Supplementary Material

The first part of the supplementary analysis extends the original findings by analysing further sample subgroups. Specifically, in this first part of the supplementary analysis a comparison is made between the full sample and part of this sample that excludes single-occupant households (i.e., it is a multiple-occupant subsample).

In this analysis the same variables are used: involvement, importance, efficacy, behaviour and behavioural intentions. The analysis uses ordered probit regression to investigate the impact of multiple-occupancy households. As with the analysis reported within the main paper, this is done using the following household categories: no champion present (Type 1), champion present who is not the respondent (Type 2), energy efficiency champion who is the respondent (Type 3), climate-change champion who is the respondent (Type 4), and combined energy efficiency and climate change champion who is the respondent (Type 5).

The second part of the supplementary analysis reports the treatment effects estimates. While noted in the main paper, some further details are provided here, which speak to the issues of causal relationships and the effect of the household types. For this, Household Types 2, 3, 4 and 5 are used as treatment groups, while Type 1, no-champion present, is the untreated group.

SUPPLEMENTARY ANALYSIS OF MULTIPLE-OCCUPANCY HOUSEHOLDS EXCLUDING SINGLE-PERSON HOUSEHOLDS

The first part of the supplementary analysis removed the single-occupant households and examined what, if any, effect this had on the results. All of the dependent variables used in the main analysis were included. In total, there were 486 (21.3% of the total sample) single-occupancy households from a total sample of 2,278, leaving n = 1792 (78.67% of the full sample). Ordinal regressions were estimated for two groups: all households (for reference), and multiple-occupancy households (i.e., excluding single occupancy). Then, the estimated coefficients were tested to see if there were differences between these groups.

For the full sample, and the multiple-occupancy households, each household type was significant as a predictor of each dependent variable (see Table S1). For both the full sample and subsample, Type 2, Type 3, Type 4 and Type 5 all had coefficients that differed from the base category Type 1 ($p < 0.001$). In 16 out of 20 cases, the multiple-occupancy households had higher coefficients than for the full sample (and hence single-occupancy households would be expected to have lower values than the full sample). Also, it was behavioural intentions that are different from the other variables, with three out of four being lower for multiple-occupancy households.

Table S1. Sample group analysis, regression results for the full sample and multiple-occupancy subsample.

	Involvement	Importance	Efficacy	Behaviour	Behavioural Intentions
Full sample			**Coefficients**		
Type 2	0.59	0.49	0.37	0.33	0.28*
Type 3	0.45	0.46	0.50	0.40	0.39
Type 4	0.99	0.90	0.34*	0.72	0.54
Type 5	1.25	1.35	0.77	0.87	0.70
Multi-occupancy households only			**Coefficients**		
Type 2	0.58	0.51	0.38	0.40	0.27*
Type 3	0.50	0.55	0.61*	0.41	0.40
Type 4	1.04	0.99	0.36	0.78	0.51
Type 5	1.34	1.39	0.78	0.93	0.78

*$p < 0.01$, all other coefficients $p < 0.001$. Note reference category is Type 1 no champion present).

TREATMENT EFFECTS RESULTS FOR HOUSEHOLD TYPES

The treatment effects testing was used to further examine the coefficients, and endogeneity/selection bias. In this case, the household type was used as the treatment to compare each household type against a household with no champion present. A doubly robust estimator (inverse probability weights with regression adjustment) was used, as the determinants of the outcome are known for each of the five dependent variables. Three outputs are of interest: (1) potential-outcome means for each treatment level (PoMeans)–that is, the potential outcomes if they were assigned a specific treatment, (2) average treatment effect (ATE), and (3) the average treatment effect on the treated (ATET).

The analysis was conducted for the five types of household: no champion present (Type 1), champion present who is not the respondent (Type 2), energy efficiency champion who is the respondent (Type 3), climate-change champion who is the respondent (Type 4), combined energy-efficiency and climate change champion who is the respondent (Type 5). Type 1 is the 'untreated' and the other four household types are 'treated'.

As can be seen in Table S2, each of the PoMeans estimates for the Type 1 household are lower than those of the treated households, and this is a significant difference ($p < 0.001$). The ATE is the difference between the PoMeans of those who are untreated (Type 1) and those who are treated (Types 2, 3, 4 and 5), on average for all in the sample (both treated and untreated). In each case the ATE is significant ($p < 0.001$) and shows that there is a positive treatment average difference in the outcome variables (involvement, importance, efficacy, behaviour and behavioural intentions) between the treatment groups (Types 2, 3, 4 and 5) and the non-treatment group (Type 1). Hence in each case, treatment leads to better outcomes for the environment.

The ATET focuses on the average causal effect of the treatment, for those who are treated only. In each estimate, the coefficient for the treatment effects was significant and positive, which shows that

treatments have a significant effect on the different variables. The results show that being in a treated household (being subjected to the treatment) has a positive effect on the outcomes measured.

The treatment effects analysis delivers two key results. The first is that households with a champion, of any type, be it the respondent or another in the household have a significantly higher potential expected outcome mean. The PoMeans for each type and each of the dependent variables are significantly higher (see Table S2). Further, being treated, that is in a household with a champion, also predicts a positive difference in climate change activity in comparison with a household without a champion. Thus, the analysis provides confirmatory evidence for the main estimates which found that household champions play a significant role in driving environmental outcomes.

Table S2. Treatment effects results by dependent variable.

	Involvement	Importance	Efficacy	Behaviour	Intentions
PoMeans					
Type 1 (untreated)	2.03	2.70	2.70	2.23	2.07
Type 2	2.44	3.12	3.04	2.51	2.15
Type 3	2.38	3.13	3.17	2.57	2.20
Type 4	2.88	3.49	3.00	2.83	2.25
Type 5	2.94	3.87	3.37	3.01	2.29
ATE					
Type 2 v Type 1	0.41	0.42	0.34	0.28	0.08
Type 3 v Type 1	0.35	0.43	0.47	0.34	0.12
Type 4 v Type 1	0.85	0.79	0.30*	0.60	0.18
Type 5 v Type 1	0.91	1.17	0.67	0.78	0.22
ATET					
Type 2 v Type 1	0.42	0.44	0.33	0.27	0.09
Type 3 v Type 1	0.35	0.44	0.48	0.34	0.13
Type 4 v Type 1	0.78	0.77	0.28*	0.55	0.18
Type 5 v Type 1	0.91	1.16	0.64	0.75	0.22

* denotes significant at $p < 0.05$, all others significant $p < 0.001$, note Type 1 = no champion present, Type2 = Champion present not the respondent, Type 3 = Energy efficiency champion who is the respondent, Type4 = Climate-change champion who is the respondent, Type5 = Combined energy-efficiency and climate change champion who is the respondent).