Meta-analysis of pro-environmental behaviour spillover

Alexander Maki [1]*, Amanda R. Carrico[2,5], Kaitlin T. Raimi[3,5], Heather Barnes Truelove[4,5], Brandon Araujo[4] and Kam Leung Yeung[4]

[1]Vanderbilt Institute of Energy and Environment, Vanderbilt University, Nashville, TN, USA. [2]University of Colorado Boulder, Boulder, CO, USA. [3]University of Michigan, Ann Arbor, MI, USA. [4]University of North Florida, Jacksonville, FL, USA. [5]These authors contributed equally: Amanda R. Carrico, Kaitlin T. Raimi, Heather Barnes Truelove. *e-mail: alexander.arm.maki@gmail.com

Supplementary Methods

Search terms

We used the following search terms (* searches used all words that contain that root word, e.g., conserv* captures both conserve and conservation): (Bus* OR carpool* OR organic food OR public transportation OR conserv* OR policy support OR recycl* OR efficien* OR proenvironment* OR pro-environment* OR donat* OR volunteer* OR litter* OR energy use OR water use OR carshar* OR vegan OR home insulat* OR mass transit* OR solar OR buying used OR buying pre-owned OR green consum* OR green purchas*) AND (Spillover OR rebound OR ripple OR cascade OR Jevons OR spread OR takeback OR catalyst OR moral licen* OR unintended OR gateway OR single action bias) AND (Experiment* or quasi-experiment*)

Classifying behaviours according to similarity

We classified behaviours according to how similar they were depending on the type of action and the goal of the action. For behavioural pairs considered low in similarity, we included: recycling and donating to an environmental cause, buying green products and recycling, buying green products and conserving energy, buying green products and conserving water, buying green products and donating to an environmental cause, and buying green products and choosing more sustainable modes of transportation. For behavioural pairs considered moderate in similarity, we included: water conservation and energy conservation, buying energy efficient lightbulbs and conserving energy specifically, and using reusable bags in the store and buying recycled products and minimal-packaging products. For behavioural pairs consider high in similarity, we included: supporting different types of climate policies, recycling paper and recycling plastic, glass, and aluminium, and buying efficient lightbulbs and buying energy efficient appliances.

Finally, some of the studies were not coded for similarity because either the initial or other behaviour included a range of behaviours, or because the participant was able to choose which behaviour to change.

Supplementary References

Studies included in the meta-analysis

Carrico, A. R., Raimi, K. T., Truelove, H. B., & Eby, B. (2018). Putting your money where your mouth is: An experimental test of pro-environmental spillover from reducing meat consumption to monetary donations. *Environment and Behavior*, *50*, 723-748.

Geng, L., Cheng, X., Tang, Z., Zhou, K., & Ye, L. (2016). Can previous pro-environmental behaviours influence subsequent environmental behaviors? The licensing effect of pro-environmental behaviour. *Journal of Pacific Rim Psychology*, *10*. e9. https://doi.org/10.1017/prp.2016.6

Lacasse, K. (2014). The importance of being green: The influence of green behaviors on Americans' political attitudes toward climate change. *Environment and Behavior*, *47*, 754-781. https://doi.org/10.1177/0013916513520491

Lacasse, K. (2016). Don't be satisfied, identify! Strengthening positive spillover by connecting pro-environmental behaviors to an "environmentalist" label. *Journal of Environmental Psychology*, *48*, 149-158. https://doi.org/10.1016/j.jenvp.2016.09.006

Lacasse, K. (unpublishedA). Can't hurt, might help: Examining the spillover effects from adopting a new pro-environmental behavior.

Lacasse, K. (unpublishedB). [Spillover study]. Unpublished raw data.

Lanzini, P. (2013). *Pro-environmental spillover in consumer behavior: Existence and drivers*. (Doctoral dissertation). Retrieved from http://dspace.unive.it/handle/10579/3069

Maki, A. (2015). *The spread of behavior: When, how, and for whom do proenvironmental behaviors spread to other people and other behavior?* (Doctoral dissertation). Retrieved from https://search.proquest.com/docview/1733999976?pq-origsite=gscholar

Maki, A., & Vandenbergh, M. P. (unpublished). [Paris Agreement headline study]. Unpublished raw data.

