

Matching costs to context: Status quo bias, temporal framing, and household energy decisions

Carrie Gill¹, Stephen Atlas², and David Hardisty³

¹ PhD Candidate, Department of Environmental and Natural Resource Economics, University of Rhode Island – cagill@my.uri.edu

² Assistant Professor of Marketing, College of Business Administration, University of Rhode Island; ³ Assistant Professor, Marketing and Behavioral Science Division, Sauder School of Business, University of British Columbia

Introduction

US residential consumers used 10.2 quadrillion BTU of energy in 2009, amounting to nearly \$230 billion spent on utility bills, and negative environmental and health externalities [3]. One challenge of promoting energy-efficient behavior is that it requires change.

We can nudge energy efficiency by making the costs and savings more salient, for example, with cost comparisons on product packaging. Yet there is substantial variation in how costs and savings are presented (e.g. per day, per month, per year) and we lack a comprehensive framework for understanding how people respond to this information conditional on their status quo choices and behaviors.

We use survey data to understand how temporal framing of costs and savings can reduce the effects of status quo bias in the context of household energy decisions, investigate cognitive fluency as an underlying mechanism for this interaction, and explore how we might apply our findings to encourage energy efficiency.

Background

Status quo bias may lead to energy inefficiency

Individuals tend to stick with defaults and status quos [6, 8]. For example, consumers tend to keep a contractor's arbitrary light bulb choice, despite zero switching cost and the potential for monetary savings [2]. Individuals also face losing comfort and convenience when they switch from energy-inefficient to efficient behaviors [5].

How costs and savings are presented affects the choices individuals make. Under prospect theory, consumers prefer to segregate savings (*save \$x per day*) and integrate costs (*pay \$y per year*) [9]. On the other hand, the Pennies-a-Day effect suggests that individuals tend to neglect small recurring costs (*pay \$z per day*) [4]. How should we frame the costs and savings associated with energy efficiency?

Cognitive fluency affects decision making

Cognitive fluency – the subjective experience of ease of processing information – affects judgment and decision making [1]. Weighing tradeoffs between energy-efficient behavior alternatives can feel difficult, and this **disfluency may encourage individuals to stick with status quo behaviors** [7].

Can we overcome decision avoidance and encourage energy efficient behaviors by presenting monetary costs in a way that increases processing fluency?

Objectives

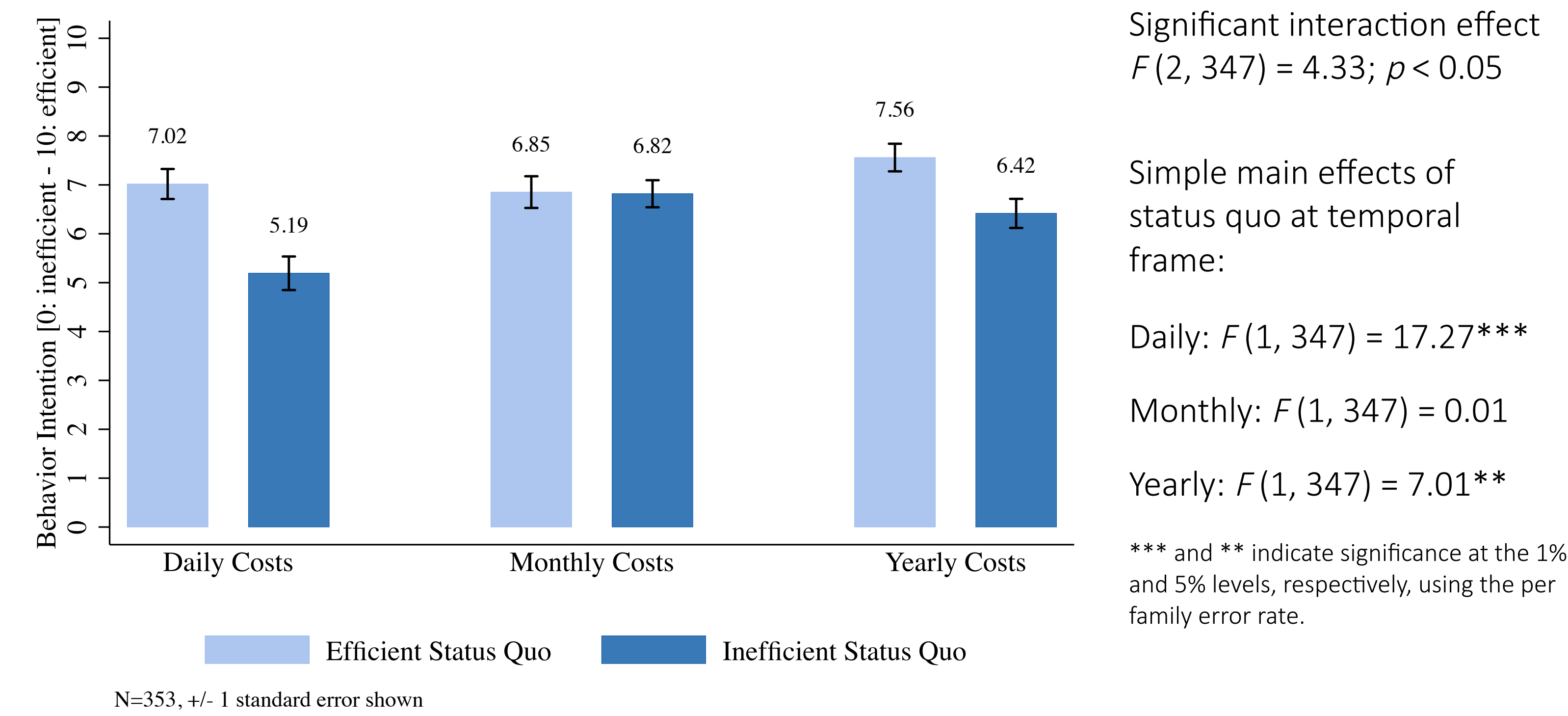
- Identify which temporal frame of costs/savings reduces status quo bias in energy decisions (Study 1)
- Investigate the role of cognitive fluency (Study 2)
- Explore the effect of providing context for evaluating costs in less-fluent frames (Study 3)

