Scrips and Data description for:

Modelling welfare estimates in discrete choice experiment for seaweed-based renewable energy

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The ThreeModelComparisonENERGY dataset is the dataset corresponding to the submission entitled:

"Modelling welfare estimates in discrete choice experiment for seaweed-based renewable energy?"

Two types of programs were used in the estimations: Pythonbiogeme[2] and R. The way Pythonbiogeme works is that it runs the commands saved in a .py file along with a data file (.dat) and produces the output in an html file, according to which the tables in the manuscript were filled in. It is impossible to just run one .py file and reproduce all of our results, there needs to be a .py file for each model, as well as for each country. The RPL-UC and HCM models were estimated using Pythonbiogeme, whereas R was used for the rest of the analysis.

There are a total of 9 files:

	Name of file	**Description**
1	ThreeModelComparisonENERGY-RPL-UC-England.py	File needed to run the estimation of RPL-UC for England
2	ThreeModelComparisonENERGY-RPL-UC-Scotland.py	File needed to run the estimation of RPL-UC for Scotland
3	ThreeModelComparisonENERGY-RPL-UC-NI.py	File needed to run the estimation of RPL-UC for Northern Ireland
4	ThreeModelComparisonENERGY-HCM-England.py	File needed to run the estimation of HCM for England
5	ThreeModelComparisonENERGY-HCM-Scotland.py	File needed to run the estimation of HCM for Scotland
6	ThreeModelComparisonENERGY-HCM-NI.py	File needed to run the estimation of HCM for Northern Ireland
7	ThreeModelComparisonENERGY.dat	Data file to be used with each of the .py files in 1 – 6 above
8	ThreeModelComparisonENERGY.R	R script used to create Tables 3-5, estimate the RPL-C models for each of the countries and the WTP
9	ThreeModelComparisonENERGY.txt	Data file to be used with the R script in 8

To reproduce:	**Execute:**	**Software used:**
Table 3 – Table 5	File #8 + File #9	R
First column of Table 6 + Table A1	File #1 + File #7	Pythonbiogeme
Second column of Table 6 + Table A1	File #8 + File #9	R
Third column of Table 6 + Table A1	File #4 + File #7	Pythonbiogeme
First column of Table 7 + Table A2	File #2 + File #7	Pythonbiogeme
Second column of Table 7 + Table A2	File #8 + File #9	R
Third column of Table 7 + Table A2	File #5 + File #7	Pythonbiogeme
First column of Table 8 + Table A3	File #3 + File #7	Pythonbiogeme
Second column of Table 8 + Table A3	File #8 + File #9	R
Third column of Table 8 + Table A3	File #6 + File #7	Pythonbiogeme

[2] The program "Pythonbiogeme" can be installed for free online here: http://biogeme.epfl.ch/install.html

Figure 2 – Figure 4	File #8 + File #9	R

Each observation in the ThreeModelComparisonENERGY dataset is a choice occasion, there are a total of 10 choice occasions per person. Below is a list of the names of the variables contained within the data and a description of each one.

