Quality Signaling and Demand for Renewable Energy Technology: Evidence from a Randomized Field Experiment

This folder contains the reproducibility package for the Working Paper "Quality Signaling and Demand for Renewable Energy Technology: Evidence from a Randomized Field Experiment" by Coville, Graff Zivin, Reichert and Reitmann.

Computational requirements

Software Requirements

- Stata (code was last run with version 15.1)
  - `estout` (version 1.2.2)
  - `iefieldkit` (version 3.2)
  - `ietoolkit` (version 7.3)
  - `outreg2` (version 2.3.2)
  - `distplot` (version 2.2.2)
  - `mhtexp` (version 14)
  - `ritest` (version 1.21)
  - `winsor2`
  - the program "`Master_DoFile_QualitySignalingSenegal.do`" will install all dependencies locally if the local `packages` in line 46 is set to 1.

Note: in order for the results of ritest to be reproducible, it is very important to have the newest version installed (1.21). To obtain the latest version through github, from the main window in Stata, run:

net describe ritest, from(https://raw.githubusercontent.com/simonheb/ritest/master/)

Memory and Runtime Requirements

- The code was last run on a **Windows 11 laptop with 32GB of RAM**.
- Stata analysis code takes approximately 25 minutes to run.

Instructions to Replicators

1. Open the downloaded folder and navigate to `fatick-ie-senegal/Code`

2. Download the data from the Microdata library (link provided in the Reproducible Research Repository. If the link is not available yet, please check at a later date) and place it in the Data/01_cleaned folder.
3. In the folder `fatick-ie-senegal/Code`, you will see a Stata dofile called `Master_DoFile_QualitySignalingSenegal.do`.
4. To run the Stata `Master_DoFile_QualitySignalingSenegal.do`, open it and add your user-dependent project path to reflect the path of the repository copy in your computer. This do-file creates all the tables and graphs included in the working paper, as well as in the appendix. You may need to install some of the user-written packages the code uses before it runs. To do so, modify line 46 by replacing `0` with `1`. This only needs to be done once in every computer.
5. The outputs will be recreated in the output folder. Please note that the files are named after the Table/Figure number. Figures are saved as .png-files and Tables are saved as .xls-files. For some tables there are various .xls-files, additionally named with more information (e.g. _ttest, _ftest, _panel, etc.).
6. Table 1 is created from table1_descriptives.xls and table1_ttest.xls. Ftest in the note can be found in table1_ftest.xls
7. Tables d7-d12 are computed in Stata with commands for which no output is produced (i.e., ritest or mhtexp). For these, the log files are saved instead.
8. The only outputs that cannot be reproduced are
   - figure A1 in the appendix, as it is a Flowchart, which was not created through Stata,
   - figures B1-B4 in the appendix which are images,
   - minor statistics mentioned in the main text or footnotes are not saved as output.

List of analysis codes and outputs

The provided code reproduces all tables and figures in the paper, with the exception of those listed above at point 8.

All analysis code is stored in `fatick-ie-senegal/Code/analysis` folder. All the code can be run from the called `Master_DoFile_QualitySignalingSenegal.do` script, but the code to recreate each exhibit can also be run independently, as long as the folder globals are set using the master.

Exhibit	Input dataset	Program	Output file
	Data/02_final/QualitySignaling_Senegal_PrepData.dta	Code/analysis/paper/in_text_calculations.do	In text calculations
Figure 1	Data/02_final/QualitySignaling_Senegal_PrepData.dta	Code/analysis/paper/graphs/figure1.do	Output/paper/graphs/figure1png
Figure 3	Data/02_final/QualitySignaling_Senegal_PrepData.dta	Code/analysis/paper/graphs/figure2.do	Output/paper/graphs/figure2.png
Table 1	Data/02_final/QualitySignaling_Senegal_PrepData.dta	Code/analysis/paper/tables/table1.do	Output/paper/tables/table1.xls
Table 2	Data/02_final/QualitySignaling_Senegal_PrepData.dta	Code/analysis/paper/tables/table2.do	Output/paper/tables/table2.xls
Table 3	Data/02_final/QualitySignaling_Senegal_PrepData.dta	Code/analysis/paper/tables/table3.do	Output/paper/tables/table3.xls
Table 4	Data/02_final/QualitySignaling_Senegal_PrepData.dta	Code/analysis/paper/tables/table4.do	Output/paper/tables/table4.xls
Table 5	Data/02_final/QualitySignaling_Senegal_PrepData.dta	Code/analysis/paper/tables/table5.do	Output/paper/tables/table5.xls
Appendix			
Table C1	Data/02_final/QualitySignaling_Senegal_PrepData.dta	Code/analysis/appendix/tables/table_c1.do	Output/appendix/tables/table_c1.xls
Table C2	Data/02_final/QualitySignaling_Senegal_PrepData.dta	Code/analysis/appendix/tables/table_c2.do	Output/appendix/tables/table_c2.xls
Table D1	Data/02_final/QualitySignaling_Senegal_PrepData.dta	Code/analysis/appendix/tables/table_d1.do	Output/appendix/tables/table_d1.xls
Table D2	Data/02_final/QualitySignaling_Senegal_PrepData.dta	Code/analysis/appendix/tables/table_d2.do	Output/appendix/tables/table_d2.xls
Table D3	Data/02_final/QualitySignaling_Senegal_PrepData.dta	Code/analysis/appendix/tables/table_d3.do	Output/appendix/tables/table_d3.xls

Exhibit	Input dataset	Program	Output file
Table D4	Data/02_final/QualitySignaling _Senegal_PrepData.dta	Code/analysis/appendix/ta bles/table_d4.do	Output/appendix/tables /table_d4.xls
Table D5	Data/02_final/QualitySignaling _Senegal_PrepData.dta	Code/analysis/appendix/ta bles/table_d5.do	Output/appendix/tables /table_d5.xls
Table D6	Data/02_final/QualitySignaling _Senegal_PrepData.dta	Code/analysis/appendix/ta bles/table_d6.do	Output/appendix/tables /table_d6.xls
Table D7	Data/02_final/QualitySignaling _Senegal_PrepData.dta	Code/analysis/appendix/ta bles/table_d7.do	Output/appendix/tables /table_d7_log.log
Table D8	Data/02_final/QualitySignaling _Senegal_PrepData.dta	Code/analysis/appendix/ta bles/table_d8.do	Output/appendix/tables /table_d8_log.log
Table D9	Data/02_final/QualitySignaling _Senegal_PrepData.dta	Code/analysis/appendix/ta bles/table_d9.do	Output/appendix/tables /table_d9_log.log
Table D10	Data/02_final/QualitySignaling _Senegal_PrepData.dta	Code/analysis/appendix/ta bles/table_d10.do	Output/appendix/tables /table_d10_log.log
Table D11	Data/02_final/QualitySignaling _Senegal_PrepData.dta	Code/analysis/appendix/ta bles/table_d11.do	Output/appendix/tables /table_d11_log.log
Table D12	Data/02_final/QualitySignaling _Senegal_PrepData.dta	Code/analysis/appendix/ta bles/table_d12.do	Output/appendix/tables /table_d12_log.log
Table E1	Data/02_final/QualitySignaling _Senegal_PrepData.dta	Code/analysis/appendix/ta bles/table_e1.do	Output/appendix/tables /table_e1.xls

Data Availability Statement

The data for this project consist exclusively of primary survey data collected in the course of the World Bank Project "Senegal Solar Lights Quality Assurance and Guarantee Impact Evaluation".