1: Monthly framing minimizes status quo bias

We presented $N = 353$ MTurkers with energy-related household decisions in a between-subjects experiment. We manipulated status quo behavior (inefficient, efficient) and how the costs or savings of switching behaviors was framed (per day, per month, per year).

Scenario example:

Suppose you often use warm water, but you are considering whether to use only cold water for your laundry. If you only use cold water, you will save 17 cents per day on energy costs. What do you think you would do?

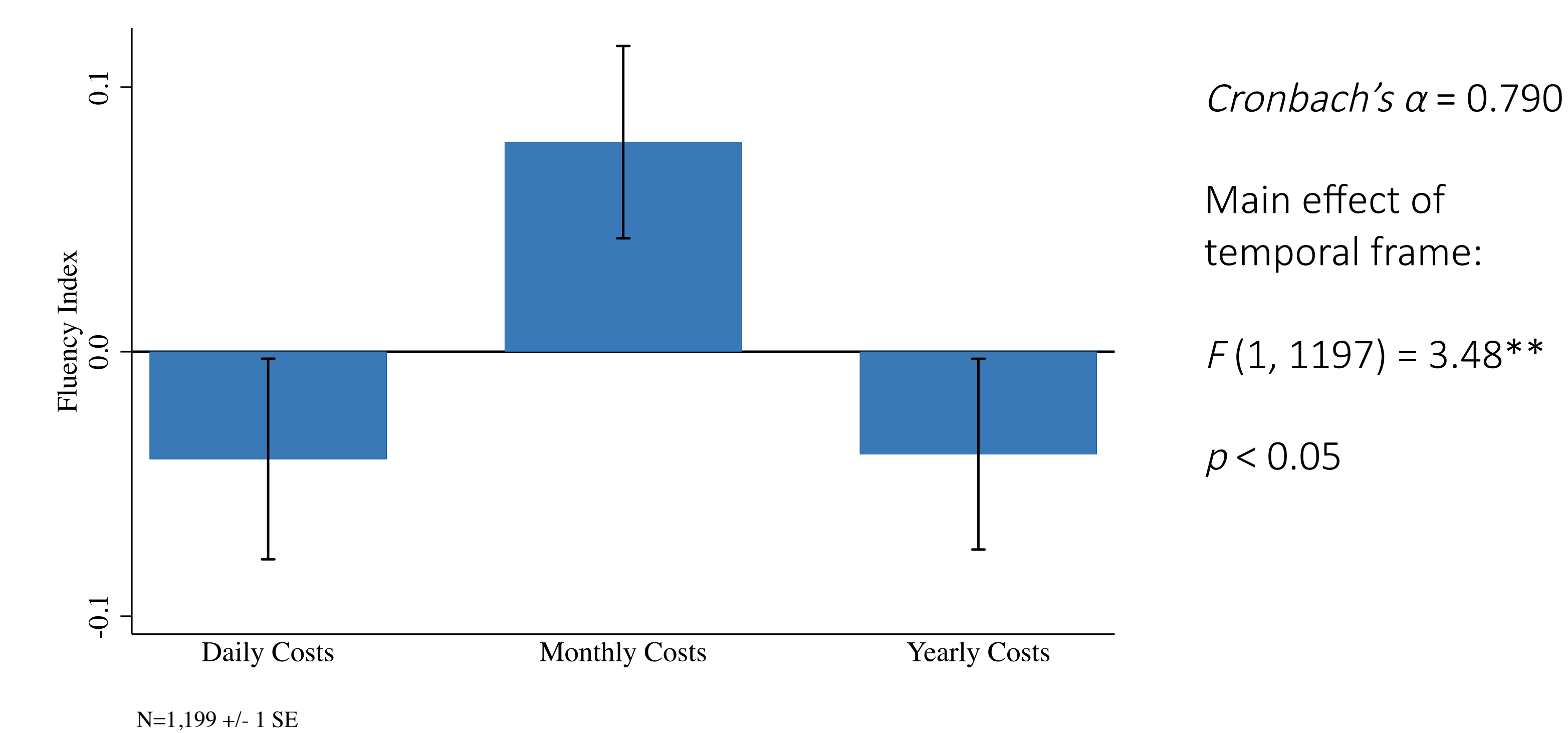


→ We found evidence of status quo bias when daily or yearly costs were presented but *not* when costs were framed as monthly.

