The impact of policy awareness: Evidence from vehicle registration taxes in Switzerland

Davide Cerruti*, Claudio Daminato*†, Massimo Filippini*†

February 13, 2019

[PRELIMINARY AND INCOMPLETE - PLEASE DO NOT CITE WITHOUT PERMISSION FROM THE AUTHORS]

Abstract

This paper explores the role of limited policy awareness in the evaluation of fiscal policy measures. We consider the case of vehicle registration taxes in Switzerland, where some local authorities have introduced a Bonus/Malus system to provide fiscal incentives to low CO_2 or energy efficient cars. Using data from a large sample household survey, we measure individuals' awareness about the presence of the Bonus/Malus scheme. We exploit the variation in the Bonus/Malus system across cantons and over time, as well as the availability of a direct measure of policy awareness both in the presence and in the absence of the fiscal measure to identify and estimate the causal effect of individuals' awareness on vehicle choices. We find that, in cantons with a Bonus/Malus system, policy aware individuals purchased vehicles with 9.2% lower fuel consumption than unaware consumers. These findings highlight the importance of considering (lack-of) individuals' awareness when evaluating fiscal policy measures and can guide policy makers in complementing new fiscal instruments with appropriate information campaigns.

Keywords: Policy awareness; Fiscal policy measures; Vehicle choices; Energy efficiency.

JEL codes: D83,H23,H30,Q48,Q58,R48

*ETH Zürich, Centre for Energy Policy and Economics

†Università della Svizzera Italiana

1 Introduction

Understanding the factors influencing individuals' response to monetary incentives is a key question in the design of economic policies. In fact, in certain contexts such measures fail to reach the desired goals or do not reach sufficient take-up. Among other causes, a possible explanation is that part of the population is not informed about the presence of the policy. This phenomenon might influence the effectiveness of public policies and is therefore important in the program evaluation literature, which analyses the impact of specific measures.

This paper explores to what extent knowledge - or awareness - about policy measures can affect their impact. In case of lack of awareness about some features of the incentive scheme, individuals would not be able to fully incorporate the incentives in their decision making process, and then modify their choices accordingly.

Previous literature has indeed identified knowledge of fiscal incentives as an important determinant of the take up of tax credits, enrollment into welfare programs, and tax evasion (Alstadsæter and Jacob, 2013, Chetty et al., 2014). For instance, taxpayers with better understanding of the tax system are found to adjust more effectively their labor supply to maximize their tax refunds (Chetty et al., 2013). In contrast to the existing literature, rather than inferring individuals' knowledge through observation of their decisions, we use an explicit, individual measure of policy awareness.[1]

We consider the role of policy awareness in the context of fiscal incentives towards the adoption of energy efficient cars in Switzerland. As in many other European countries, Swiss drivers have to pay each year a tax on car ownership - also known as registration tax. In some Swiss administrative areas (cantons) this tax depends on the level of energy efficiency of a car. When consumers take the decision of purchasing a new vehicle they should perform an investment calculation - which also considers vehicle taxes among total life-cycle costs - to compare each alternative in their choice set.

Awareness about the presence and magnitude of fiscal incentives might influence consumers' decisions in two ways. First, individuals can include the cost or the benefits of the policy in their investment calculation. Second, even if they do not perform an explicit calculation, they

[1] For example, Chetty et al. (2013) use the presence of sharp bunching on the first kink of the Earned Income Tax Credit to identify low and high knowledge areas.

can incorporate the new information through some simplified heuristic thinking. Regardless the underlying mechanism, our main research question is whether highly informed individuals react differently to the same measure than poorly informed individuals, and if so by how much.

We exploit the heterogeneity in the registration tax schemes among local administrative areas in Switzerland to study the role of policy awareness in consumers' responses. The registration tax is not defined by the central government. Instead, each of the 26 cantons of Switzerland are free to set up their own schemes, which are based on engine size, engine power, or weight of the vehicle. In particular, some cantons introduced also a bonus/malus system based on vehicle energy efficiency. A bonus (malus) applies to very energy efficient (inefficient) cars and provides a percentage discount (increase) on the baseline registration tax. We focus on whether drivers are aware of the link between vehicle energy efficiency and the tax amount they have to pay.

