Data Appendix — The impact of carbon prices on renewable energy support

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1 Prerequisites

The regression analysis is performed using Python 3.8 using the *statsmodels* framework. To replicate the results of the the regression

1. Install the Anaconda 3.8 Python distribution.
2. Install the statsmodels package.

To replicate the results of the numerical model you need:

1. GAMS installed on your computer.
2. A valid license for the CPLEX solver.
3. To process raw gdx files produced by GAMS, additional installation of the GAMS Python API is required.

2 Folder structure

- **gams** Contains all files for the numerical model.
- **ipython** Contains all files to run regressions and ex-post calculations.
- **data** Contains all data files.
- **results** Used to store all result files.

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3 Regression Analysis

All files can be found the in the *ipython* folder. The *data* folder contains input data.

1. Running the notebook *1_estimations.ipynb* performs all regressions including robustness exercises.

2. Notebooks *2_Ex-post_xxx.ipynb* perform ex-post calculations of the respective models.

Final results are stored in the *results* folder.

4 Numerical Model

The folder *gams* contains the following files:

- **main.gms** Main file to run the GAMS model. It includes all other GAMS files, implements, and solves the GAMS model.
- **report.gms** Defines reporting variables for the GAMS model.
- **carbon_price_constant_fuel.gms** Scenario file: Solves model under specified carbon prices and fuel prices constant at the level of the beginning of the sample. This is the main specification used in the paper.
- **carbon_price_constant_fuel.bat** Batch file to solve main scenario for several carbon prices.
- **observed.gms** Scenario file: Solves model under observed carbon and fuel prices.
- **carbon_price.gms** Scenario file: Solves model under observed fuel prices with a specified carbon price level.
- **carbon_price.bat** Batch file to solve carbon price scenario for several carbon prices.
- **load_data.py** Routines to convert gdx to csv files and to perform ex-post calculations.
- **Graph_Subsidies_by_Carbon_Price.ipynb** Calculates main results and graphs for numerical model.

Replicating the results of the numerical model requires the following steps:

1. Run*carbon_price_constant_fuel.bat*,

2. Run *Graph_Subsidies_by_Carbon_Price.ipynb*.