Variable name	**Variable description**
IDRow	Row number
ID	Unique participant id
consent	=1 if participant consented to the survey
country	=1 for England, =2 for Northern Ireland, =3 for Scotland
year	Birth year of participant
Block	=1 identifies Block 1 of DCE questions, =2 for Block 2 of DCE questions, =3 for Block 3 of DCE questions
ChoiceQuestion	Identifies the 10 choice occasions each participant had to answer
Choice	Participant's choice of either alternative 1, alternative 2 or alternative 3
alt1attr1hh2	**Choice occasion coding for each alternative and each attribute:** Code for alternative 1, attribute 1: number of households powered (dummy coding: 45,000 households: if alt1attr1hh2 = 0 & alt1attr1hh3 = 0; 85,000 households: if alt1attr1hh2 = 1 & alt1attr1hh3 = 0; 130,000 households: if alt1attr1hh2 = 0 & alt1attr1hh3 = 1)
alt1attr1hh3	Code for alternative 1, attribute 1: number of households powered (dummy coding: 45,000 households: if alt1attr1hh2 = 0 & alt1attr1hh3 = 0; 85,000 households: if alt1attr1hh2 = 1 & alt1attr1hh3 = 0; 130,000 households: if alt1attr1hh2 = 0 & alt1attr1hh3 = 1)
alt1attr2coast2	Code for alternative 1, attribute 2: percent of coastline used for farming seaweed (dummy coding: 10% of coastline used: if alt1attr2coast2 = 0 & alt1attr2coast3 = 0; 20% of coastline used: if alt1attr2coast2 = 1 & alt1attr2coast3 = 0; 30% of coastline used: if alt1attr2coast2 = 0 & alt1attr2coast3 = 1)
alt1attr2coast3	Code for alternative 1, attribute 2: percent of coastline used for farming seaweed (dummy coding: 10% of coastline used: if alt1attr2coast2 = 0 & alt1attr2coast3 = 0; 20% of coastline used: if alt1attr2coast2 = 1 & alt1attr2coast3 = 0; 30% of coastline used: if alt1attr2coast2 = 0 & alt1attr2coast3 = 1)
alt1attr3cost	Code for alternative 1, attribute 3: cost
alt1attr4perk1	Code for alternative 1, attribute 4: perks (dummy coding: no perk: if alt1attr4perk1 = 0 & alt1attr4perk2 = 0; a letter: if alt1attr4perk1 = 1 & alt1attr4perk2 = 0; Facebook profile picture: if alt1attr4perk1 = 0 & alt1attr4perk2 = 1)
alt1attr4perk2	Code for alternative 1, attribute 4: perks (dummy coding: no perk: if alt1attr4perk1 = 0 & alt1attr4perk2 = 0; a letter: if alt1attr4perk1 = 1 & alt1attr4perk2 = 0; Facebook profile picture: if alt1attr4perk1 = 0 & alt1attr4perk2 = 1)
alt2attr1hh2	Code for alternative 2, attribute 1: number of households powered (dummy coding: 45,000 households: if alt2attr1hh2 = 0 & alt2attr1hh3 = 0; 85,000 households: if alt2attr1hh2 = 1 & alt2attr1hh3 = 0; 130,000 households: if alt2attr1hh2 = 0 & alt2attr1hh3 = 1)
alt2attr1hh3	Code for alternative 2, attribute 1: number of households powered (dummy coding: 45,000 households: if alt2attr1hh2 = 0 & alt2attr1hh3 = 0; 85,000 households: if alt2attr1hh2 = 1 & alt2attr1hh3 = 0;