Margetts, E. A., & Kashima, Y. (2017). Spillover between pro-environmental behaviours: The role of resources and perceived similarity. *Journal of Environmental Psychology*, *49*, 30-42. https://doi.org/10.1016/j.jenvp.2016.07.005

Parag, Y., Capstick, S., & Poortinga, W. (2011). Policy attribute framing: A comparison between three policy instruments for personal emissions reduction. *Journal of Policy Analysis and Management*, *30*, 889-905.

Poortinga, W., Whitmarsh, L., & Suffolk, C. (2013). The introduction of a single-use carrier bag charge in Wales: Attitude change and behavioural spillover effects. *Journal of Environmental Psychology*, *36*, 240-247.

Raimi, K. T., Maki, A., Dana, D. A., & Vandenbergh, M. P. (in press). Framing affects whether geoengineering is a moral hazard. *Environmental Communication*.

Schultz, P. W., Colehour, J., Vohr, J., Bonn, L., Bullock, A., & Sadler, A. (2015). Using social marketing to spur residential adoption of ENERGY STAR®-certified LED lighting. *Social Marketing Quarterly*, *21*, 61-78.

Steinhorst, J., Klöckner, C. A., & Matthies, E. (2015). Saving electricity—For the money or the environment? Risks of limiting pro-environmental spillover when using monetary framing. *Journal of Environmental Psychology*, *43*, 125-135.

Thomas, G. O., Poortinga, W., & Sautkina, E. (2016). The Welsh single-use carrier bag charge and behavioural spillover. *Journal of Environmental Psychology*, *47*, 126-135.

Tiefenbeck, V., Staake, T., Roth, K., & Sachs, O. (2013). For better or for worse? Empirical evidence of moral licensing in a behavioral energy consumption campaign. *Energy Policy*, *57*, 160-171.

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.

Supplementary Analyses

Additional moderator analyses

Additional exploratory analyses explored whether study design and sample characteristics influenced intention, behaviour, and policy support effect sizes. We used the Q_B approach when testing categorical moderators (i.e., a control versus comparison condition, and an experimental versus quasi-experimental study design; see Supplementary Table 3). We used meta-regression when testing continuous moderators (i.e., percentage of the sample that were women, average age of the sample, and percentage of sample that were White; see Supplementary Table 4).

First, we explored whether using a control condition or active comparison condition (e.g., sharing health information, but not environmental information) led to different effect sizes. For PEB2 intentions, there was not a significant difference in effect sizes between a control and active comparison condition ($Q_B = 0.17$, $p = .68$, $\tau^2 = 0.00$), although using a control condition did tend to lead to a slightly stronger spillover effect. For PEB2 behaviour, no studies used an active comparison condition. For PEB2 policy support, there was not a significant difference in effect sizes between a control and active comparison condition ($Q_B = 1.65$, $p = .20$, $\tau^2 = 0.004$), although using a control condition did tend to lead to a slightly more negative spillover effect.

Next, we explored whether having an experimental or quasi-experimental study design led to different effect sizes. For PEB2 intentions, all studies only had an experimental design and never a quasi-experimental design. For PEB2 behaviour, there was not a significant difference in effect sizes between studies with an experimental or quasi-experimental design ($Q_B = 0.39$, $p = .53$, $\tau^2 = 0.00$),

although quasi-experimental designs tended to lead to slightly less negative effect sizes. For PEB2 policy support, all studies only had an experimental design and never a quasi-experimental design.

We next considered continuous moderators of spillover effect sizes using meta-regression in separate models (see Supplementary Table 4). Starting with the percentage of the sample that were women, gender did not moderate effect sizes for PEB2 intentions ($p = .11$, adjusted $R^2 = .08$), PEB2 behaviour ($p = .22$, adjusted $R^2 = .05$), or PEB2 policy support ($p = .18$, adjusted $R^2 = .33$). Likewise, age did not moderate effect sizes for PEB2 intentions ($p = .98$, adjusted $R^2 = .00$), PEB2 behaviour ($p = .11$, adjusted $R^2 = .04$), or PEB2 policy support ($p = .39$, adjusted $R^2 = .09$). Finally, the percentage of the sample that were White also did not moderate effect sizes for PEB2 intentions ($p = .65$, adjusted $R^2 = .00$), PEB2 behaviour ($p = .72$, adjusted $R^2 = .00$), or PEB2 policy support ($p = .81$, adjusted $R^2 = .00$) .

