



**HAL**  
open science

# Anti-Environmental Behavior: Disregard or Lack of Information?

Michela Limardi, Morgane Tanvé

► **To cite this version:**

Michela Limardi, Morgane Tanvé. Anti-Environmental Behavior: Disregard or Lack of Information?. 2023. hal-04102549

**HAL Id: hal-04102549**

**<https://hal.science/hal-04102549>**

Preprint submitted on 22 May 2023

**HAL** is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.



Distributed under a Creative Commons Attribution 4.0 International License

# Anti-Environmental Behavior: Disregard or Lack of Information?

Michela Limardi\*and Morgane Tanvé†

February 28, 2023

## Abstract

Environmental campaigns are designed to induce a change in human behavior through more environmental friendly actions. However, the main motivations behind an individual environmental behavior are still under debate. We want to investigate if an anti-environmental behavior might depend on some social values (preferences) or a lack of information. We use an original survey conducted by a French Non-profit Organization to assess the effectiveness of its drug recycle policies. We conduct first a probit analysis of the probability that an individual recycle drugs. Then, we exploit a question in the survey where the interviewer provides the information to non recycling respondents on how it works the drugs recycle process. We estimate the difference among non recycling respondents with respect to their intent to change their recycling behavior, once this information is received. We find that the information does not provide an incentive to change the behavior to non recycling respondents with a low degree of environmental awareness, while it has a positive impact for non-recycling respondents with a higher degree of environmental awareness. A better understanding of the motivations behind anti-environmental behavior might help to design more effective environmental campaigns (informative versus persuasive).

Keywords: NGOs, Environmental Policy, Anti-environmental behavior

JEL: Q50, Q48

---

\*University of Lille (RIME) and University of Paris 1 (CES), email: michela.limardi@univ-paris1.fr

†University of Lille (RIME), email: morgane.tanve@univ-lille.fr

# 1 Introduction

The main motivations behind an individual environmental behavior are still under debate. Why do we recycle? Why do we recycle more paper than drugs? A basic decision rule is to adopt a behavior as long as its utility exceeds its cost (Bertrand et al., 2010). However, the utility of adopting a behavior is not always known. Environmental campaigns can encourage the adoption of a behavior in providing information on: the available recycling facilities; the utility of the behavior, valuing the action (i.e. the utility that can be derived from it); the cost of adopting the behavior.

We are interested here in the potential role of delivering an information on the available recycling facilities to non-recycling individuals. The aim of this study is to investigate if an anti-environmental behavior might depend on some social values (preferences) or a lack of information.

First, we build a simple model to understand the potential role of environmental campaigns on the revision of individual's beliefs. Following (Bertrand et al., 2010), we formalize three different mechanisms of the effect of an environmental campaign on the individual behavior: informative, complementary and persuasive. In our study, these mechanisms will have different impacts according to the degree of environmental awareness of an individual. The level of an individual environmental awareness might play a role on the utility and the cost of a recycling action (Czajkowski et al., 2017). For an individual with a low environmental awareness an informative campaign can be less or more effective than for a high environmental awareness individual.

We use an original survey conducted by a French Non-profit Organization to assess the effectiveness of its drug recycle policies to test our theoretical results. We conduct first a probit analysis of the probability that an individual recycle drugs. Then, we exploit a question in the survey where the interviewer provides the information to non recycling respondents on how it works the drugs recycle process and why is it important for the environment. We estimate then the difference among non recycling respondents with respect to their intent to change their behavior, once this information is received.

We find that the information does not provide any incentive to change the behavior to non recycling respondents with a low degree of environmental awareness, while it has a positive impact for non-recycling respondents with a higher degree of environmental awareness. Our interpretation is that the impact of an environmental campaign depends on the motivation behind an anti-

environmental behavior. If there are people who are aware of environmental issues and they would like to change their behavior but they do not have the information, informative campaigns can be more effective. While for individuals with low environmental awareness, persuasive campaigns can be effective in building awareness about an environmental issue. Different types of environmental campaigns, informative versus persuasive, might then have different impact according to the environmental awareness of individuals.