	130,000 households: if alt2attr1hh2 = 0 & alt2attr1hh3 = 1)
alt2attr2coast2	Code for alternative 2, attribute 2: percent of coastline used for farming seaweed (dummy coding: 10% of coastline used: if alt2attr2coast2 = 0 & alt2attr2coast3 = 0; 20% of coastline used: if alt2attr2coast2 = 1 & alt2attr2coast3 = 0; 30% of coastline used: if alt2attr2coast2 = 0 & alt2attr2coast3 = 1)
alt2attr2coast3	Code for alternative 2, attribute 2: percent of coastline used for farming seaweed (dummy coding: 10% of coastline used: if alt2attr2coast2 = 0 & alt2attr2coast3 = 0; 20% of coastline used: if alt2attr2coast2 = 1 & alt2attr2coast3 = 0; 30% of coastline used: if alt2attr2coast2 = 0 & alt2attr2coast3 = 1)
alt2attr3cost	Code for alternative 2, attribute 3: cost
alt2attr4perk1	Code for alternative 2, attribute 4: perks (dummy coding: no perk: if alt2attr4perk1 = 0 & alt2attr4perk2 = 0; a letter: if alt2attr4perk1 = 1 & alt2attr4perk2 = 0; Facebook profile picture: if alt2attr4perk1 = 0 & alt2attr4perk2 = 1)
alt2attr4perk2	Code for alternative 2, attribute 4: perks (dummy coding: no perk: if alt2attr4perk1 = 0 & alt2attr4perk2 = 0; a letter: if alt2attr4perk1 = 1 & alt2attr4perk2 = 0; Facebook profile picture: if alt2attr4perk1 = 0 & alt2attr4perk2 = 1)
alt3attr1hh2	Code for alternative 3, attribute 1: number of households powered (dummy coding: 45,000 households: if alt3attr1hh2 = 0 & alt3attr1hh3 = 0; 85,000 households: if alt3attr1hh2 = 1 & alt3attr1hh3 = 0; 130,000 households: if alt3attr1hh2 = 0 & alt3attr1hh3 = 1)
alt3attr1hh3	Code for alternative 3, attribute 1: number of households powered (dummy coding: 45,000 households: if alt3attr1hh2 = 0 & alt3attr1hh3 = 0; 85,000 households: if alt3attr1hh2 = 1 & alt3attr1hh3 = 0; 130,000 households: if alt3attr1hh2 = 0 & alt3attr1hh3 = 1)
alt3attr2coast2	Code for alternative 3, attribute 2: percent of coastline used for farming seaweed (dummy coding: 10% of coastline used: if alt3attr2coast2 = 0 & alt3attr2coast3 = 0; 20% of coastline used: if alt3attr2coast2 = 1 & alt3attr2coast3 = 0; 30% of coastline used: if alt3attr2coast2 = 0 & alt3attr2coast3 = 1)
alt3attr2coast3	Code for alternative 3, attribute 2: percent of coastline used for farming seaweed (dummy coding: 10% of coastline used: if alt3attr2coast2 = 0 & alt3attr2coast3 = 0; 20% of coastline used: if alt3attr2coast2 = 1 & alt3attr2coast3 = 0; 30% of coastline used: if alt3attr2coast2 = 0 & alt3attr2coast3 = 1)
alt3attr3cost	Code for alternative 3, attribute 3: cost
alt3attr4perk1	Code for alternative 3, attribute 4: perks (dummy coding: no perk: if alt3attr4perk1 = 0 & alt3attr4perk2 = 0; a letter: if alt3attr4perk1 = 1 & alt3attr4perk2 = 0; Facebook profile picture: if alt3attr4perk1 = 0 & alt3attr4perk2 = 1)
alt3attr4perk2	Code for alternative 3, attribute 4: perks (dummy coding: no perk: if alt3attr4perk1 = 0 & alt3attr4perk2 = 0; a letter: if alt3attr4perk1 = 1 & alt3attr4perk2 = 0; Facebook profile picture: if alt3attr4perk1 = 0 & alt3attr4perk2 = 1)
env1	Attitudinal question env1
env2	Attitudinal question env2
env3	Attitudinal question env3

env4	Attitudinal question env4
env5	Attitudinal question env5
env6	Attitudinal question env6
env7	Attitudinal question env7
pay_elecbill	The amount the household spends per year on electricity bills in GBP
marital_status	=1 if single, =2 if married, =3 if separated, =4 if widowed, =5 if cohabitating
num_adults	Number of adults living at home
num_children	Number of children living at home
education	=1 if no education, =2 if primary, =3 if GCSE, =4 if A levels, =5 if Bachelor, =6 if master, =7 if PhD, =8 if Foundation degree
economic_status	=1 if employed full time, =2 if employed part time, =3 if self-employed, =4 if retired, =5 if unemployed, =6 if homemaker, =7 if student
distance_coast	Number of miles live from the nearest coast
buy_green_energy	=1 if yes, =2 if no, =3 if don't know
ideo	Political orientation, 1 (left) - 10 (right)
income	Gross annual household income (GBP): if =1: < 15.000, if =2: 15.000-23.500 if =3: 23.501-33.800, if =4: 33.801-48.000, if =5: 48.001-87.500, if =6: < 87.501
age	Participant's age in years
female	=1 if participant was female
England	=1 for England
NI	=1 for Northern Ireland
Scotland	=1 for Scotland
duration_mins	The duration of minutes participant took to answer the survey
ChoiceSum	The sum of the answers to 10 choice questions. Choice = 3 is the status quo, ChoiceSum = 30 identifies participants who only chose the status quo (protesters).
too_short	=1 if completed the survey in under 6 minutes.
completed	=1 if completed the whole survey
Double_id	=1 if the same ID appeared twice (6 cases, excluded just in case).