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Spillover effects of an environmental campaign on policy support

within and between domains

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Spillover effects of an environmental campaign on policy support: within and between domains*

Zihan Nie^a, Thong Q. Ho^b, Francisco Alpizar^c, Fredrik Carlsson^d, and Pham Khanh Nam^e

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Keywords: environmental campaign, policy support, spillover effect

JEL codes: D8, O1, O2

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1 Introduction

Environmental campaigns and public policies that focus on individual responsibility and behavioral changes of individuals have been widely studied and are frequently promoted as key tools to combat a wide range of environmental problems. However, there are increasing concerns about the implications of such a policy orientation. In a recent article, Chater & Loewenstein (2023) argue that a focus on individual-level responsibility and behavioral changes, what they call an “i-frame”, might shift the focus away from standard system-wide policies and institutional design changes, what they call an “s-frame”. Thus, the recent surge in “i-frame” policies, particularly in the form of behavioral interventions, may have the unintended consequence of slowing down or halting system-wide changes, i.e., comprehensive policy measures and institutional frameworks that would in turn make behavioral changes simpler or easier to implement. In this study, we investigate if and how an “i-frame” intervention affects the support for “s-frame” policies in both the domain that the “i-frame” targets and in other domains.¹ Specifically, we investigate how a campaign targeting the use of single-use plastics affects support for system-wide policies targeting plastic use and policies targeting other environmental problems.

Previous studies have investigated the associations among pro-environmental behaviors across different domains (see e.g. Carlsson et al., 2021; Jessoe et al., 2021; Kaida & Kaida, 2015; Truelove et al., 2014; Thøgersen & Ölander, 2003; Thøgersen, 1999). For example, Carlsson et al. (2021) find that a social information campaign targeting water use also reduced electricity use for the same households. They argue that this was due to individuals' desire to act consistently across similar domains (Cialdini, 1984; Frey, 1993). A similar effect is found by Jessoe et al. (2021). These are known as positive spillover effects (Galasso et al., 2023; Truelove et al., 2014). On the other hand, Mazar and Zhong (2010) find that people become less altruistic after purchasing environmentally friendly products than after purchasing conventional products. They label this type of effect as moral licensing (also see,

¹ While our paper speaks to the concern of Chater & Loewenstein (2023) and we adopted their terminology when describing different policy frames, our experiment predates our knowledge of their work. We preregistered the research questions of the effect of plastic reduction campaign on wider policy support in Alpizar et al. (2019).

Blanken et al., 2015), also known as indirect rebound effects (Reimers et al., 2021) or negative spillover effects (Truelove et al., 2014).

Our interest is in the potential spillover from an information campaign focused on individual behavioral change to attitudes toward public policies, some of which may require systemic changes. Here the evidence of any spillover effect is much scarcer. Studies that have examined spillover effects on policy support typically only look at policies in the same domain. For example, Steinhorst and Matthies (2016) examine the long-term spillover effects of interventions aimed at energy-saving behavior on low-carbon policy acceptability. Werfel (2017) provides survey-based evidence that people who were randomly assigned to report their energy-saving actions after the shutdown of the Fukushima power plant were less likely to support a tax increase on carbon. Knook et al. (2022) finds in an experiment that subjects who were primed to think of a low-cost mitigation practice were less likely to support a national mitigation policy. Related to this is the finding in Hagmann et al. (2019) that alerting people to a low-cost policy focusing on individual behavior (a green energy nudge) reduced support for broader measures like a carbon tax. In the context of plastics, Truelove et al. (2016) finds evidence of negative spillover effects of bottle recycling on students' support for a green fund. The existing evidence thus suggests that there is a risk of a negative spillover from interventions that focus on individual behavior in terms of reducing policy support (Chater & Loewenstein, 2023). However, the evidence is not extensive, and it largely relies on survey-based evidence or evidence from laboratory experiments. In this study we not only investigate the potential spillover within the same domain but also if it spills over to other domains. This focus is important because it is sometimes argued that focusing on one environmental problem may risk taking attention away from other significant environmental issues (see e.g., Stafford & Jones, 2019)

This study also contributes to the literature on policy support or acceptability. There is extensive literature on public support for environmental policies (e.g. Fang & Innocenti, 2023; Baranzini & Carattini, 2017; Kallbekken & Sælen, 2011; Thalmann, 2004). Preferences for which environmental problems to address are endogenous and affected by a large set of observable and unobservable factors (Mattauch et al., 2022). Factors such as

the characteristics of the policy itself – including efficiency and distributional impacts – political attitudes, and self-interest often affect the level of support for policies.²

The unique aspect of our study is that we use experimental variation to evaluate the impact of an environmental campaign on associated changes in policy support for various policies. By comparing policy support in the control group with support in the treated groups, we can assess whether the campaign also influenced participants’ support for conventional policy instruments such as bans, taxes, or subsidies. We investigate support for policies in the same domain as the campaign domain (plastic use) and in other environmental domains, particularly carbon-related policies. We conduct a randomized experiment in two large university dormitory complexes in Vietnam. The details of the experimental design have been documented by Ho et al. (2022). Another unique aspect of our study is that we evaluate changes in policy support weeks after the delivery of the campaign, which captures more stable and sustained effects than the typical immediate effect measured in most studies.