There exists a large literature on the role of environmental advertising in the private sector. The objective of the firm is to provide a "green" image of their products to the consumers. Studies show the effectiveness of this kind of green advertising according to different mechanisms (Minor & Morgan, 2011; Cabral, 2005; Kahn, 2007; Barrage et al., 2020). However, still few studies exist on the effectiveness of environmental campaigns conducted by the state or environmental NGOs to raise environmental awareness. We provide here an analysis of an informative campaign conducted by a Non-profit organization. There exist also a large volume of literature that shows the effects of informative campaigns on the consumer behavior (Carlsson et al., 2021; Ito et al., 2015; Ferraro & Price, 2013). Our contribution is to show that the impact of an informative campaign might depend on the "type" of the receiver, i.e. his degree of environmental awareness. A better understanding of the motivations behind anti-environmental behavior might help to design more effective environmental campaigns (informative versus persuasive).

The remainder of the paper is organized as follows. In Section 2 we present a conceptual framework of an environmental campaign; in Section 3 we present the data and method used to identify the impact of an informative campaign according to the environmental awareness of an individual. The section 4 presents the results and the last section concludes.

## **2 Conceptual Framework**

In a disposal system where there is no pecuniary reward for recycling or fines to pay (no punishment) such as drugs recycling in France, an individual recycles because of intrinsic motivation<sup>1</sup>.

---

<sup>1</sup>Several studies explain the role of intrinsic motivation in an individual recycling decision citepNyborg201

A basic decision rule is that an individual recycles if and only if:

$$U_i(r) - c_i > 0 \tag{1}$$

where  $U_i(r)$  is the individual's utility gain from recycling and  $c_i$  is the cost of recycling. The utility may derive from some environmental awareness of the individual, while the cost of recycling are the cost of getting the information and/or realize the action. Let allow the possibility that environmental campaigns affect individuals behavior<sup>2</sup>. We follow Bertrand (2010) and we adapt the three different mechanisms of the effect of advertising on the consumer behavior to environmental campaigns<sup>3</sup>. A first mechanism is informative environmental campaigns, where the individual has uncertainty about the utility gain , such as the value of the action or the credibility-trust about the recycling disposal process. In this case, environmental campaigns will affect the individual's expectations about the utility and cost. Then, the individual will recycle if

$$E_t^u(M_{it})[U_i(r)] - E_t(M_{it})^c[c_i] > 0 \tag{2}$$

where expectations E at time t are affected by the environmental campaigns content (C) that individual i receives. In our case, for exmaple, transmitting the information that Cyclamed is a non-profit organization and how it manages the drug recycle disposal can increase the level of trust in the recycling process and then the individual's expectations of the value (the utility) of recycling drugs. In the annual survey conducted by Cyclamed, this type of message is delivered by the interviewer, and this is the channel that we investigate in our empirical analysis. A second possibility is complementarity to recycle: individuals have fixed preferences and environmental campaigns confirm or not the belief of the individual. So, individual recycles if:

$$U_i(r, r * C_i) - c_i > 0 \tag{3}$$

---

<sup>2</sup>This is a way of formalizing advertising in the behavioral decision-making and economics of advertising literature (Bertrand 2010)

<sup>3</sup>The role of different messages of environmental campaigns, informative versus persuasive, to induce a pro-environmental behavior on the individual behavior is well established in the literature of social psychology.

This could be the case for some recycling behavior that will affect the "social" status of an individual. This mechanism is not adapted to the drugs recycle, where the social approval is not determinant in the individual decision process. Finally, a third mechanism is persuasive environmental campaigns. As stated by Bertrand (2010), "persuasion can operate directly on preferences by manipulating reference points,[...], providing motivation to make (rather than procrastinate) choices, or simplifying the complexity of decision making". Individuals decide to recycle or not according to

$$D_i(u_i(r), E_i) - c_i > 0 \quad (4)$$

where  $D_i(u_i(r), E_i)$  is the effective decision, rather than the true utility (Bertrand 2010). Our idea is that these mechanisms will have different impacts according to the degree of environmental awareness of an individual  $i$ . The level of an individual environmental awareness might play a role on the utility and the cost of a recycling action. For an individual with a low environmental awareness an informative campaigns can be less or more effective than for a high environmental awareness individual. In our empirical analysis, we want precisely to test this mechanism.

### **3 Data and empirical method**

#### **3.1 Data and Descriptive statistics**

In France recycling is voluntary based, no sanctions or payments are foreseen. Recycling paper, plastic and glass is now well established among people. People have to sort their waste and put it in separate bins located close to their residence. A waste disposal system is then organized by each municipality. However, there are other products, like batteries, drugs, bulbs, where the disposal system is established but more costly for people, because they have to move in a specific place and they have to know first where they can do it.