We use data from the Swiss Household Energy Demand Survey (SHEDS), held in 2016 and 2017 with a representative sample of 5,015 Swiss individuals. Among those, we analyze a subsample of 2755 individuals with at least one car. We ask several questions on individual and household characteristics, environmental attitudes, and vehicle characteristics. We also ask respondents whether they knew, at the time they bought their main car, if the registration tax in their canton of residence was based on fuel efficiency rating and/or CO2 emission rate, and define as 'policy aware' respondents who answer correctly. Only 42% of respondents do so. We then exploit the variation in the Bonus/Malus system across cantons and over time, as well as the availability of a direct measure of policy awareness both in the presence and in the absence of the fiscal measure to identify and estimate the causal effect of individuals' awareness on vehicle choices.

Our main finding is that policy awareness plays a substantial role in the fuel efficiency of the car purchased by the survey respondents. Among people who purchased a car in a canton and in a year where the bonus was in place, policy aware respondents bought cars with 9.2% lower fuel consumption per 100 km compared to unaware consumers. This result is robust to a series of different specifications and checks, and to the addressing of the potential endogeneity of the policy awareness variable.

This paper makes several contributions to the literature. First, our work is largely complementary to the work on knowledge and awareness of policy measures (Alstadsæter and Jacob,

2013, Chetty et al., 2013, 2014). As stated previously, this literature uses indirect measures of awareness. To our understanding, we are the first to use an explicit and individual measure of awareness of a specific policy feature to study the implications for the effectiveness of public policies. We also make a distinction between the concept of awareness and other similar phenomena, like salience[2].

Our paper is also related to the large literature on information provision (Mastrobuoni, 2011, Kling et al., 2012, Chetty et al., 2013, Liebman and Luttmer, 2015, Bhargava and Manoli, 2015, Allcott and Knittel, 2017, Blasch et al., 2017). The effectiveness of an information treatment depends on many factors, including the initial understanding of the policy, its complexity, the financial literacy of treatment recipients, and the type and framing of the information provided. Instead, we abstract from using a specific information treatment, but we highlight the presence of large baseline differences in choices made by aware and non aware individuals after the introduction of a policy. Those differences translate in substantial margins of improvement of the effectiveness of the existing policy framework given an appropriate information treatment.

Finally, we contribute to the growing literature on environmental taxation in the transportation sector, in particular vehicle taxation (Adamou et al., 2012, D'Haultfuille et al., 2014, Klier and Linn, 2015, Alberini et al., 2016, D'Haultfuille et al., 2016, Alberini and Bareit, 2017, Cerruti et al., 2017, Grigolon et al., 2017, Huse and Koptyug, 2017). We show a widespread lack of awareness by drivers on the mechanisms of the registration tax, and the negative consequences that it has on the fuel efficiency of the vehicle fleet. Our findings offer also an explanation for the disappointing results of the introduction of vehicle taxes in certain contexts.

2 Policy awareness and fiscal policy

Starting from (Simon, 1955), a large literature in economics has attempted to relax the traditional assumption of individuals taking decisions under full information. Less attention has been devoted to relaxing this assumption in the context of the evaluation of public programs. Clearly,

[2]The difference between awareness and salience is clear when considering low salience contexts like automatic road tolls and sales taxes, analyzed by Finkelstein (2009), and Chetty et al. (2009) respectively. It is very likely that individuals would recognize the existence of a toll or a sales tax when explicitly asked, but at the same time these individuals would ignore them at the time of the decision due to their low visibility. In our context, only the fraction of aware individuals would acknowledge the presence of a certain measure when asked.

only the individuals that are aware of the existence of a specific public program in the target population might respond to its introduction. However, the benefits of knowing the reasons why some programs work while some do not extend beyond a specific program and can guide policy makers to a proper design of policy measures.