Supplementary Tables

Supplementary Table 1

Characteristics and effect sizes of studies included in the present review

Authors and Year	PEB1	PEB2	Experimental manipulation	Effect size *d* (95% CI)
1a. Carrico et al., 2018	Reducing red meat consumption	Donation	Environmental messages	Behaviour: d = -.11 (-.34 to .13)
1b. Carrico et al., 2018	Reducing red meat consumption	Donation	Health messages	Behaviour: d = -.18 (-.42 to .06)
2. Geng et al., 2016 Study 1a	Green purchases	Water conservation	More green purchases	Behaviour: d = -.73 (-1.37 to -.09)
3. Geng et al., 2016 Study 1b	Green purchases	Multiple behaviours	More green purchases	Intentions: d = -.70 (-1.34 to -.06)
4a. Geng et al., 2016 Study 2	Green purchases	Multiple behaviours	More green purchases and focus on goal progress	Intentions: d = -.97 (-1.52 to -.41)
4b. Geng et al., 2016 Study 2	Green purchases	Multiple behaviours	More green purchases and focus on goal commitment	Intentions: d = .36 (-.17 to .89)
5. Geng et al., 2016 Study 3a	Green purchases	Multiple behaviours	More green purchases, focus on goal progress, asked to recall motivation	Intentions: d = .22 (-.23 to .66)
6. Geng et al., 2016 Study 3b	Green purchases	Multiple behaviours	More green purchases, focus on goal progress, asked to recall motivation	Intentions: d = .58 (.14 to 1.03)
7a. Lacasse, 2014 (Conservatives)	Multiple behaviours	Multiple policy support	Manipulate beliefs about past behaviour frequency	Support: d = .73 (-.04 to 1.50)
7b. Lacasse, 2014 (Liberals)	Multiple behaviours	Multiple policy support	Manipulate beliefs about past behaviour frequency	Support: d = -.54 (-1.04 to -.04)

7c. Lacasse, 2014 (Moderates)	Multiple behaviours	Multiple policy support	Manipulate beliefs about past behaviour frequency	Support: $d = .20$ (-.94 to 1.33)
8. Lacasse, 2016 Study 1	Multiple behaviours	Multiple policy support	Manipulate beliefs about past behaviour frequency	Support: $d = .15$ (-.22 to .52)
9. Lacasse, 2016 Study 2	Multiple behaviours	Multiple policy support	Manipulate beliefs about past behaviour frequency	Support: $d = .32$ (-.16 to .81)
10a. Lacasse, unpublishedA	Participants chose 1 PEB	Green purchases	Asked to engage in behaviour and use calendar to record behaviour	Intentions: $d = .02$ (-.42 to 46)
10b. Lacasse, unpublishedA	Participants chose 1 PEB	Recycling	Asked to engage in behaviour and use calendar to record behaviour	Behaviour: $d = .16$ (-.28 to .60)
10c. Lacasse, unpublishedA	Participants chose 1 PEB	Policy support	Asked to engage in behaviour and use calendar to record behaviour	Support: $d = .18$ (-.26 to .62)
10d. Lacasse, unpublishedA	Participants chose 1 PEB	Home energy audit	Asked to engage in behaviour and use calendar to record behaviour	Intentions: $d = .33$ (-.11 to .77)
10e. Lacasse, unpublishedA	Participants chose 1 PEB	Energy conservation	Asked to engage in behaviour and use calendar to record behaviour	Behaviour: $d = -.07$ (-.51 to .37)
10f. Lacasse, unpublishedA	Participants chose 1 PEB	Water conservation	Asked to engage in behaviour and use calendar to record behaviour	Behaviour: $d = -.07$ (-.51 to .37)
10g. Lacasse, unpublishedA	Participants chose 1 PEB	Reusing	Asked to engage in behaviour and use calendar to record behaviour	Behaviour: $d = .21$ (-.23 to .65)
10h. Lacasse, unpublishedA	Participants chose 1 PEB	Green eating	Asked to engage in behaviour and use calendar to record behaviour	Behaviour: $d = .09$ (-.35 to .53)
10i. Lacasse, unpublishedA	Participants chose 1 PEB	Sustainable transportation	Asked to engage in behaviour and use calendar to record behaviour	Behaviour: $d = .24$ (-.20 to .68)
10k. Lacasse, unpublishedA	Participants chose 1 PEB	Activism	Asked to engage in behaviour and use calendar to record behaviour	Behaviour: $d = -.21$ (-.65 to .23)