People can recycle unused or expired drugs by bringing them to any pharmacy. In France it is mandatory under the law for pharmacies to accept unused or expired drugs and individuals are not paid for that. Cyclamed is a French Non-profit Organization that is in charge of the national system of drug disposal. It has been authorized by the State to manage the entire process. The drug

disposal process consists of collecting unused and expired drugs in the pharmacies and transporting them to recycling platforms. They are then incinerated in an environmentally-friendly process to release energy. Cyclamed's objective is to increase the number of people recycling drugs. The annual financial resources of Cyclamed are provided by pharmaceutical firms according to the "polluter pays" principle. Therefore, it does not face the issue of providing certain outcomes to increase donations as other environmental Non-profit organizations do. Moreover, there is no other competitor in the drug disposal sector in France that could act as an external driver for the strategies of Cyclamed, such as the amount of resources to be devoted to environmental campaigns (Limardi, 2022).

Cyclamed conducts each year a campaign about drugs recycling at national level broadcast on the French television. A survey is conducted one month after the end of each campaign to investigate the individual behavior about recycling drugs and other waste disposal. Our main dataset comes from these surveys for the following years 2017-2020. This is a national representative survey of more than 1000 respondents<sup>4</sup>, which provides cross-sectional data and information of individual characteristics: income, job, home city, age, sex and the size of the household. The survey asks a series of questions about the recycling behavior of the respondents for different waste (glass, paper, plastic, pulps, batteries and drugs) and why they think is important recycling drugs. The question is framed in the following way: "For each type of waste, indicate how often you sort them to put them in bins or to bring them back to the appropriate places". Table 1 and Table 2 show the percentage of respondents recycling glass, paper and plastic (Table 1) and pulp, batteries and drugs (Table2). In Table 1 around 90 percent of the individuals recycle paper, glass and plastic, while the average of recycling drugs, pulps and battery is lower, around 70 percent. The difference in the waste disposal system in France might explain the difference in the percentage of people recycling.<sup>5</sup>

---

<sup>4</sup>For year 2020 there are more than 2000 respondents because Cyclamed carried out also interviews by internet. The previous interviews (year 2017-2019 were conducted by telephone.

<sup>5</sup>It could be indeed considered more costly to recycle drugs, pulps and batteries, because people have to go to the "appropriate" place and find the information about this place.

### 3.2 Identification strategy and empirical method

Cyclamed conduct annually a survey to investigate the recycling behavior of french people <sup>6</sup>. We exploit a question in the survey addressed to all respondents declaring not recycling drugs as an informative environmental campaign. The interviewer first provides the information about Cyclamed and then he explains how it works the drugs recycling process in France. The question is framed in the following way: "Cyclamed is an association (French Law 1901), which manages and coordinates a disposal system of unused drugs for the purpose of health and environmental safety. Cyclamed encourages people to return unused drugs, whether expired or not, to pharmacies. Drugs are incinerated to provide energy and disposed in an environmentally friendly manner". Then the interviewer asks if the respondent will start recycling drugs after receiving this information. The question is framed in this way: "And do you intend, now that I have told you about Cyclamed, to return your unused drugs to your pharmacy in the future?". The respondent may choose between : "yes for sure, yes probably, no probably and no for sure". On average 52 percent replies "Yes for sure", 37 percent replies "Yes probably" and 10 percent replies "Probably not" and "Not for sure" (Table 3). <sup>7</sup> We exploit this variation in the answer to investigate why the same information gives different incentives to change the behavior within the non-recycling sample.

We want to test if the different degree of environmental awareness of an individual might affect the impact of an informative campaign. We use the answer to the following question that is addressed to all respondents (recycling and non recycling): "I will now quote to you a number of motivations that have been given to me about recycling unused drugs. For each of them, tell me if you totally agree, somewhat agree, don't really agree or totally disagree", as a measure of the environmental awareness of the respondent. The "motivations" stated are the following: "This prevents drugs from ending up in landfills"; "This contributes to the protection of the environment"; "This avoids the risk of water pollution"; "This makes it possible to supply energy by incineration"; "This limits the risk of poisoning within the household". <sup>8</sup> We build dummy variables corresponding to these answers. The variable *protenv* equals 1 if the respondent "totally agree" or "somewhat agree" to the statement: "This contributes to the protection of the environment", and zero if don't

---

<sup>6</sup>The Survey is conducted at the beginning of each year

<sup>7</sup>We aggregate the answers "Probably not" and "Not for sure", to consider the difference between respondents that would like to change their behavior with respect to those that would not.