We find that the environmental campaign focusing on the use of single-use plastics also increases subjects’ support for policies that combat plastic pollution. Thus, in contrast to most studies (see, for example, Reimers et al., 2021), we find no evidence of a within-domain moral licensing effect (as also found in Urban et al., 2021). Furthermore, we find that the campaign had a negative effect on support for environmental policies in other domains, evidencing a cross-domain negative spillover effect. Using Chater and Loewenstein’s terminology, the plastic-oriented “i-frame” campaign brings increased support for “s-frame” policies within that domain, while decreasing support for s-frame policies in other domains.

The rest of the paper is structured as follows: in Section 2 we introduce the experimental design and how we measure policy support; in Section 3, we show the results; we discuss the implications of the findings and conclude the paper in Section 4.

² With regard to self-interest, we mean that individuals are more likely to support a policy that does not have a negative impact on their own circumstance. For example, someone who does not has a car is more likely to support a congestion charge than someone who has a car.

2 Experimental Design

This study is nested within a field experiment designed to examine the effect of a behavioral intervention (having a celebrity endorse a campaign) targeting the use of single-use plastics (Ho et al. 2022). The whole experiment was registered on the AEA RCT registry (Alpizar et al., 2019). In this paper, we move beyond Ho et al. (2022) and use a set of questions that elicit the extent of public support for different policies. Importantly, we have this information for both treated and control groups.

2.1 The Environmental Information Campaign on Plastics

The field experiment was designed to evaluate the effects of an environmental information campaign, with and without celebrity endorsement, on the use of single-use plastics. The information campaign (Plastic Campaign) was organized in the form of environmental workshops with a strong educational element and a clear injunctive tone. For a subset of the subjects, the campaign was endorsed by a celebrity in a video (Campaign + Celebrity). Participants in the control group were invited to workshops with a similar length but no relation to plastic pollution to control for any effect of participating in a workshop. The control workshops were a series of personality tests on general topics, such as being successful in school and how to plan a future career. The two treatment arms and the control are key to our identification strategy.

We also conducted surveys before and after the intervention. These surveys are central to our paper and are described below. The detailed experimental design and experimental results on the consumption of single-use plastics have been documented by Ho et al. (2022).

2.2 Measures of Policy Support

We elicit information on the extent of support for different environmental policies through questionnaires. To measure the direct impact of the plastic-specific campaign on support for plastic policies, we elicit information on support for three commonly adopted policies about single-use plastics: a ban in supermarkets, a full ban, and a tax. Specifically, we asked the participants the following questions: “Do you support a policy that bans single-use plastics in supermarkets?”, “Do you support a policy that completely bans single-use plastics across the country?” and “Do you support a policy that taxes single-use plastics?”.

Policy support is measured on a 1-5 Likert scale. We elicit information on support for plastic policies twice, once in the baseline survey and once in the end-line survey. The baseline survey took place about one week before the start of the workshops. The end-line survey was carried out at least 3 weeks after the workshops. This allows us to track the within-subject change in attitudes towards single-use plastic policies as well as between-subject comparisons.

For the other domains, we elicit subjects' attitudes towards a variety of environmental policies that target environmental issues with both local and global relevance. Specifically, we ask subjects to what extent they agree with each of the five statements as follows: the government should introduce a congestion charge; the government should invest more in public transportation; the government should introduce a carbon tax; the government should invest more in the renewable energy sector; and the government should tax meat products. Support for these policies is also measured on a 1-5 Likert scale. We measure support for these environmental policies only once, in the end-line survey. Therefore, we rely on between-subject comparisons to estimate spillover effects.

2.3 Data Collection and Sample Characteristics

The experiment was conducted from October 2019 to January 2020 in two student villages in Ho Chi Minh City and Can Tho City, Vietnam, using college students as subjects. Treatment assignment was randomized at the dormitory room level to reduce contamination between treatment and control groups. One student in each selected room was randomly selected as a participant in the workshops.

In the control group, 340 students participated in the experiment and responded to both the baseline and endline surveys. For the two treatment groups, the corresponding numbers were 326 and 319 students.³ Table 1 shows the summary statistics of individual

³ In total 1,700 students were invited to participate in workshops. This includes a third treatment group that is not used in this study. The treatment for the third group is like the treatment with a celebrity endorsement, but includes a pledge. As reported by Ho et al. (2022), there was no additional effect of the pledge compared with the treatment with just the celebrity endorsement, and for that reason we do not include this treatment in this paper. Most of the students accepted the invitation to participate in the workshops. Over 1,600 students completed the pre-treatment survey.

characteristics of the control and treatment groups as well as the baseline support for plastic policies.