10l. Lacasse, unpublishedA	Participants chose 1 PEB	Green purchases	Asked to engage in behaviour and texted each day to record behaviour	Intentions: d = -.03 (-.46 to .40)
10m. Lacasse, unpublishedA	Participants chose 1 PEB	Recycling	Asked to engage in behaviour and texted each day to record behaviour	Behaviour: d = .13 (-.30 to .56)
10n. Lacasse, unpublishedA	Participants chose 1 PEB	Policy support	Asked to engage in behaviour and texted each day to record behaviour	Support: d = .05 (-.38 to .48)
10o. Lacasse, unpublishedA	Participants chose 1 PEB	Home energy audit	Asked to engage in behaviour and texted each day to record behaviour	Intentions: d = .34 (-.09 to .78)
10p. Lacasse, unpublishedA	Participants chose 1 PEB	Energy conservation	Asked to engage in behaviour and texted each day to record behaviour	Behaviour: d = -.04 (-.47 to .39)
10q. Lacasse, unpublishedA	Participants chose 1 PEB	Water conservation	Asked to engage in behaviour and texted each day to record behaviour	Behaviour: d = -.09 (-.51 to .34)
10r. Lacasse, unpublishedA	Participants chose 1 PEB	Reusing	Asked to engage in behaviour and texted each day to record behaviour	Behaviour: d = -.05 (-.48 to .38)
10s. Lacasse, unpublishedA	Participants chose 1 PEB	Green eating	Asked to engage in behaviour and texted each day to record behaviour	Behaviour: d = -.14 (-.57 to .29)
10t. Lacasse, unpublishedA	Participants chose 1 PEB	Sustainable transportation	Asked to engage in behaviour and texted each day to record behaviour	Behaviour: d = .13 (-.30 to .56)
10u. Lacasse, unpublishedA	Participants chose 1 PEB	Activism	Asked to engage in behaviour and texted each day to record behaviour	Behaviour: d = -.19 (-.62 to .24)
11a. Lacasse, unpublishedB, Environmental group vs. control	Multiple behaviours	Activism	Manipulate beliefs about past behaviour frequency	Intentions: d = -.26 (-.74 to .22)
11b. Lacasse, unpublishedB, Environmental group vs. control	Multiple behaviours	Policy support	Manipulate beliefs about past behaviour frequency	Support: d = .05 (-.43 to .53)

11c. Lacasse, unpublishedB, Non-environmental group vs. control	Multiple behaviours	Activism	Manipulate beliefs about past behaviour frequency	Intentions: d = -.44 (-.97 to .08)
11d. Lacasse, unpublishedB, Non-environmental group vs. control	Multiple behaviours	Policy support	Manipulate beliefs about past behaviour frequency	Support: d = -.12 (-.64 to .40)
11e. Lacasse, unpublishedB, Environmental group vs. control	Multiple behaviours	Activism	Manipulate beliefs about past behaviour frequency	Intentions: d = -.20 (-.88 to .48)
11f. Lacasse, unpublishedB, Environmental group vs. control	Multiple behaviours	Policy support	Manipulate beliefs about past behaviour frequency	Support: d = .11 (-.56 to .79)
11g. Lacasse, unpublishedB, Non-environmental group vs. control	Multiple behaviours	Activism	Manipulate beliefs about past behaviour frequency	Intentions: d = -.17 (-.96 to .63)
11h. Lacasse, unpublishedB, Non-environmental group vs. control	Multiple behaviours	Policy support	Manipulate beliefs about past behaviour frequency	Support: d = .23 (-.56 to 1.03)
12a. Lanzini, dissertation	Green purchases	Energy conservation	Incentive	Intentions: d = -.06 (-.51 to .38)
12b. Lanzini, dissertation	Green purchases	Water conservation	Incentive	Intentions: d = -.18 (-.62 to .27)
12c. Lanzini, dissertation	Green purchases	Recycling batteries	Incentive	Intentions: d = .27 (-.18 to .71)
13a. Maki, dissertation	Paper recycling	Other recycling	Paper recycling message	Intentions: d = .92 (.41 to 1.43)
13b. Maki, dissertation	Paper recycling	Multiple non-recycling behaviours	Paper recycling message	Intentions: d = .37 (-.12 to .86)