<sup>8</sup>In this study, the last motivation can be considered as a measure of an extrinsic motivation of drugs recycling, while the others as a measure of an intrinsic motivation.



really agree or totally disagree". The variable *landfill* equals 1 if the respondent "totally agree" or "somewhat agree" to the statement "This prevents drugs from ending up in landfills", and zero if "don't really agree or totally disagree". The variable *pollution* equals 1 if the respondent "totally agree" or "somewhat agree" to the statement "This avoids the risk of water pollution";, and zero if "don't really agree or totally disagree". The variable *riskhousehold* equals 1 if the respondent "totally agree" or "somewhat agree" to the statement "This limits the risk of poisoning within the household", and zero if "don't really agree or totally disagree". The variable *energy* equals 1 if the respondent "totally agree" or "somewhat agree" to the statement "This makes it possible to supply energy by incineration", and zero if "don't really agree or totally disagree".

We exploit then a question related to the knowledge of the respondent of the drug disposal system. Importantly, this question is addressed to all respondents before the question concerning the information about Cyclamed and the explanation on how it works the drugs disposal system in France. The question is framed as following: "Do you know an organization whose objective is to dispose unused drugs?". We build a dummy variable *knoworg* that equals 1 if the answer is "yes" and zero otherwise.

We compare first non-recycling respondents declaring changing the behavior for sure after receiving the information with respect to recycling respondent. Second, we compare non-recycling respondents declaring not changing the behavior after receiving the information with respect to recycling respondent. Table 6 and Table 7 show the difference in mean of the two groups. What is interesting here is that there is no statistical difference in mean between recycling respondents and non-recycling respondent that will change for sure their behavior (Table 6) for the motivations of recycling drugs, while there is a statistical difference in mean for the variable *knoworg*. On the contrary, the difference in mean of the variables of the motivations are highly statistical significant between recycling respondents and non-recycling respondents who will not change their behavior (Table 7), while there is no statistical difference in mean for the variable related to the knowledge of the organization.

First, we estimate the probability of recycling of an individual, to find some determinant of the

recycling behavior. We estimate the following model:

$$Pr(recycle_{itd} = 1) = F(\alpha + \beta_1 knowOrg_i + \beta_2 STrecycle_i + \beta_3 Hrecycle_i + \beta_3 X_i + \eta_t + \eta_d + \epsilon_{idt}) \quad (5)$$

where *recycle* is a dummy variable that equals one if the individual *i* recycle drugs and zero otherwise. *STrecycle* and *Hrecycle* are dummy variables related to the recycling behavior of the respondent for other types wastes: glass, paper and palstic (*STrecycle*); pulp and battery (*Hrecycle*). We control for a set of respondents' characteristics: income, sex, age, job, size household. We put in all regressions campaign fixed effects  $\eta_d$  and department fixed effects  $\eta_d$ . We cluster the standard error at region level. Finally,  $\epsilon_{idt}$  is the error term.

Second, we estimate the probability of declaring changing the behavior after receiving the information about Cyclamed and the drugs disposal system in France within the non-recycling respondents<sup>9</sup>. We estimate the following model:

$$Pr(changebehavior_{itd} = 1) = F(\alpha + \beta_1 knowOrg_i + \beta_2 STrecycle_i + \beta_3 Hrecycle_i + \beta_3 X_i + \eta_t + \eta_d + \epsilon_{idt}) \quad (6)$$

where *changebehavior* is a dummy variable equals 1 if the respondent declares to change the behavior once he receives the information about Cyclamed. We control as before for a set of respondents' characteristics: income, sex, age, job, size household. We put in all regressions campaign fixed effects  $\eta_d$  and department fixed effects  $\eta_d$ . We cluster the standard error at region level. Finally,  $\epsilon_{idt}$  is the error term.

