IS FACEBOOK MAKING US GREENER?

THE ROLE OF ONLINE SOCIAL CONNECTEDNESS IN SHAPING CONSERVATION PRIORITIES

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BACKGROUND AND MOTIVATION

external versus internal barriers:

- consumers face significant social and psychological barriers to behavioral change.

social capital as a source of internal motivation and **transactions costs** associated with connecting with and learning from others

Illustrates a need for policy research to examine the effects of social connectedness on conservation priorities, practices, and appliance-specific energy behaviors.

THEORETICAL MODEL

Value-belief-norm theory:

- environmental attitudes result from the activation of norms and values within the constraints of contextual features such as socioeconomic status, resources, technologies, and social interactions (Stern 2000)

- Online social networking allows for greater information access, connectedness accountability that is likely to foster conservation attitudes and practices that are less likely under offline conditions

EMPIRICAL MODEL

Hypothesis 1*: heavy users of social networking web sites will place higher degrees of importance on environmental priorities than non-heavy-users and will engage more frequently in conservation practices*

Prob(Y| λ) = $e^{-\lambda\mu}(\lambda_i\mu_i)^{yi} / y$

Examines the probability of a consumer prioritizing environmental protection and renewable energy

Predicts the extent of environmental prioritization through count data analysis

EMPIRICAL MODEL

Hypothesis 2*: respondents who value environmental protection will consume less energy than similar respondents who are not environmentally motivated*

$$Y_{\text{energy behavior}} = \alpha + \beta_{\text{green-priorities}} + \beta_{\text{demographic controls}} + \beta_{\text{housing characteristics}} + \mu$$

DATA

Electric utility consumer segmentation survey

10-page questionnaire to 16,500 residential customers: 38% response

68 questions: Housing characteristics, home appliance use, heating, cooling, income, education

Detailed value statements : Likert scale attitudinal measures and 1-10 priority sticker placements

Behavioral variables:

- Annual and monthly billing data
- Taken steps to conserve?
- Replaced light bulbs with CFLs?

KEY VARIABLES

Y_1 = count of stickers (0 -10) allocated to environmental protection and energy conservation relative to other priorities (cost savings, comfort, energy security, etc.)

Y_2 = energy consumption and conservation behavior

X = Treatment = “Heavy” exposure to online communities and social networking activities

- Ordinal measures of internet use, Facebook, Twitter

KEY ATTITUDINAL DIFFERENCES AMONG CONSUMER SEGMENTS

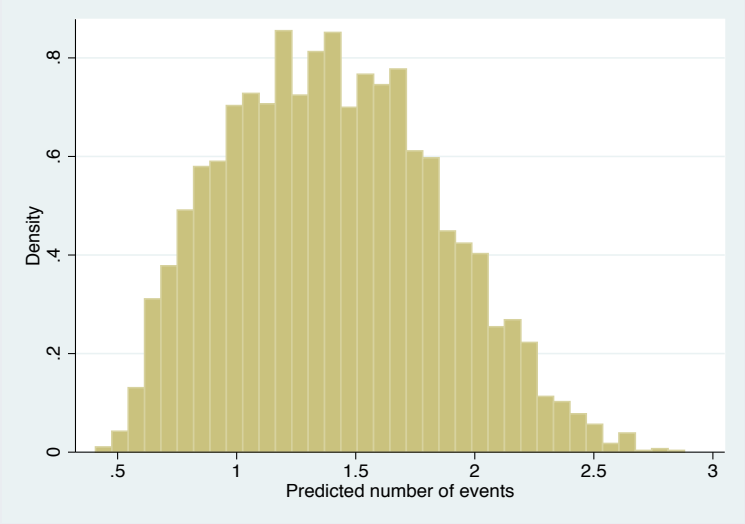
Key Attitudes and Values	Comfortable Skeptics 19%	Other Priorities 23%	Green Aware 23%	Responsible Consumers 16%	Committed Conservers 19%
Maintain my home comfort and lifestyle	+++	++	+	+	
Power quality and reliability	++	+	+	+	+
My right to use all the energy I can pay for	++	++		+++	
Technology orientation and adoption				+++	+
Concern about the size of my electric bill	+	+	+	++	++
Utility should help me reduce my bill		+		++	++
Alternative energy and future energy supply/cost		+	+	++	++
Protect environment from climate change			++	+++	+++
Energy conservation and recycling		+	++	+++	+++

DO RESIDENTIAL CONSUMERS CARE ABOUT RENEWABLE ENERGY?