Recent work in the public economics literature suggests that part of the population respond poorly to certain fiscal measures, including welfare benefits, subsidies for saving accounts, and tax credits (Alstadsæter and Jacob, 2013, Chetty et al., 2013, 2014, Bhargava and Manoli, 2015). In this work we are interested in the role of limited policy awareness in the evaluation of certain policy measures. We consider the introduction of fiscal incentives towards the adoption of energy efficient cars. The next section sketches a theoretical framework of consumer behavior in the presence of limited awareness abou the incentives provided by the registration tax system, that we use to guide our empirical analysis.

2.1 Vehicles purchase and awareness about fiscal incentives

We consider consumers decisions with respect to the purchase of a new vehicle in a simple model that draws from (Allcott et al., 2014) and (DellaVigna, 2009). The consumer draws utility from the mileage she is going to drive each year m and other cars characteristics X (such as car engine, number of doors etc.), and disutility from fuel costs (which depend on the vehicle's fuel efficiency f and the fuel price c), vehicle registration tax - to be paid each year a car is owned - τ and upfront costs P.

The consumer then chooses the vehicle i that maximizes her utility over the car's lifetime L. Assuming separability in utility between vehicle's characteristics and vehicle's costs, we can write the problem of the consumer as follows:

$$\max_i V^i = \sum_{l=1}^{L} [u(m_{i,l}, X_i) - cf^i m_{i,l} - \tau_l] - P(f^i) \tag{1}$$

Assume for simplicity that there are only two types of cars in the consumer's choice set, characterized by different levels of fuel efficiency A and B, with $f^A < f^B$. We also assume that the two cars provide the same flow of utility ($u(m_A, X^A) = u(m_B, X^B)$) such that the decision

of purchase only depends on the comparison of total life-cycle costs.[3] In the absence of incentives towards the adoption of fuel efficient cars ($\tau^A = \tau^B$), it is trivial to show that an optimizing consumer will choose the car with higher fuel efficiency A only if $Lc(f^B m_B - f^A m_A) > P^A - P^B$, that is if the savings in the driving costs over the vehicle's lifetime associated with greater fuel efficiency (what Allcott et al. (2014) call "gross utility gains" from energy efficiency) more than compensate the larger upfront costs.

We consider a policy maker introducing a discount D^A to the registration tax of a car with fuel efficiency f^A. In the presence of the fiscal incentive, an optimizing consumer will choose the fuel efficient car A only if:

$$Lc(f^B m_B - f^A m_A) + L\tau D^A > P^A - P^B \tag{2}$$

Several psychological biases can influence individuals' valuation of the savings coming from fuel efficiency, and then the effectiveness of the discount to the registration tax to increase the adoption of fuel efficient vehicles. In particular, individuals can correctly evaluate the savings coming from adopting a vehicle with fuel efficiency A if: (i) they have the energy-related knowledge (i.e. they can correctly evaluate fuel efficiency - $f^A \neq f^B$ - and fuel prices) and skills to perform an investment calculation (Blasch et al., 2018); (ii) they have no present bias (such that they do not value the future stream of fuel cost and registration tax savings); (iii) they have no limited attention due to salience bias (DellaVigna, 2009); (iv) they are aware about the existence of the policy measure.

In the presence of the discount, a misoptimizing consumer will then choose the efficient vehicle A only if:

$$\Gamma(Lc(f^B m_B - f^A m_A) + L\tau\eta^P D^A) > P^A - P^B \tag{3}$$

where Γ is the standard valuation weight in the presence of psychological biases (i) to (iii), and η^P is an indicator for whether a consumer is aware about the presence of the discount ($\eta^P = 1$), or not ($\eta^P = 0$).

[3] Clearly, as in (Allcott et al., 2014), the intensive margin m_i is endogenously determined in the optimization problem and typically depend on the vehicle fuel efficiency. We take mileage as determined in a first step of the maximization problem.