13c. Maki, dissertation	Paper recycling	Other recycling	Paper recycling modelling	Intentions: d = .59 (.11 to 1.07); behaviour: d = .20 (-.27 to .68)
13d. Maki, dissertation	Paper recycling	Multiple non-recycling behaviours	Paper recycling modelling	Intentions: d = .09 (-.39 to .56); behaviour: d = -.32 (-.80 to .15)
14a. Maki & Vandenbergh, unpublished	Policy support	Multiple behavioural intentions	Climate policy message	Intentions: d = -.04 (-.25 to .16)
14b. Maki & Vandenbergh, unpublished	Policy support	Multiple policy support	Climate policy message	Support: d = -.09 (-.30 to .11)
15a. Margetts & Kashima, 2016 Study 1a	Green purchases	Donation	Shopping in green store	Intentions: d = .30 (-.01 to .62)
15b. Margetts & Kashima, 2016 Study 1a	Green purchases	Activism	Shopping in green store	Intentions: d = .23 (-.08 to .55)
16a. Margetts & Kashima, 2016 Study 1b	Green purchases	Donation	Shopping in green store	Intentions: d = .76 (.14 to 1.38)
16b. Margetts & Kashima, 2016 Study 1b	Green purchases	Activism	Shopping in green store	Intentions: d = .20 (-.41 to .80)
17a. Margetts & Kashima, 2016 Study 2	Green purchases	Donation	Shopping in green store	Intentions: d = .89 (.58 to 1.21)
17b. Margetts & Kashima, 2016 Study 2	Green purchases	Activism	Shopping in green store	Intentions: d = .15 (-.15 to .45)
18. Parag et al., 2011	Multiple behaviours	Reduced dairy consumption	Carbon messaging	Intentions: d = .35 (.21 to .50)
19a. Poortinga et al., 2013 England	Store bag reuse	Green purchases	Incentive	Behaviour: d = -.15 (-.33 to .03)

19b. Poortinga et al., 2013 England	Store bag reuse	Recycling	Incentive	Behaviour: d = .14 (-.04 to .32)
19c. Poortinga et al., 2013 Wales	Store bag reuse	Green purchases	Incentive	Behaviour: d = -.03 (-.21 to .15)
19d. Poortinga et al., 2013 Wales	Store bag reuse	Recycling	Incentive	Behaviour: d = .13 (-.05 to .31)
20a Raimi et al., in press (Conservatives)	Geoengineering policy support	Multiple policy support	Geoengineering disaster message	Support: d = -.29 (-.72 to .15)
20b. Raimi et al., in press (Liberals)	Geoengineering policy support	Multiple policy support	Geoengineering disaster message	Support: d = .22 (-.08 to .52)
21a. Schultz et al., 2015	Green purchases	Energy conservation	Incentives, information, and commitment elicitation	Behaviour: d = -.01 (-.46 to .45)
21b. Schultz et al., 2015	Green purchases	Green purchases	Incentives, information, and commitment elicitation	Behaviour: d = .21 (-.24 to .66)
22a. Steinhorst et al., 2015	Energy conservation	Multiple behaviours	Environmental messaging	Intentions: d = .24 (.05 to .43)
22b. Steinhorst et al., 2015	Energy conservation	Multiple behaviours	Incentive messaging	Intentions: d = .07 (-.12 to .26)
23a. Thomas et al., 2016	Store bag reuse	Energy conservation	Incentive	Behaviour: d = -.02 (-.06 to .03)
23b. Thomas et al., 2016	Store bag reuse	Water conservation	Incentive	Behaviour: d = -.07 (-.11 to -.03)
23c. Thomas et al., 2016	Store bag reuse	Green purchases	Incentive	Behaviour: d = -.02 (-.06 to .03)
23d. Thomas et al., 2016	Store bag reuse	Transportation	Incentive	Behaviour: d = -.04 (-.08 to .01)
24. Tiefenbeck et al., 2013	Water conservation	Energy conservation	Social norm feedback	Behaviour: d = -.13 (-.26 to .01)
25a. Truelove et al., 2016 (Republicans)	Recycling	Policy support	Being asked to dispose of bottle and exposure to environmental message	Support: d = .36 (-.32 to 1.04)

| 25b. Truelove et al., 2016 (Moderates) | Recycling | Policy support | Being asked to dispose of bottle and exposure to environmental message | Support: d = -.45 (-.94 to .05) |
| 25c. Truelove et al., 2016 (Democrats) | Recycling | Policy support | Being asked to dispose of bottle and exposure to environmental message | Support: d = -.74 (-1.28 to -.20) |

Note. CI = confidence interval, *PEB* = pro-environmental behaviour.