Table 1. Summary Statistics and Balance Checks

		Summary statistics			Balance check	
		Control	Plastic Campaign (T1)	Campaign + Celebrity (T2)	T1	T2
Demographics						
Age	Age in years	19.2	19.2	19.2	-0.024 (0.062)	-0.0001 (0.061)
Male	Gender dummy: 1 if male	0.55	0.48	0.48	-0.287* (0.158)	-0.272* (0.160)
Kinh	Ethnicity dummy: 1 if Kinh ethnicity	0.92	0.94	0.94	0.330 (0.310)	0.394 (0.320)
Rural	Rural dummy: 1 if from a rural area	0.68	0.68	0.68	0.031 (0.170)	0.0001 (0.172)
Support for plastic policies						
Ban in supermarket	Support for a ban on single-use plastics in supermarkets.	4.08	4.15	4.14	0.136 (0.109)	0.139 (0.110)
Full ban	Support for a national ban on single-use plastics.	3.69	3.75	3.72	-0.117 (0.097)	-0.110 (0.098)
Tax	Support for a tax on single-use plastics.	3.87	3.90	3.91	-0.088 (0.087)	-0.128 (0.088)
Obs.		340	326	319		
Join test: p-values, chi-squared test					0.387	0.305

Note: A balance check is carried out by regressing treatment assignment on individual characteristics and baseline attitude using a multinomial logistic regression with the control group as the reference group. We show the coefficients in the last two columns.

Policy support is measured on a 1-5 Likert scale with increasing levels of support.

The sample is well balanced across groups on individual characteristics, except that the control group has a slightly higher proportion of male subjects. Attitudes towards plastic policies at baseline are also well-balanced across groups.⁴ Overall, the allocation into different groups is not correlated with any of these characteristics.

About 9% of the students dropped out after the pre-treatment survey. A total of 1,460 students participated in the workshops. The attrition between the workshop and the post-treatment survey was smaller. We observed that 1,348 out of the 1,460 workshop participants participated in the post-treatment survey, giving an attrition rate of 7.7%. As stated in Ho et al. (2022), sample attrition does not pose a serious challenge for the interpretation of the results.

⁴ Pair-wise Mann-Whitney tests: p=0.96 (Control v Campaign), 0.84 (Control vs. Campaign + Celebrity) and 0.87 (Campaign vs. Campaign + Celebrity) for a ban in supermarkets; p=0.26, 0.22 and 0.89 for a full ban, and p=0.33, 0.12 and 0.54 for a tax.

3 Results

3.1 Policy Support in the Same Domain

We first look at support for the various policies concerning single-use plastics. Figure 1 shows the mean level of support for the three plastics policies. We report the full distribution of responses both at the baseline and the endline survey in the Appendix.

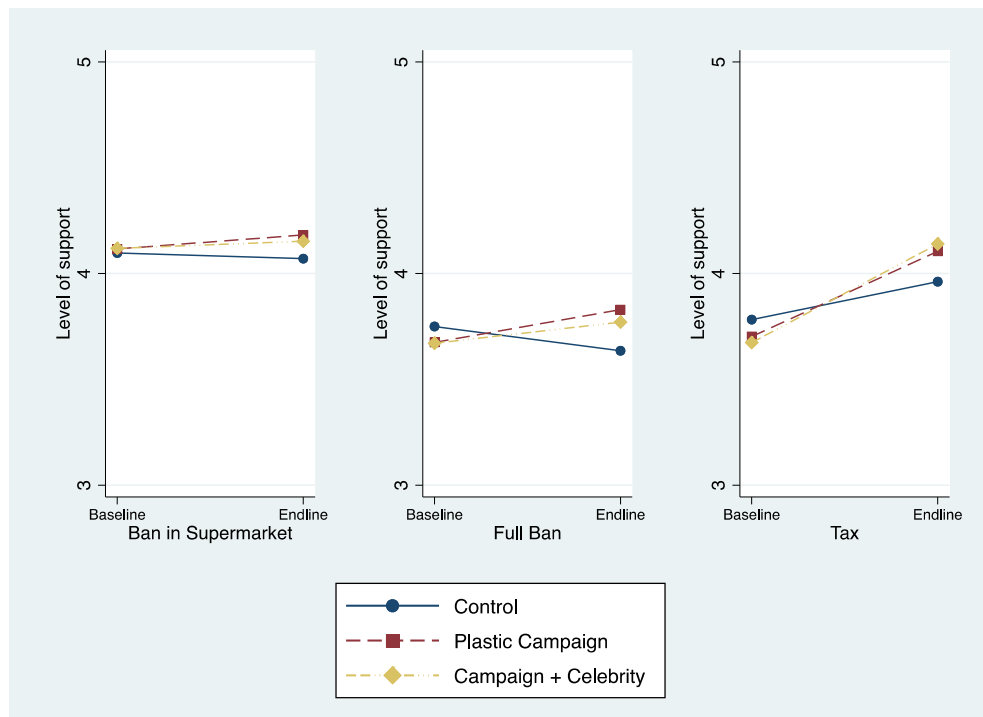


Figure 1. Support for plastics policies in the baseline and endline survey

There is relatively high support for plastic policies in all groups and the three groups started on an equal footing before our intervention. However, we do see a higher support level for plastic policies in the two treatment groups. This effect is particularly evident for policies that propose taxation on single-use plastics.