Finally, we estimate the probability of considering the following motivations for recycling drugs important or not. We measure this probability for the three different groups ("I will change for sure", "I will probably change", "I will not change") within the non recycling respondents compared to the recycling individuals in the sample. We build a categorical variable *comparison* that equals 1 if the respondent reply "I will for sure" change the behavior once he receives the information, equals 2 if the respondent reply "I will probably" change the behavior once he re-

---

<sup>9</sup>Here, we make the difference between individuals replying "Yes" with respect to those replying "No".

ceives the information, equals 3 if the respondent reply "I will not" change the behavior once he receives the information. The value zero corresponds to respondent recycling drugs. We estimate the following model:

$$Pr(motivations_{itd} = 1) = F(\alpha + \beta_1 comparison_i + \alpha + \beta_1 knowOrg_i + \beta_2 STrecycle_i + \beta_3 Hrecycle_i + \beta_3 X_i + \eta_t + \eta_d + \epsilon_{idt}) \quad (7)$$

where *motivations* is a dummy variable equals 1 if the respondent declares that recycling drugs is important for the reasons listed above (protecting environment, avoiding drugs in the landfills, producing energy, reducing risk at home, avoiding water pollution) and zero otherwise. We control also here for a set of respondents' characteristics: income, sex, age, job, size household. We put in all regressions campaign fixed effects  $\eta_d$  and department fixed effects  $\eta_d$ . We cluster the standard error at region level. Finally,  $\epsilon_{idt}$  is the error term.

## 4 Results

Table 4 shows the results of equation 5. In this equation we want to test just some determinants of the recycling behavior. The variable *STrecycle* and *Hrecycle* are positive and highly significant. This means that recycling other type of waste (glass, etc;) increase the probability of recycling drugs. It is interesting also that knowing an organization that manage the drug disposal in France increase the probability of recycling drugs (variable *knowOrg* is positive and highly significant).

The results of our baseline estimation (6) are reported in Table 5. Columns (1) to (3) report the estimations of a specification that pools all non-recycling respondents. The coefficients of the variables *STrecycle*, *Hrecycle* are positive but not significant in all specifications, while the variable *knowOrg* is negative and highly significant. This means that non-recycling respondents who do not know the organization before receiving the information will increase the probability of changing the behavior and this is true given their recycling behavior for other types of wastes.

Finally, the results of equation 7 are reported in Table 8. Columns (1) to (5) report the estimation for the different motivations for recycling drugs (*protenv*, *pollution*, *landfill*, *risk*, *energy*). It is interesting that for all these motivations there is no difference between non-recycling

respondents declaring they will for sure change the behavior (*Icomparison1*) after receiving the information and recycling respondents. While there is a statistical difference for the two other groups (who will probably change the behavior- *Icomparison2*- and who will not change the behavior-*Icomparison3*) compared to the recycling respondents. It seems that individuals who declare they will change the behavior for sure are similar to recycling respondent in the level of environmental awareness. They need just an information about the existence of a trustful waste disposal mechanism to behave pro-environmentally.

## **5 Conclusion**

In this paper we have studied the potential impact of an informative campaign according to the environmental awareness of an individual, using data from original surveys conducted in France once per year, after the end of drug disposal campaigns. We conduct first a probit analysis of the probability that an individual recycle drugs. Then, we exploit a question in the survey where the interviewer provides the information to non recycling respondents on how it works the drugs recycle process and why is it important for the environment. We estimate then the difference among non recycling respondents with respect to their intent to change their behavior, once this information is received.

Our findings show that an informative message has an impact just on individual with an high environmental awareness. It could be interesting for future research to test if a persuasive environmental campaign can be more effective to induce a change in the behavior of individual with a low environmental awareness.

## References

- Barrage, L., Chyn, E., & Hastings, J. (2020). Advertising and environmental stewardship: Evidence from the bp oil spill. *American Economic Journal: Economic Policy*, 12, 33–61.
- Bertrand, M., Karlan, D., Mullainathan, S., Shafir, E., & Zinman, J. (2010). What's advertising content worth? evidence from a consumer credit marketing field experiment. *The Quarterly Journal of Economics*, 125(1), 263–306.
- Cabral, L. M. B. (2005). The economics of trust and reputation : A primer.
- Carlsson, F., Jaime, M., & Villegas, C. (2021). Behavioral spillover effects from a social information campaign. *Journal of Environmental Economics and Management*, 109(C).
- Czajkowski, M., Hanley, N., & Nyborg, K. (2017). Social norms, morals and self-interest as determinants of pro-environment behaviours: The case of household recycling. *Environmental and Resource Econ* 66:647-670.
- Ferraro, P. J. & Price, M. K. (2013). Using Nonpecuniary Strategies to Influence Behavior: Evidence from a Large-Scale Field Experiment. *The Review of Economics and Statistics*, 95(1), 64–73.
- Ito, K., Ida, T., & Tanaka, M. (2015). The persistence of moral suasion and economic incentives: Field experimental evidence from energy demand. Technical report, National Bureau of Economic Research.
- Kahn, M. (2007). Do greens drive hummers or hybrids? environmental ideology as a determinant of consumer choice. *Journal of Environmental Economics and Management*, 54, 129–145.
- Limardi, M. (2022). Recall bias of environmental campaign. *SSRN working paper*.
- Minor, D. & Morgan, J. (2011). Csr as reputation insurance: Primum non nocere. *California Management Review*, 53, 40–59.