Supplementary Table 2

Confirmatory Results

Hypotheses	Moderating Fields	PEB2 Category	d_+ (95% CI)	Adjusted R^2	k
1. PEB2 spillover effects will be stronger for intentions and policy support compared to behaviour.		Intentions	0.17** (0.05 to 0.29)	N/A	30
		Behaviour	-0.03* (-0.06 to -0.01)	N/A	30
		Policy Support	-0.01 (-0.16 to 0.14)	N/A	17
2. Interventions targeting environmental identity will lead to positive spillover.	Identity Intervention	Intentions	0.18 (-0.01 to 0.38)	0%	14
		Behaviour	0.01 (-0.11 to 0.12)	1.29%	14
		Policy Support	0.001 (-0.19 to 0.20)	0%	14
	Non-Identity Intervention	Intentions	0.21** (0.06 to 0.36)		11
		Behaviour	-0.03 (-0.06 to 0.001)		14

		Policy Support	-0.03 (-0.29 to 0.23)		3
3. Interventions targeting intrinsic motivation will lead to positive spillover.	Intrinsic Motivation Intervention	Intentions	0.25** (0.10 to 0.40)	3.63%	19
		Behaviour	-0.02 (-0.12 to 0.08)	0%	17
		Policy Support	0.001 (-0.19 to 0.20)	0%	14
	Non-Intrinsic Motivation Intervention	Intentions	0.10 (-0.09 to 0.28)		6
		Behaviour	-0.03 (-0.07 to 0.002)		9
		Policy Support	-0.03 (-0.29 to 0.23)		3
4. Interventions targeting guilt will lead to negative spillover.	Guilt Intervention	Intentions	-0.29 (-0.59 to 0.00)	21.32%	4
		Behaviour	N/A	N/A	N/A
		Policy Support	0.12 (-0.09 to 0.33)	2.66%	6
	Non-Guilt Intervention	Intentions	0.22** (0.09 to 0.34)		26
		Behaviour	-0.03** (-0.05 to -0.01)		29

Hypothesis	Sub-group	Outcome	Effect size (CI)	%	n
		Policy Support	-0.08* (-0.29 to 0.13)		8
5. Incentive interventions will lead to negative spillover.	Incentive Intervention	Intentions	0.05 (-0.10 to 0.20)	0%	4
		Behaviour	-0.03 (-0.06 to 0.01)	0%	8
		Policy Support	N/A	N/A	N/A
	Non-Incentive Intervention	Intentions	0.19** (0.05 to 0.33)		26
		Behaviour	-0.08* (-0.15 to -0.004)		20
		Policy Support	N/A		N/A
6. Difficult PEB1s will lead to positive spillover.	High Difficulty	Intentions	N/A	0%	N/A
		Behaviour	N/A	9.70%	N/A
		Policy Support	N/A	N/A	N/A
	Moderate Difficulty	Intentions	0.18 (-0.004 to 0.35)		16
		Behaviour	-0.03 (-0.07 to 0.01)		13

		Policy Support	N/A		N/A
	Low Difficulty	Intentions	0.35 (-0.02 to 0.72)		5
		Behaviour	-0.11 (-0.29 to 0.08)		3
		Policy Support	-0.15 (-0.42 to 0.12)		6
	High Similarity	Intentions	0.74* (0.39 to 1.10)	19.12%	2
		Behaviour	0.21 (-0.12 to 0.53)	0%	2
		Policy Support	-0.03 (-0.29 to 0.23)	11.37%	3
7. Similar PEB1s and PEB2s will lead to positive spillover.	Moderate Similarity	Intentions	N/A		N/A
		Behaviour	-0.04 (-0.10 to 0.03)		3
		Policy Support	N/A		N/A
	Low Similarirty	Intentions	0.28* (0.05 to 0.51)		9
		Behaviour	-0.04 (-0.10 to 0.02)		9

		Policy Support	-0.31 (-0.89 to 0.28)		3
		Intentions	0.23* (0.05 to 0.41)	15.19%	14
	Published	Behaviour	-0.04* (-0.07 to -0.001)	0%	14
		Policy Support	-0.04 (-0.39 to 0.31)	0%	8
		Intentions	-0.12 (-0.29 to 0.04)		5
8. Published effect sizes will be larger.	Unpublished	Behaviour	N/A		N/A
		Policy Support	-0.02 (-0.16 to 0.12)		7
		Intentions	0.23* (0.05 to 0.41)		11
	Theses	Behaviour	-0.001 (-0.11 to 0.11)		16
		Policy Support	0.12 (-0.19 to 0.42)		2
9. Spillover effects will be stronger when PEB2	Self-Reported	Behaviour	-0.03* (-0.05 to -0.01)	0%	26
	Objective	Behaviour	-0.15 (-0.27 to -0.04)		4

behaviour is self-reported,

rather than objective.