To account for unobserved differences between the groups and time-varying factors, and to have a more precise estimate of the size of the effect, we use a DID regression to estimate the treatment effect of our plastic campaign on support for plastic policies. We include dummies for the plastic information campaign and for the information campaign that

included endorsement by a celebrity. We have multiple outcome variables, and our main interest is in any overall change in support for plastic policies. We therefore follow the procedure in Clingingsmith et al. (2009) and report mean standardized effects as our main result in order to avoid multiple-testing issues and to increase the statistical power of the analysis. The mean standardized treatment effect estimates the average of the normalized treatment effects obtained from a seemingly unrelated regression, where each dependent variable is one of the outcome variables. The mean standardized treatment effect on the outcomes for the three plastic policy options is $\frac{1}{J} \sum_{j=1}^J \frac{\pi_j}{\sigma_j}$, where π_j is the average treatment effect on support for policy j ($j=1, 2, 3$) and σ_j is the standard deviation of the support for policy j in the control group. Results are reported in Table 2.⁵

Table 2. Treatment effects on support of policy on single-use plastics

	(1)	(2)
Plastic Campaign	0.200*** (0.079)	0.207*** (0.080)
Celebrity endorsement	-0.008 (0.080)	-0.011 (0.081)
Individual characteristics	No	Yes
No. of observations	1,962	1,912

Note: Results reported are from calculating mean standardized effects across multiple outcomes, following Clingingsmith et al. (2009). The mean standardized treatment effect estimates the average of the normalized treatment effects obtained from a seemingly unrelated regression, where each dependent variable is one of the outcome variables used. The three outcome measures here are the support for a total ban on single-use plastics; support for a ban on single-use plastics in supermarkets; and support for a tax on single-use plastics. All three individual outcome measures are on a 1-5 Likert scale, with increasing levels of support. The coefficient of the *plastic campaign* represents the treatment of having the plastic information campaign, and the coefficient of *celebrity endorsement* represents the additional effect of the celebrity endorsement of the intervention. Variables showing respondent's characteristics include gender, age, ethnicity, and whether respondents were from rural or urban area. Robust standard errors are in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

There is a statistically significant increase in policy support because of the plastic information campaign. The size of the effect is modest, about 20% of the standard deviation, or about a 4.5%-5.6% increase from the baseline level. We do not find any additional effect on support for plastics policies from celebrity endorsement of the campaign. Thus, we find no support for a negative spillover effect on support for s-frame policies from the i-frame intervention, on the contrary, support increases. The lack of negative spillover effect is not

⁵ Results for each policy are reported in Table A1 in the appendix. We also show the results from between group comparisons using only the endline survey data in Table A2.

driven by changes in plastic use due to the intervention because, as in Ho et al. (2022), the information campaign itself did not have any statistically significant effect on plastic use except when endorsed by a celebrity. This is interesting because it suggests that the effect on policy support is not primarily driven by changes towards more environmentally friendly behavior.

3.2 Policy Support in Other Domains

Figure 2 compares the attitudes towards policies in other domains. Note that now we can only rely on a cross-sectional comparison, using responses from the endline survey.