**Table 1: Percentage of people recycling glass, plastic and paper by campaign**

<b>campaign</b>	<b>nb observations</b>	<b>glass</b>	<b>plastic</b>	<b>paper</b>
2017	1004.00	0.91	0.89	0.92
2018	1004.00	0.90	0.88	0.89
2019	1041.00	0.93	0.91	0.93
2020	2265.00	0.92	0.90	0.90
Total	1548.73	0.91	0.90	0.91

**Table 2: Percentage of people recycling battery, pulp and drugs by campaign**

<b>campaign</b>	<b>nb observations</b>	<b>battery</b>	<b>pulp</b>	<b>drugs</b>
2017	1004.00	0.81	0.74	0.71
2018	1004.00	0.80	0.73	0.70
2019	1041.00	0.86	0.78	0.73
2020	2265.00	0.82	0.77	0.67
Average	1548.73	0.82	0.76	0.69

**Table 3: People declaring to start recycling drugs or not after the information about the existence of the NGO Cyclamed**

<b>campaign</b>	<b>Non-recycling</b>	<b>Sure</b>	<b>Probably</b>	<b>Noway</b>
2017	0.29	0.48	0.39	0.13
2018	0.30	0.53	0.34	0.12
2019	0.26	0.54	0.36	0.10
2020	0.25	0.52	0.37	0.11
Average	0.27	0.52	0.37	0.12

Sure is a dummy variable equals one if the respondent declares changing for sure his behavior; Probably is a dummy variable equals one if the respondent declares changing probably his behavior; Noway is a dummy variable equals one if the respondent declares he will not change his behavior

Table 4: **Individual characteristics and the prob of recycling drugs. Probit**

Dependent variable: recycle			
	1	2	3
	Coef./se	Coef./se	Coef./se
sizehousehold	0.100*** (0.02)	0.092*** (0.01)	0.090*** (0.01)
Age	0.019*** (0.00)	0.017*** (0.00)	0.016*** (0.00)
STrecycle		0.196*** (0.06)	0.187*** (0.06)
Hrecycle		0.588*** (0.06)	0.579*** (0.06)
knowOrg			0.159*** (0.03)
r2			
N	5279	5279	5279
Campaign fixed effect	Yes	Yes	Yes
Departement fixed effect	No	Yes	Yes

*The dependent variable recycle is equal to 1 if the individual recycle always or often drugs; zero otherwise. The variable knowOrg= 0 if people do not know the organization and =1 if people know the organization. Standard error in parentheses, with \* indicating significance at 0.10, \*\* indicating significance at 0.05 and \*\*\* indicating significance at 0.001.*

Table 5: **Determinants of the probability of behavior change. Probit**

Dependent variable: changebehavior			
	1	2	3
	Coef./se	Coef./se	Coef./se
sizehousehold	-0.012 (0.01)	-0.013 (0.01)	-0.006 (0.02)
Age	-0.013*** (0.00)	-0.013*** (0.00)	-0.012*** (0.00)
STrecycle		0.134 (0.10)	0.138 (0.10)
Hrecycle		0.067 (0.12)	0.090 (0.12)
knowOrg			-0.426*** (0.16)
r2			
N	1565	1565	1565
Campaign fixed effect	Yes	Yes	Yes
Departement fixed effect	No	Yes	Yes

*The dependent variable changebehavior is equal to 1 if the individual replies "yes I will change (for sure and/or probably behaviour" ; zero otherwise. The variable knowOrg= 0 if people do not know the organization and =1 if people know the organization. Standard error in parentheses, with \* indicating significance at 0.10, \*\* indicating significance at 0.05 and \*\*\* indicating significance at 0.001. Cluster at the departement level.*