2: Individuals are most fluent with monthly

Individuals typically receive a monthly energy bill. This may provide an implicit context for easily evaluating the cost of energy-inefficient choices. Could processing fluency influence how people respond to temporal frames?

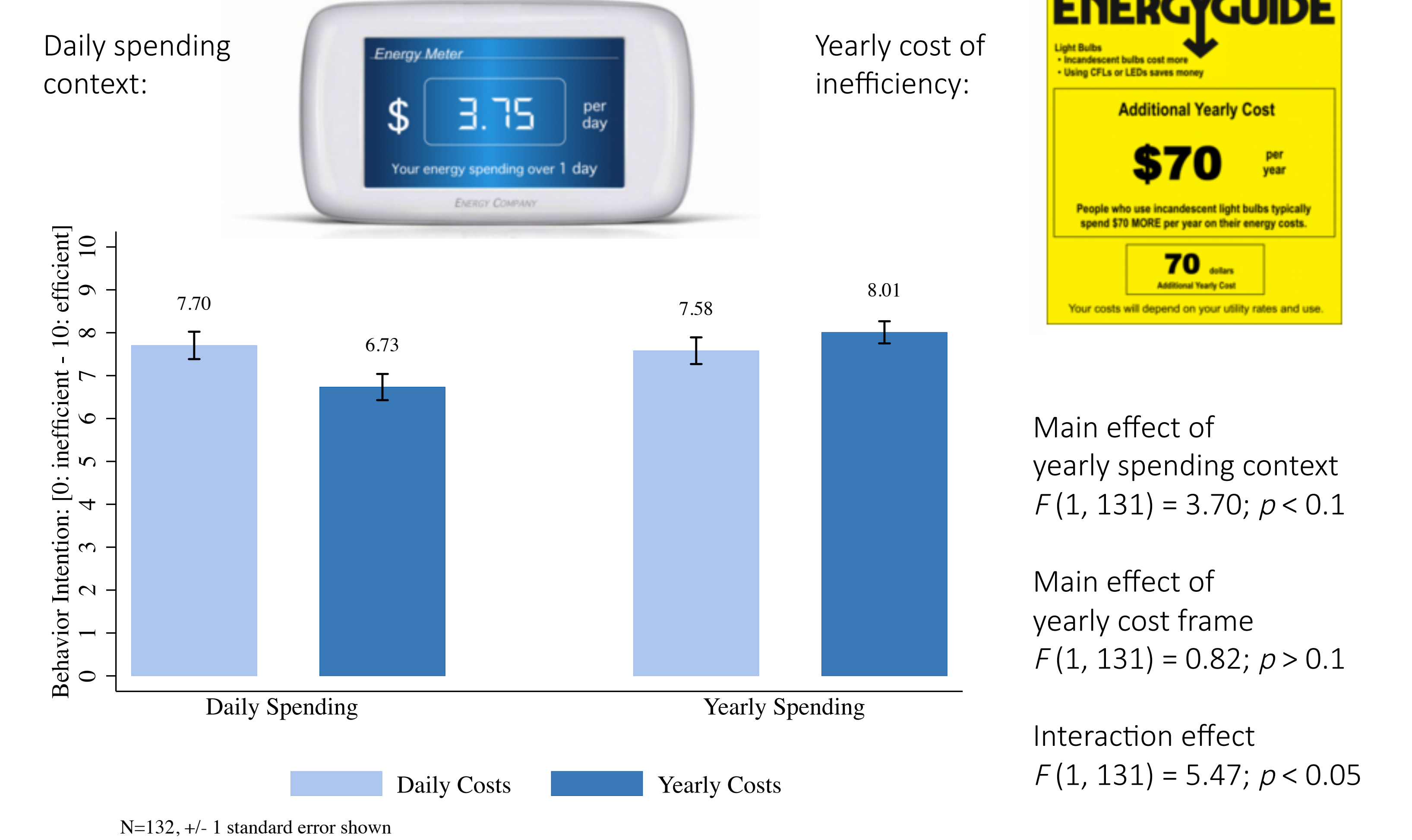
We surveyed $N = 1,199$ MTurkers using similar energy-related scenarios as described above. We elicited fluency using five measures regarding involvement, clarity, and ease of understanding the energy decision and financial impacts. We aggregated these fluency measures and compared across cost frames.