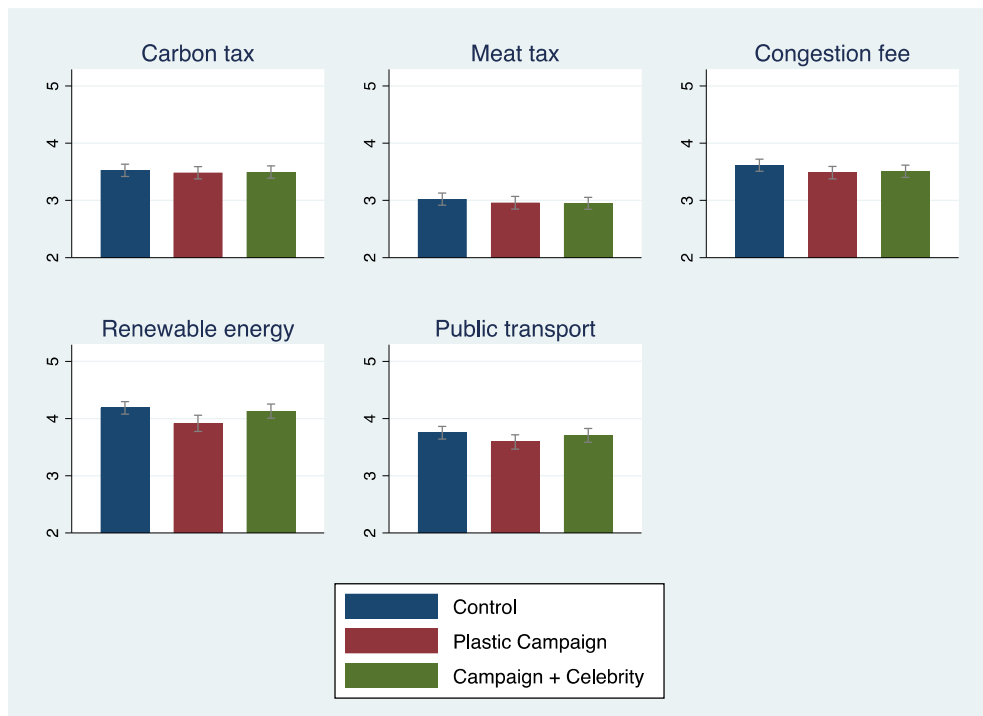


Figure 2. Attitudes toward policies in other domains across groups

The general pattern that emerges if we compare the control group and the two treatment groups is that policy support is somewhat lower in the two treatment groups, although the extent of the difference varies across specific policies. For example, the difference in support is much more pronounced for a policy to invest more in public transport, and smaller for imposing a carbon tax.

Again, because we use multiple outcome variables to capture the potential changes in support for environmental policies in general, we report the mean standardized spillover effects of the plastic-specific campaign on support for other environmental policies.⁶ As before, we include dummies to capture the effects of the plastic information campaign on its own, and the effect of the celebrity endorsement element. The estimation is based on a between-subject comparison at the end-line. Results are reported in Table 3.

Table 3. Spillover effect on support for policies on other environmental issues

	(1)	(2)
Plastic Campaign	-0.131*** (0.046)	-0.143*** (0.047)
Celebrity endorsement	0.069 (0.046)	0.069 (0.047)
Individual characteristics	No	Yes
No. of Observations	977	952

Note: Results reported are from calculating mean standardized effects across multiple outcomes. Five outcome variables are included in the seemingly unrelated regression. The outcome variables are support for a carbon tax; support for larger investment in renewable energy; support for a meat tax; support for a congestion charge, and support for larger investment in public transportation. All outcome measures are on a 1-5 Likert scale with an increasing level of support. The coefficient of the *plastic campaign* represents the treatment of being exposed to the plastic information campaign, and the coefficient of *celebrity endorsement* represents the additional effect of celebrity endorsement of the intervention. Variables related to individual characteristics include gender, age, ethnicity, and whether the respondents are from a rural or urban area. Robust standard errors are in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

The plastics campaign leads to a decrease in support for policies related to other domains, indicating a negative spillover of the informational element of the campaign. Furthermore, we find no additional effect of the behavioral element of the campaign on support for policies. Controlling for individual characteristics, the negative spillover effect caused by the campaign corresponds to 14% of the standard deviation, only slightly smaller in size than the direct positive effect on support for plastics policies. This translates into a 3.5% to 4.7% decline in mean support in the treatment group compared to the control group, which is again only slightly smaller than the direct positive effect. Thus, here we do observe a negative spillover effect on support for s-frame policies from the i-frame intervention.

⁶ Results for each policy are reported in Table A3 in the appendix.

4 Discussion and Concluding Remarks

The findings directly contribute to the ongoing debate on the interaction between behavioral versus system-wide interventions, with nuanced evidence. On the one hand, our plastic campaign targeting individual behavioral changes in the use of single-use plastic increases support for plastics regulations and taxation of single-use plastic. The individual-level solution (the “i-frame”) facilitates system-wide (the “s-frame”) interventions in this domain. On the other hand, we find an effect of reduced support for policies in other environmental domains. Whether the trade-off is worthwhile depends on policy priorities and the relative importance of environmental challenges. Our results are clearly context-dependent, and more research is needed.

The positive effect on the support for plastic policies can be attributed to the informational content of the campaign. The campaign provided information on plastic pollution at both local and global levels. The campaign may thus increase awareness of and concerns around plastic pollution and therefore increase support for related policies. The information campaign did influence knowledge of plastic pollution and on subjects’ normative perceptions about single-use plastic consumption, as also reported by Ho et al. (2022).

The negative effect on the support for policies in other domains is particularly interesting. The different directions of the effect on policies of different domains suggest that it could be some type of licensing effect (Leslie, 2019; Mazar & Zhong, 2010; Merritt et al., 2010), that is, supporting stricter environmental policies in one domain provides a moral license to withhold support for environmental policies in other domains. However, if moral licensing explains the negative effects on the support for policies in other environmental domains, we would perhaps expect to see a stronger licensing effect of the campaign with celebrity endorsement, since it was only celebrity endorsement that led to people changing their behavior (Ho et al., 2022). Another explanation could be a type of diversion of attention. Given limited cognitive resources, a focus on plastic pollution might result in a downplaying of other environmental problems and a reduction in support for other policy changes. The concern has been raised, that the media focus on marine plastics is a “convenient but distracting truth” that shifts attention and policies away from bigger issues such as climate change (Stafford & Jones, 2019).

One consideration is extent to which our results are driven by experimenter demand effects (De Quidt et al., 2018). However, this is not likely to be the explanation since all subjects in the treatment groups received the same information. Thus, the contrast between the effects of the treatments on behavior and on support is not likely to be driven by experimenter demand effects. However, subjects in the control group did not receive any information about plastic use or policies, and the two surveys were not obfuscated (Haaland et al., 2023). Although we cannot exclude the possibility of an experimenter demand effect, we highlight two important considerations: (i) the baseline survey was conducted before any information provision, and (ii) the end-line survey was conducted at least three weeks after the experiment had ended. There is also little reason therefore to believe that the experimenter demand effect would go in the opposite direction in different domains.