Although only the consumers that are aware about the existence of the discount ($\eta^P = 1$) might respond to its introduction, separating the effect of limited policy awareness from that of other potential behavioral failures (i) to (iv) is key in the design and evaluation of this policy measure. In this work we use a direct individual measure of consumers' knowledge about a specific feature of the fiscal scheme to disentangle the role of policy awareness from that of alternative psychological biases.

Clearly, the presence of policy awareness may interact with other behavioral anomalies. Two remarks are worth making. First, although (lack-of) policy awareness and limited attention due to salience bias are observationally equivalent, they are two separate concepts with different policy implications. In fact, in the presence of salience bias, a consumer will choose the efficient vehicle A only if $(Lc(f^B m_B - f^A m_A) + L\tau\eta^P(1-\theta)D^A) > P^A - P^B$, where $\theta = \theta(S)$ is a function of the salience of the discount and indicates the degree of limited attention, as in DellaVigna (2009). While policy unaware consumers ($\eta^P = 0$) do not know about the existence of the discount D^A, consumers with limited attention see the discount but then process the information only partially (DellaVigna, 2009). Second, this framework does not exclude that, in the presence of other behavioral biases that keep consumers from making an investment calculation, awareness about the policy measure might still enter the individuals decision making process through the usage of heuristics.

In the next sections we describe how we exploit heterogeneity in registration taxes in Switzerland and information on knowledge about fiscal incentives for the purchase of cleaner cars at the individual level to identify the impact of awareness on the effect of these fiscal policy measures.

3 Institutional context

As in many European countries, car owners in Switzerland have to pay a vehicle registration tax each year. Registration tax rates are not set by the central government: each of the 26 administrative areas of Switzerland (known as cantons) are free to introduce their own scheme. The amount to pay typically depends on vehicle weight, engine size, and engine power, so that larger and more powerful cars pay more.

Between 2009 and 2013, some cantons have introduced a bonus-malus incentive system:

while driving an efficient or low CO_2 emission vehicle might guarantee a percentage discount to the baseline registration tax (bonus), driving an inefficient or high emission car might increase the registration tax by a certain percentage (malus).[4] Among the 26 cantons in Switzerland, seventeen introduced some vehicle registration tax incentive. While, in most cases, the bonus scheme applies only for three or four years after the purchase of the car, the malus incentive applies for the entire vehicle lifetime. The detailed description of each cantonal incentive system and its evolution over time are described in Appendix A.

There are two possible criteria used to define which cars benefit from the bonus. The first is the level of CO_2 emissions, expressed in grams per 100 km, the second is the energy efficiency rating. Both CO_2 emissions and the energy efficiency rating of a vehicle are listed in its energy label (see Figure 5 in Appendix A). The energy label is assigned to each vehicle on sale in Switzerland and is accessible to consumers before purchasing a car. Contrarily to the registration tax, the information displayed in the energy label and the criteria used to assign the efficiency rating of a vehicle are set by the Swiss federal government and thus are the same in all cantons. There are seven categories of energy efficiency ratings, from "A" (most efficient) to "G" (least efficient), and they are based on fuel consumption per km compared to vehicles of the same weight.

The registration tax incentive is based on the energy efficiency rating of the car in seven cantons, on the CO_2 emission rate in other seven, and on both in other three cantons. Two cantons adopted a bonus system in the past but then they abolished it.

Eligibility criteria are different in each canton. However, most cantonal incentive schemes share some common characteristics. For instance, the application of the bonus or malus based on CO_2 emissions to the registration tax depends on whether the vehicle emission rate is below or above a certain threshold, respectively. In the case of the efficiency bonus, a vehicle must have a rating equal to A or B. Finally, the age of the car cannot exceed a certain limit (3 or 4 years old) to benefit from a registration tax discount.

Importantly, any discount or penalty to the registration tax is applied automatically when the consumers pay the registration tax every year.