Counts of Pro-Renewable Energy Stickers

Average 1.4 stickers out of 10

Versus 1.6 (comfort) and 3.8 (cost)



18-24 year-olds place lowest priority on renewable energy solutions

25-34 year-olds demonstrate highest priority

ATTITUDINAL RESULTS

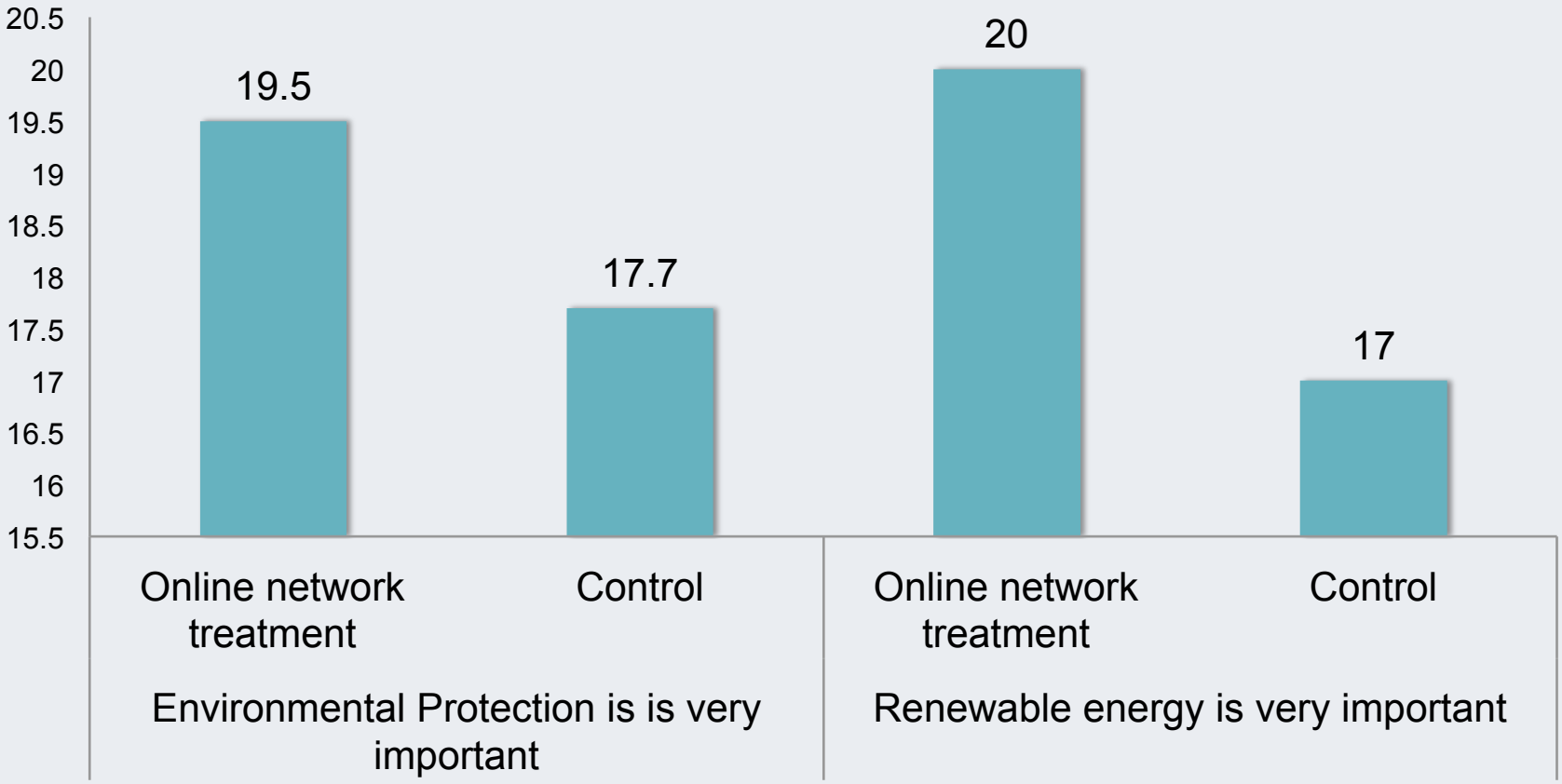
- Treatment group more strongly associated with pro-environmental attitudes than with competing values such as cost savings and comfort.

- On average a Treatment group member places .**132 increase more stickers** on renewable energy priorities relative to less frequent users.