Our findings have policy implications for information campaigns to address specific environmental issues. When designing and implementing an environmental campaign targeting a specific issue, caution should be exercised to mitigate negative spillover effects on other domains. This highlights the need for further research to examine spillover effects on actual individual behavior and systemic changes within and across domains, such as measuring policy support through actual behavior.

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References

- Alpizar, F., Carlsson, F., Ho, T., Lanza, G., Nie, Z., & Pham, N. (2019). Celebrity endorsement in promoting pro-environmental behavior. *AEA RCT Registry, October 23*. <https://doi.org/10.1257/rct.4859-1.0>
- Baranzini, A., & Carattini, S. (2017). Effectiveness, earmarking and labeling: testing the acceptability of carbon taxes with survey data. *Environmental Economics and Policy Studies, 19*(1), 197–227. <https://doi.org/10.1007/s10018-016-0144-7>
- Blanken, I., van de Ven, N., & Zeelenberg, M. (2015). A Meta-Analytic Review of Moral Licensing. *Personality and Social Psychology Bulletin, 41*(4), 540–558. <https://doi.org/10.1177/0146167215572134>
- Carlsson, F., Jaime, M., & Villegas, C. (2021). Behavioral spillover effects from a social information campaign. *Journal of Environmental Economics and Management, 109*, 102325.
- Chater, N., & Loewenstein, G. (2023). The i-frame and the s-frame: How focusing on individual-level solutions has led behavioral public policy astray. *Behavioral and Brain Sciences, 46*, e147. <https://doi.org/10.1017/S0140525X22002023>
- Cialdini, R. B. (1984). *Influence: The new psychology of modern persuasion*. New York: Quill. *Cialdini Influence: The New Psychology of Modern Persuasion 1984*.
- Clingingsmith, D., Khwaja, A. I., & Kremer, M. (2009). Estimating the impact of the Hajj: religion and tolerance in Islam’s global gathering. *The Quarterly Journal of Economics, 124*(3), 1133–1170.
- De Quidt, J., Haushofer, J., & Roth, C. (2018). Measuring and bounding experimenter demand. *American Economic Review, 108*(11), 3266–3302.
- Fang, X., & Innocenti, S. (2023). Increasing the acceptability of carbon taxation: The role of social norms and economic reasoning. *INET Oxford Working Papers 2023-25, Institute for New Economic Thinking at the Oxford Martin School, University of Oxford*.
- Frey, B. S. (1993). Motivation as a limit to pricing. *Journal of Economic Psychology, 14*(4), 635–664.
- Galasso, V., Nannicini, T., & Nunnari, S. (2023). Positive Spillovers from Negative Campaigning. *American Journal of Political Science, 67*(1), 5–21. <https://doi.org/10.1111/ajps.12610>

- Haaland, I., Roth, C., & Wohlfart, J. (2023). Designing information provision experiments. *Journal of Economic Literature*, *61*(1), 3–40.
- Hagmann, D., Ho, E. H., & Loewenstein, G. (2019). Nudging out support for a carbon tax. *Nature Climate Change*, *9*(6), 484–489.
- Ho, T. Q., Nie, Z., Alpizar, F., Carlsson, F., & Nam, P. K. (2022). Celebrity endorsement in promoting pro-environmental behavior. *Journal of Economic Behavior and Organization*, *198*, 68–86. <https://doi.org/10.1016/j.jebo.2022.03.027>
- Jessoe, K., Lade, G. E., Loge, F., & Spang, E. (2021). Spillovers from behavioral interventions: Experimental evidence from water and energy use. *Journal of the Association of Environmental and Resource Economists*, *8*(2), 315–346.
- Kaida, N., & Kaida, K. (2015). Spillover effect of congestion charging on pro-environmental behavior. *Environment, Development and Sustainability*, *17*(3), 409–421.
- Kallbekken, S., & Sælen, H. (2011). Public acceptance for environmental taxes: Self-interest, environmental and distributional concerns. *Energy Policy*, *39*(5), pp. 2966–2973. <https://doi.org/10.1016/j.enpol.2011.03.006>
- Knook, J., Dorner, Z., & Stahlmann-Brown, P. (2022). Priming for individual energy efficiency action crowds out support for national climate change policy. *Ecological Economics*, *191*(September 2021), 107239. <https://doi.org/10.1016/j.ecolecon.2021.107239>
- Leslie, L. M. (2019). Diversity initiative effectiveness: A typological theory of unintended consequences. *Academy of Management Review*, *44*(3), 538–563. <https://doi.org/10.5465/amr.2017.0087>
- Mattauch, L., Hepburn, C., Spuler, F., & Stern, N. (2022). The economics of climate change with endogenous preferences. *Resource and Energy Economics*, *69*, 101312. <https://doi.org/10.1016/j.reseneeco.2022.101312>
- Mazar, N., & Zhong, C.-B. (2010). Do green products make us better people? *Psychological Science*, *21*(4), 494–498. <https://doi.org/10.1177/0956797610363538>
- Merritt, A. C., Effron, D. A., & Monin, B. (2010). Moral self-licensing: When being good frees us to be bad. *Social and Personality Psychology Compass*, *4*(5), 344–357. <https://doi.org/10.1111/j.1751-9004.2010.00263.x>
- Reimers, H., Jacksohn, A., Appenfeller, D., Lasarov, W., Hüttel, A., Rehdanz, K., Balderjahn, I., & Hoffmann, S. (2021). Indirect rebound effects on the consumer level:

- A state-of-the-art literature review. *Cleaner and Responsible Consumption*, 3(June), 100032. <https://doi.org/10.1016/j.clrc.2021.100032>
- Stafford, R., & Jones, P. J. S. (2019). Viewpoint—Ocean plastic pollution: A convenient but distracting truth? *Marine Policy*, 103, 187–191.
- Steinhorst, J., & Matthies, E. (2016). Monetary or environmental appeals for saving electricity? Potentials for spillover on low carbon policy acceptability. *Energy Policy*, 93, 335–344. <https://doi.org/10.1016/j.enpol.2016.03.020>
- Thalmann, P. (2004). The public acceptance of green taxes: 2 million voters express their opinion. *Public choice*, 119(1–2), pp. 179–217. <https://doi.org/10.1023/B:PUCH.0000024165.18082.db>
- Thøgersen, J. (1999). Spillover processes in the development of a sustainable consumption pattern. *Journal of Economic Psychology*, 20(1), 53–81.
- Thøgersen, J., & Ölander, F. (2003). Spillover of environment-friendly consumer behaviour. *Journal of Environmental Psychology*, 23(3), 225–236.
- Truelove, H. B., Carrico, A. R., Weber, E. U., Raimi, K. T., & Vandenberg, M. P. (2014). Positive and negative spillover of pro-environmental behavior: An integrative review and theoretical framework. *Global Environmental Change*, 29, 127–138. <https://doi.org/https://doi.org/10.1016/j.gloenvcha.2014.09.004>
- Truelove, H. B., Yeung, K. L., Carrico, A. R., Gillis, A. J., & Raimi, K. T. (2016). From plastic bottle recycling to policy support: An experimental test of pro-environmental spillover. *Journal of Environmental Psychology*, 46, 55–66.
- Urban, J., Braun Kohlová, M., & Bahník, Š. (2021). No evidence of within-domain moral licensing in the environmental domain. *Environment and Behavior*, 53(10), 1070–1094. <https://doi.org/10.1177/0013916520942604>
- Werfel, S. H. (2017). Household behaviour crowds out support for climate change policy when sufficient progress is perceived. *Nature Climate Change*, 7(7), 512–515.

Appendix

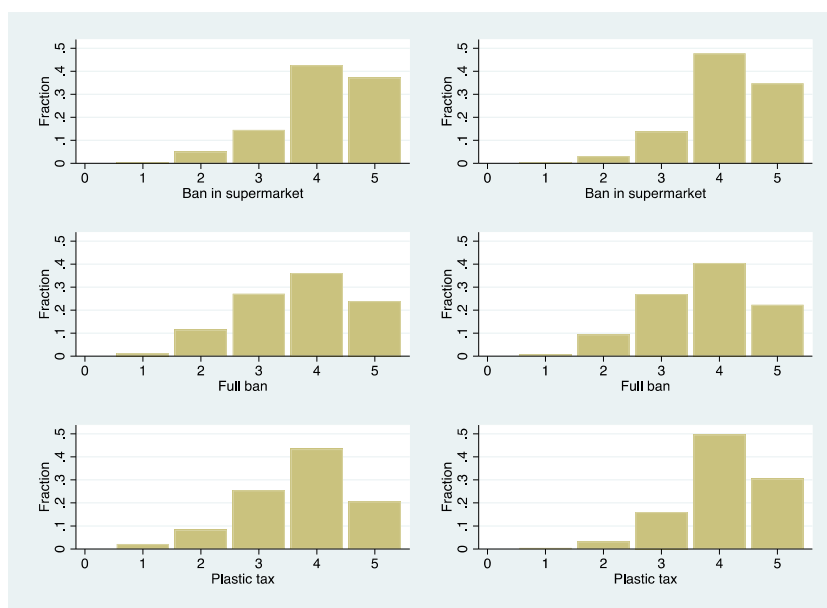


Figure A1. Distribution of support for plastic policy before (left) and after (right) the intervention.