→ Cognitive fluency is significantly higher when costs are presented as monthly, relative to daily and yearly frames.

3: Provide a context for unfamiliar frames

We provide an explicit context for total energy spending in a survey of $N = 132$ Qualtrics recruits. Typical total energy spending (left fig.) and costs of engaging in energy-inefficient behaviors (right fig.) were framed as daily or yearly.



→ Supplementing cost info with a spending context in the same frame can increase efficiency intentions, especially if the frame is broad.

Conclusions

Efficiency advocates and energy managers should **consider messaging with monthly savings in the absence of an explicit typical spending context** to overcome status quo bias.

Providing a **context for total energy spending in the same frame as costs** of energy inefficiency may help reduce resistance to adopting energy-efficient behaviors.

Yearly framing of costs/savings coupled with annual total energy spending may encourage the most energy efficient behavior intentions.

Acknowledgments

Thanks to Ethan Rix, URI's Undergraduate Research Initiative Grant, Qualtrics Behavioral Research Grant, URI's Mental Accounting and Pricing Lab, ENRE Experimental Economics Group, and to attendees of the 2015 Annual Meeting of the Society for Judgment and Decision Making.

Select references

- Alter, A. L., & Oppenheimer, D. M. (2009). Uniting the tribes of fluency to form a metacognitive nation. *Personality and social psychology review*.
- Dinner, I. et al. (2011). Partitioning Default Effects: why people choose not to choose. *Journal of Experimental Psychology: Applied*, 17(4), 332.
- EIA (2009). Residential Energy Consumption Survey.
- Gourville, J. (1998). The Effect of Temporal Reframing on Transaction Evaluation. *Journal of Consumer Research*, 24(4), 395-408.
- Kahneman, D., Knetsch, J.L., & Thaler, R.H. (1990) Experimental Tests of the Endowment Effect and The Coase Theorem. *Journal of Political Economy*, 98(6), 1325-1348.
- Kahneman, D. & Tversky, A. (1979) Prospect Theory: An Analysis of Decision under Risk. *Econometrica*, 47(2), 263-91.
- Novemsky, N., et. al. (2007). Preference fluency in choice. *Journal of Marketing Research*, 44(3), 347-356.
- Samuelson, W., & Zeckhauser, R. (1988). Status quo bias in decision making. *Journal of risk and uncertainty*, 1(1), 7-59.
- Thaler, R.H. (1985) Mental Accounting and Consumer Choice. *Marketing Science*, 4(3), 199-214.

Feedback or questions? Email Carrie Gill at cagill@my.uri.edu - Thanks!