the data for the figure. For A1(b) the data are binned scatterplot points from Schmacker and Smed (2023) graciously provided by the authors.

Before running, directories must be set to the appropriate local machine. Commands to download needed user-written STATA packages are listed but commented out, as are sections of code that require proprietary data to run. Finally, note that to replicate the graphs exactly, users will need to download the Computer Modern Latin font "CMU Seriff."

4.1 Implementation

Code was run in the order specified above using STATA version 18.

5. Contact

If you have any questions about the replication files, please email Michael David Ricks at the University of Nebraska - Lincoln: `mricks4@unl.edu`.

References

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