Supplementary Table 3

Additional Exploratory Results for Categorical Variables

Exploratory Investigations	Moderating Fields	PEB2 Category	d_+ (95% CI)	*Adjusted* R^2	*k*
Control versus active comparison condition	Control	Intentions	0.17** (0.03 to 0.31)	0%	26
		Behaviour	-0.03* (-0.06 to -0.01)	N/A	30
		Policy Support	-0.07 (-0.24 to 0.11)	0%	10
	Active Comparison	Intentions	0.14 (-0.13 to 0.42)		4
		Behaviour	N/A		N/A
		Policy Support	0.07 (-0.20 to 0.35)		7
Experimental versus quasi-experimental design	Experimental	Intentions	0.17** (0.05 to 0.29)	N/A	30
		Behaviour	-0.06 (-0.15 to 0.04)	0%	19
		Policy Support	-0.01 (-0.16 to 0.14)	N/A	17
	Quasi-experimental	Intentions	N/A		N/A
		Behaviour	-0.03 (-0.06 to 0.001)		11
		Policy Support	N/A		N/A

Note. Negative values mean negative spillover occurred, *CI* = confidence interval, *k* = number of studies in that subgroup, * means effect is different from 0 at $p < .05$, ** means effect is different from 0 at $p < .01$, R^2 is only listed in the first value of a given moderator.

Supplementary Table 4

Additional Exploratory Results for Continuous Variables

Exploratory Investigations	PEB2 Category	B (CI; SE)	k
Gender (% women)	Intentions	0.01 (-0.002 to 0.02; 0.004)	14
	Behaviour	-0.01 (-0.01 to 0.003; 0.004)	27
	Policy Support	-0.01 (-0.02 to 0.004; 0.01)	17
Age	Intentions	-0.0001 (-0.01 to 0.01; 0.01)	26
	Behaviour	0.01 (-0.002 to 0.02; 0.004)	23
	Policy Support	0.01 (-0.01 to 0.03; 0.01)	16
Ethnicity (% White)	Intentions	-0.03 (-0.02 to 0.01; 0.01)	14
	Behaviour	0.03 (-0.01 to 0.02; 0.01)	16
	Policy Support	0.002 (-0.02 to 0.02; 0.01)	17

Note. CI = confidence interval, SE = standard error, k = number of studies in that subgroup, * means effect is different from 0 at $p < .05$.

Supplementary Table 5

Number of Studies Coded as Unclear for Confirmatory Results

| Hypotheses	Studies Coded as Unclear
10. PEB2 spillover effects will be stronger for intentions and policy support compared to behaviour.	0
11. Interventions targeting environmental identity will lead to positive spillover.	7
12. Interventions targeting intrinsic motivation will lead to positive spillover.	9
13. Interventions targeting guilt will lead to negative spillover.	4
14. Incentive interventions will lead to negative spillover.	2
15. Difficult PEB1s will lead to positive spillover.	0
16. Similar PEB1s and PEB2s will lead to positive spillover.	0
17. Published effect sizes will be larger.	0
18. Spillover effects will be stronger when PEB2 behaviour is self-reported, rather than objective.	0

Supplementary Table 6

Number of Studies Coded as Unclear for Exploratory Results

| Exploratory Investigations	Studies Coded as Unclear
Do interventions targeting people's perceptions of their past PEB1 have stronger spillover effects compared to studies targeting a subsequent PEB1?	0
Does an easy PEB2, rather than a difficult PEB2, lead to positive spillover?	0
Are there differences in spillover between types of samples?	0