[4] All cantons that applied a malus system to the registration tax, also applied discount for efficient or low emission cars.

The discounts and penalties associated with the energy categories can be considerable: in cantons with an efficiency bonus in place, the registration tax discount for 'A' cars ranges from 40% to 100%. [Write about the amount of incentive with smart example of a specific car in Zurich]

4 Data and the measurement of awareness

4.1 Data

We use data from the Swiss Household Energy Demand Survey (SHEDS), a survey collecting data from 2016 to 2018 on a sample of 5011 households representative of the French and German speaking Swiss population of 25 cantons (excluding the Italian-speaking canton of Ticino).[5] Detailed information on the questions used in the main analysis, and the construction of the final sample are provided in Appendix B.

Most of the information we use comes from the 2018 wave of the SHEDS survey, with an overall sample of 5011 households. Among those, 3621 (72.26%) owned at least one car. Car ownership distribution in our data looks very similar to what has been found by official statistics from the Swiss government [6]

The survey collects detailed information on respondents' socio-economic characteristics and their main vehicle. Data on standard socio-economic characteristics, such as age, education, language and household income, are complemented by a rich set of information on environmental attitudes, values and social norms, life values, trust and responsiveness regarding advice on energy saving provided by various subjects (neighbours, government institutions, environmental organization), membership to environmental clubs, voting preference for the green party, energy literacy and financial literacy (as in Blasch et al. (2018) and Lusardi and Mitchell (2014)).[7] Information on canton of residence and living area are also available.

[5] The full text of the questionnaire, and information on how to get access to the data, can be found on https://www.sccer-crest.ch/research/swiss-household-energy-demand-survey-sheds/.

[6] In our sample, 27.74% of households do not have a car, 45.52% have one, 22.13% have two and 4.61% have three or more. A 2015 survey by the Swiss Federal Statistical Office found these shares to be 22%, 49%, 23% and 6% respectively (Swiss Federal Statistical Office, 2017, p. 11).

[7] Some of the questions on environmental attitudes and literacy are asked only to new respondents. Thus, those questions might have been asked in the 2016 or 2017 wave for people who participated to the questionnaire more than once. Questions on baseline socio-economic characteristics, vehicle fuel economy, and policy awareness were all asked in the 2018 wave.

Moreover, the survey asks respondents to report information on their vehicle fuel consumption per 100 km, its energy efficiency rating (from A to G), year of purchase and year of first registration. Only a small part of the respondents with at least one car (41.62%) provided information on the energy efficiency category of their main vehicle.[8]. On the other hand, most of respondents (94.53%) were able to provide information on fuel consumption per 100 km.

Because the registration tax incentives aim at increasing the fuel efficiency of the newly purchased cars, our main outcome of interest is the vehicle fuel consumption per 100 km. Fuel consumption rate is strongly correlated with the efficiency rating and, within fuel type, exactly proportional to CO_2 emissions per km (see Appendix (?) for descriptive evidence about the association of fuel consumption with efficiency rating and CO_2 emissions obtained using the population of Swiss cars).

In the paper we also use the available information on efficiency rating to confirm our main findings. Because of the low response rate on this question, substantial selection might arise from using this outcome variable and thus we prefer to use the self-reported fuel consumption as main outcome.

Finally, we compute an indicator on whether the car is eligible for the bonus.

From the 3621 respondents of our sample with at least one vehicle, we further drop 30.84% of the observations. The final sample used in the analysis includes 2504 observations.[9]

4.2 Measuring policy awareness

We elicit information about respondents' policy awareness about the presence of the registration tax incentives using a survey question. We ask respondents whether they knew, at the time they bought their main car, if the registration tax in their canton of residence was based on fuel efficiency rating and/or CO_2 emission rate. The exact phrasing of the question is "*At the time you bought your main car, did you know if in your canton the annual registration tax depended on the level of fuel efficiency and/or on CO_2 emissions of the cars?*". The possible answers are

[8]The share of missing answers decreases when the car was bought in recent years, suggesting that information about the efficiency rating might be only available at the time of purchase. Nevertheless, only 50.0% of respondents who bought a car in 2017 reported the efficiency rating.