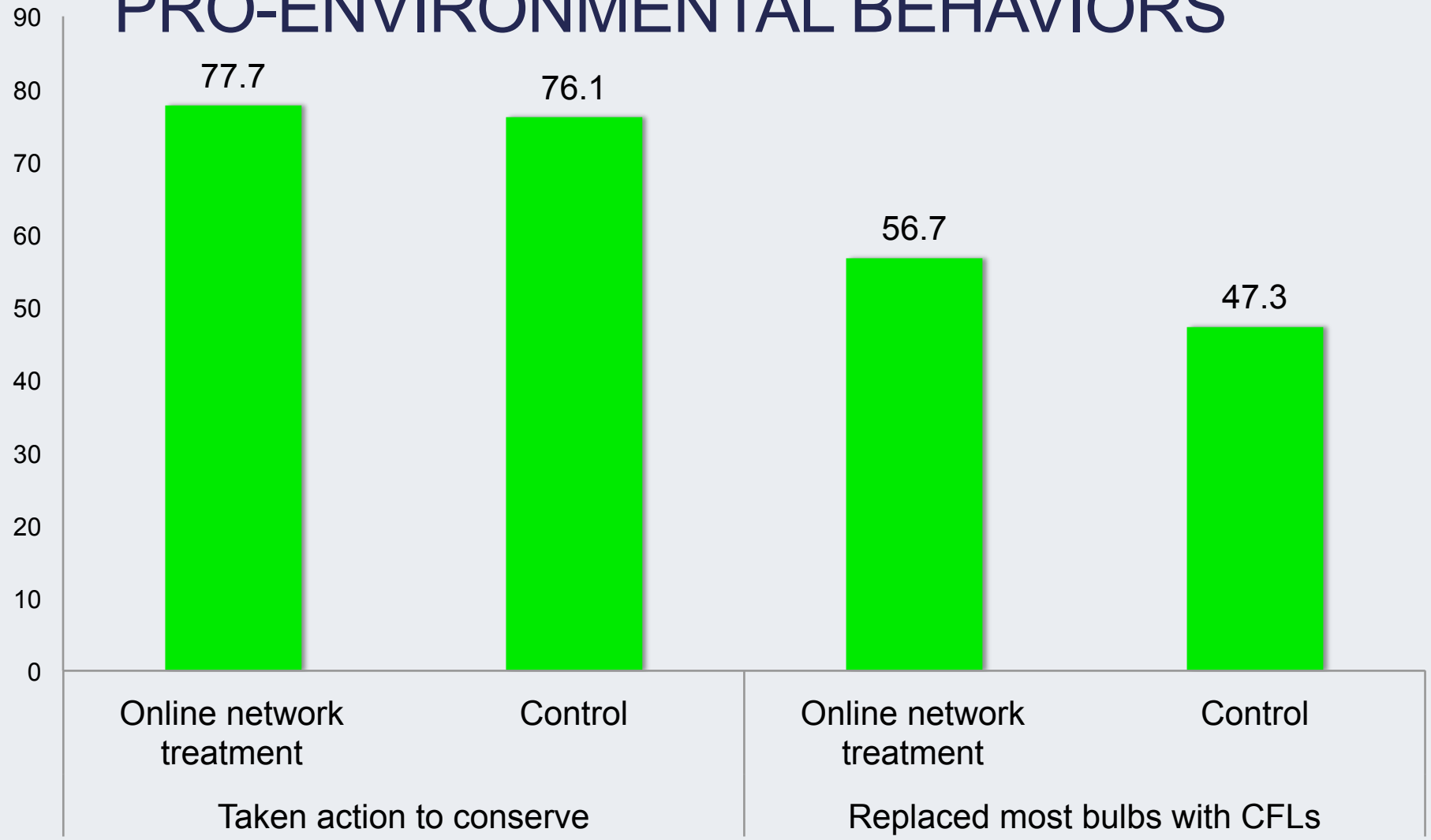
- MLE models illustrate that the heavy web use treatment corresponds to a **1.83 percentage point decrease** in placing a low priority on conservation.

Effects are modest, but promising given their influence relative to other priorities such as cost and comfort

PERCENTAGE OF ONLINE TREATMENT AND CONTROL GROUPS EXHIBITING PRO-ENVIRONMENTAL ATTITUDES



PERCENTAGE OF ONLINE TREATMENT AND CONTROL GROUPS EXHIBITING PRO-ENVIRONMENTAL BEHAVIORS



BEHAVIORAL RESULTS

Are “Green” Consumers Practicing what they preach?

Each additional point assigned to green priorities is associated with **2.4% decrease** in annual electricity expenditure and higher levels of participation in conservation activities

“Greens” show a **2.75 percentage point increase** in probability of replacing most or all bulbs with CFLs or LEDs

“Heavy web users” show a **4.2 percentage point increase**

DISCUSSION

How to interpret these effects?

- Unobserved features of internet users are inseparable from the causal impact of the treatment
- May be that many high web users care less about the environment since the behavior itself results in energy use
- Limitations of the data set and measurement error associated with using sticker counts across competing priorities as a true indicator of environmental belief
- Need better network and behavioral data to operationalize social capital and detect exposure to social norms, information, and peer feedback online

FUTURE WORK

- Development of a predictive tool, assigning precise likelihoods of adoption and prioritization to disaggregated consumer groups

- Quasi-experimental approaches – instrumental variable methods already show that heavy users users **are 30% more likely** to have replaced incandescents with CFLs

- Experiments to test the impact of exposure to novel online networking platforms on attitudes and subsequent behavior

THANKS

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