Supplementary Figure 1
Funnel plot of PEB2 intention effect sizes graphed according to their standard errors
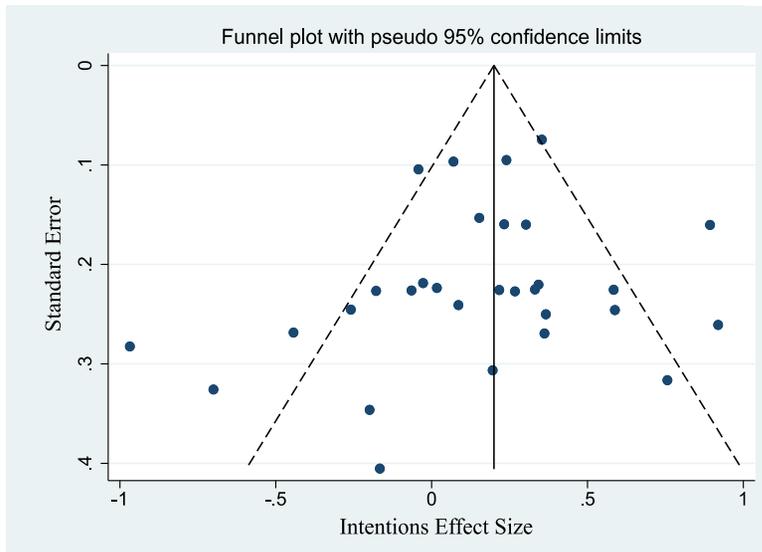
Note. PEB2 = pro-environmental behaviour 2, dots represent individual effect sizes.
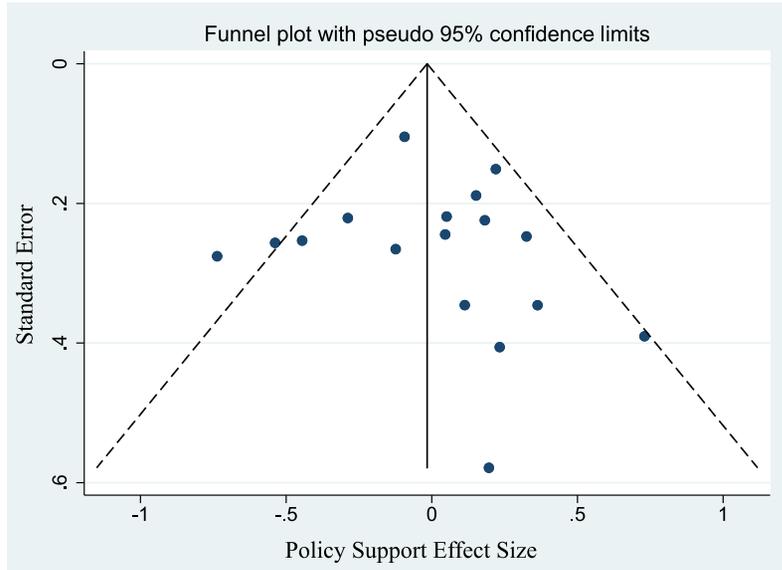
Supplementary Figure 2
Funnel plot of PEB2 behaviour effect sizes graphed according to their standard errors
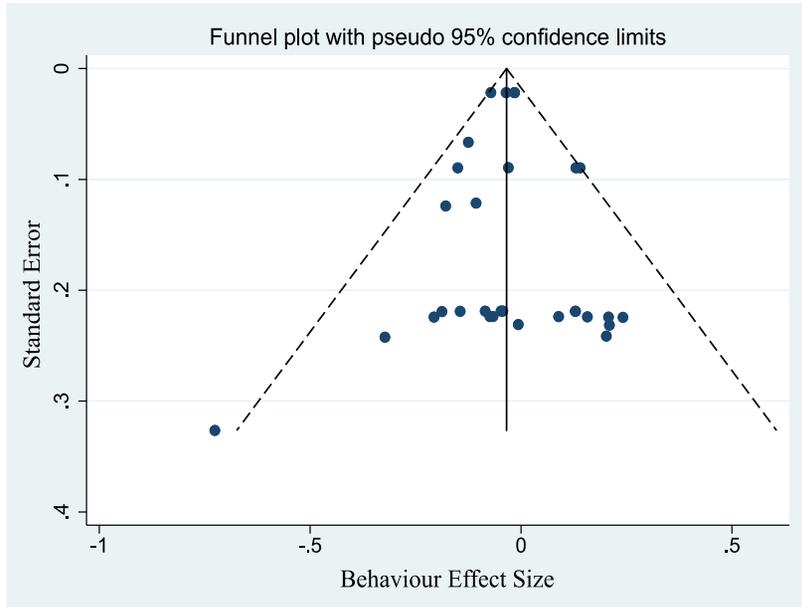
Funnel plot with pseudo 95% confidence limits

Note. PEB2 = pro-environmental behaviour 2, dots represent individual effect sizes.

Supplementary Figure 3
Funnel plot of PEB2 policy support effect sizes graphed according to their standard errors

Funnel plot with pseudo 95% confidence limits

Note. PEB2 = pro-environmental behaviour 2, dots represent individual effect sizes.