[9]There were a number of missing observations for income, and financial literacy. In particular, the questions on financial literacy were not asked to respondents surveyed in both 2016 and 2018. Appendix B explains in detail the construction of the final sample. Our results hold even when omitting those controls or adding a "missing answer" category and including the missing observations in the analysis.

"*Yes, it depended on the fuel efficiency or on CO_2 emissions*", "*No, it did not depend on the fuel efficiency or on CO_2 emissions*" and "*I do not know*".

Our policy awareness question does not ask about specific characteristics of the bonus, or even mentions the term "bonus".[10] Our aim is to capture even vague awareness about the presence of the tax incentives, rather than the respondents' knowledge of the details of the registration tax scheme. This allows us to capture the potential role of policy awareness without restricting the mechanisms through which this knowledge affects the vehicle choice.

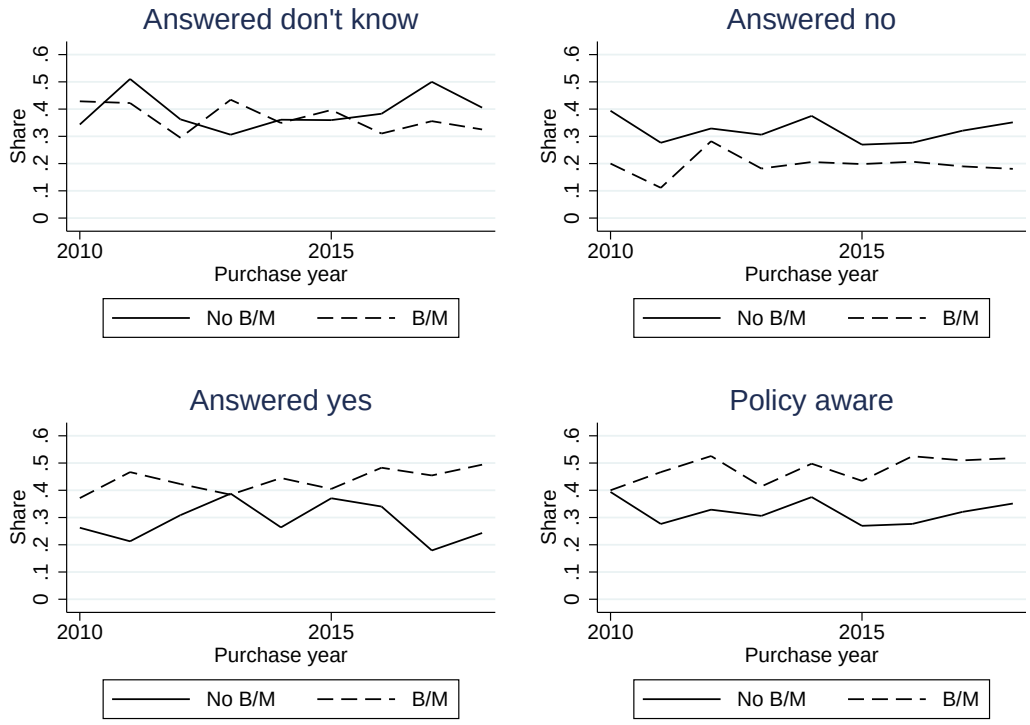
Our measure of policy awareness combines information coming from the respondents' answer to the awareness question and the presence of the bonus in their canton of residence at the time of purchase of the car. We classify as "policy aware" those respondents who answered "yes" and who bought a car in a canton that has introduced some registration tax incentives, when those incentives were in place. Respondents who bought a car when the bonus was not in place and who answered "no" have also been classified as "policy aware". All other respondents were classified as not aware.