Table 6: **Utility (motivations) of drugs recycling. Individuals recycling drugs compared to individuals not recycling drugs who will for sure change their behavior after the reception of the information**

recycle behaviour	landfill	protenv	pollution	riskfoyer	energy	knoworg
(1) Not-Recycling (sure)	.9213026 (.0099253)	.9470828 (.0082519)	.9280868 (.0095227)	.8819539 (.0118935)	.743555 (.0160959)	.1411126 (.0128325)
(2) Recycling	.9253123 (.004333)	.9535578 (.0034685)	.9402499 (.0039067)	.8938077 (.0050779)	.7542097 (.0070965)	.2569256 (.0072017)
(3) Difference	-.0040098 (.0106543)	-.0064751 (.0085868)	-.012163 (.0097158)	-.0118538 (.0125353)	-.0106547 (.0174199)	-.115813 (.0170907)
(4) t-test diff	-0.3764	-0.7541	-1.2519	-0.9456	-0.6116	-6.7764***



Table 7: Utility (motivations) of drugs recycling. Individuals recycling drugs compared to individuals not recycling drugs who will not change their behavior after the reception of the information

recycle behaviour	landfill	protenv	pollution	riskfoyer	energy	knowOrg
(1) Not-Recycling (noway)	.6056338 (.0411572)	.556338 (.0418394)	.5915493 (.0413957)	.4647887 (.0420031)	.4225352 (.0415992)	.2957746 (.038435)
(2) Recycling	.9253123 (.004333)	.9535578 (.0034685)	.9402499 (.0039067)	.8938077 (.0050779)	.7542097 (.0070965)	.2569256 (.0072017)
(3) Difference	-.3196785 (.0234913)	-.3972198 (.0194705)	-.3487006 (.0214825)	-.429019 (.027136)	-.3316745 (.0370467)	.0388491 (.0374403)
(4) t-test diff	-13.6084***	-20.4011***	-16.2319***	-15.8099***	-8.9529***	1.0376

Table 8: Probability of considering these motivations for recycling drugs important. Probit.

Dependent variable: Protenv (1); Pollution(2); landfill (3); risk(4); energy(5); knowOrg (6)

	1	2	3	4	5	6
	Coef./se	Coef./se	Coef./se	Coef./se	Coef./se	Coef./se
Icompariso1	0.028 (0.08)	0.032 (0.09)	0.022 (0.07)	-0.038 (0.07)	-0.003 (0.05)	-0.257*** (0.06)
Icompariso2	-0.253*** (0.10)	-0.140* (0.07)	-0.151** (0.07)	-0.381*** (0.06)	-0.229*** (0.08)	-0.200*** (0.06)
Icompariso3	-1.548*** (0.08)	-1.279*** (0.08)	-1.187*** (0.10)	-1.370*** (0.06)	-0.867*** (0.10)	0.413*** (0.13)
STrecycle	0.104 (0.09)	0.087 (0.07)	0.404*** (0.05)	0.127** (0.05)	0.129** (0.06)	0.305*** (0.07)
Hrecycle	0.149*** (0.04)	0.244*** (0.03)	0.146** (0.06)	-0.023 (0.06)	0.066 (0.08)	0.259*** (0.05)
knowOrg	0.124 (0.09)	0.318*** (0.08)	0.271*** (0.09)	0.047 (0.05)	0.111*** (0.04)	
Age	0.002 (0.00)	0.004** (0.00)	-0.006** (0.00)	-0.003 (0.00)	-0.000 (0.00)	0.012*** (0.00)
sizehousehold	0.012 (0.02)	0.015 (0.02)	0.010 (0.03)	-0.012 (0.03)	0.003 (0.01)	0.045** (0.02)
r2						
N	5012	5068	5184	5234	5268	5276
Campaign fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Departement fixed effect	Yes	Yes	Yes	Yes	Yes	Yes

The variable knowOrg= 0 if people do not know the organization and =1 if people know the organization. The variable Icompariso is a categorical variable that equals 1 if sure, 2 if probably, 3 if noway and zero for recycling respondents. Standard error in parentheses, with \* indicating significance at 0.10, \*\* indicating significance at 0.05 and \*\*\* indicating significance at 0.001.