Table A1. Treatment Effect on Support for Plastic Policies

		(1)	(2)	(3)	(4)	(5)	(6)
		Ban in	Ban in	Full ban	Full ban	Plastic tax	Plastic tax
		supermarket	supermarket				
Plastic campaign	*	0.093	0.091	0.270**	0.274**	0.223**	0.241**
Endline		(0.091)	(0.092)	(0.106)	(0.107)	(0.097)	(0.097)
Celebrity endorsement	*	-0.032	-0.039	-0.055	-0.050	0.063	0.056
Endline		(0.090)	(0.092)	(0.107)	(0.109)	(0.096)	(0.097)
Plastic campaign		0.020	0.032	-0.075	-0.071	-0.080	-0.082
		(0.068)	(0.068)	(0.078)	(0.079)	(0.075)	(0.075)
Plastic campaign	+	0.022	0.032	-0.079	-0.073	-0.108	-0.115
Celebrity endorsement		(0.069)	(0.071)	(0.078)	(0.080)	(0.074)	(0.075)
Endline		-0.026	-0.030	-0.115	-0.124	0.179***	0.157**
		(0.067)	(0.068)	(0.075)	(0.076)	(0.069)	(0.069)
Male			0.025		-0.015		0.064
			(0.038)		(0.044)		(0.040)
From rural area			0.017		0.032		0.002
			(0.042)		(0.049)		(0.043)
Ethnic Kinh			0.109		-0.018		0.084
			(0.070)		(0.079)		(0.079)
Age			-0.017		-0.022		-0.018
			(0.015)		(0.018)		(0.015)
Constant		4.097***	4.288***	3.750***	4.165***	3.782***	4.021***
		(0.049)	(0.309)	(0.055)	(0.367)	(0.052)	(0.314)
Observations		1962	1912	1962	1912	1962	1912
Adjusted R^2		-0.001	-0.000	0.002	0.002	0.040	0.039

Note: Policy support is elicited twice, before and after the intervention. Policy support is measured on a 1-5 scale. DID style regression results for support for each plastic policy. The coefficients of the two interaction terms, *Environmental campaign * Endline* and *Celebrity endorsement * Endline*, correspond to the treatment effects reported in Table 2. Robust standard errors are in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table A2. Treatment effects on support for policy on single-use plastics with Endline survey

	(1)	(2)
Plastic Campaign	0.170*** (0.061)	0.185*** (0.061)
Celebrity endorsement	-0.019 (0.061)	-0.024 (0.062)
Individual characteristics	No	Yes
No. of observations	977	952

Note: Results reported are from calculating mean standardized effects across multiple outcomes, following Clingingsmith et al. (2009). The mean standardized treatment effect estimates the average of the normalized treatment effects obtained from a seemingly unrelated regression where each dependent variable is one of the outcome variables used. The three outcome measures here are support for a total ban of single-use plastics; support for a ban on single-use plastics in supermarkets; and support for a tax on single-use plastics. All three individual outcome measures are on a 1-5 Likert scale with increasing levels of support.

Variables for individual characteristics include gender, age, ethnicity, and whether the respondent is from a rural or urban area. Robust standard errors are in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table A3. Treatment Effect on Support for Environmental Policies in Other Domains

Panel A					
	(1)	(2)	(3)	(4)	(5)
	Carbon tax	Renewable energy	Meat tax	Congestion fee	Public transport
Plastic Campaign	-0.043 (0.078)	-0.272*** (0.091)	-0.064 (0.078)	-0.129* (0.077)	-0.162* (0.086)
Celebrity endorsement	0.014 (0.077)	0.214** (0.096)	-0.011 (0.077)	0.023 (0.078)	0.116 (0.089)
Constant	3.526*** (0.055)	4.188*** (0.056)	3.024*** (0.054)	3.615*** (0.054)	3.753*** (0.057)
Observations	977	977	977	977	977
Adjusted R^2	-0.002	0.008	-0.001	0.001	0.002
Panel B					
	(6)	(7)	(8)	(9)	(10)
	Carbon tax	Renewable energy	Meat tax	Congestion fee	Public transport
Plastic Campaign	-0.050 (0.079)	-0.292*** (0.092)	-0.074 (0.078)	-0.136* (0.078)	-0.177** (0.087)
Celebrity endorsement	-0.003 (0.078)	0.223** (0.097)	-0.010 (0.078)	0.014 (0.079)	0.135 (0.090)
Male	0.139** (0.064)	-0.064 (0.075)	-0.178*** (0.063)	0.008 (0.064)	-0.009 (0.071)
From rural area	0.067 (0.070)	0.099 (0.081)	-0.067 (0.070)	0.020 (0.070)	0.081 (0.077)
Ethnic Kinh	0.139 (0.129)	0.064 (0.130)	-0.042 (0.115)	-0.016 (0.123)	0.090 (0.130)
Age	-0.030 (0.024)	0.031 (0.027)	-0.023 (0.023)	-0.068*** (0.022)	0.022 (0.025)
Constant	3.855*** (0.491)	3.516*** (0.543)	3.637*** (0.474)	4.930*** (0.461)	3.207*** (0.508)
Observations	952	952	952	952	952
Adjusted R^2	0.003	0.009	0.005	0.005	0.001

Note: Level of support for environmental policies in other domains is elicited only once, at the endline. Policy support is measured on a 1-5 scale. OLS regression results for support for each policy. Panel A shows the regression results with no individual characteristics. Panel B shows the results with individual characteristics as additional control variables. Robust standard errors are in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.