Policy awareness in the data We find that about 42.21% of the respondents are classified as "policy aware" according to our definition. A substantial share of respondents could not answer correctly to our policy awareness question. We find that just about 42.21% provided the correct answer, while 37.81% answered "don't know" and 19.96% gave the wrong answer. Figure 1 shows the evolution of answers to policy awareness question and the share of policy aware respondent, based on the year respondents bought their main car and whether a bonus was in place. We include only years from 2010 as most vehicles were bought starting from that period. While answers do not seem to change dramatically over purchase years, we observe that respondents are more likely to answer "no" if they bought the car in absence of the bonus, and "yes" if the bonus was present.

Policy awareness and vehicle characteristics To illustrate differences in vehicle fuel consumption among our groups of interest, we show on figure 2 its distribution between car bought when a bonus based on CO_2 emissions and/or efficiency bonus was in place, split between aware

[10] Registration taxes can be based on engine size, vehicle power, or weight, but only the bonus is an explicit link between the tax amount and the efficiency rating or the emission rate.

Figure 1: Answers to policy awareness question

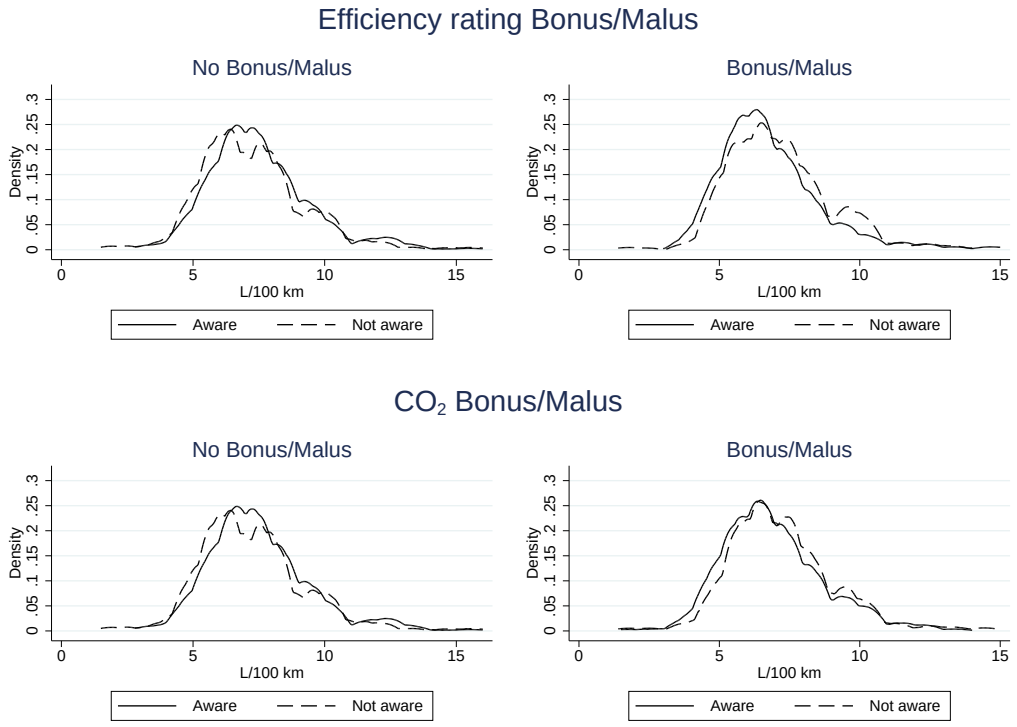


and non-aware respondents. When a bonus is in place, we observe a shift towards the left of fuel consumption distribution for the group of aware respondents.

We also want to see if there is a correlation between awareness under a bonus and vehicle age at purchase time. There are two mechanism why a person responding to the bonus might buy a newer car. First, a newer car are on average more efficient and with lower emissions and thus are more likely to be eligible for the bonus. Second, in many cases bonus eligibility depends on the age of the car itself.

Similarly to figure 2, on figure 3 we show the different distribution of car age at purchase time. Age distribution between aware and non-aware without any bonus are almost overlapping, while under a bonus system we observe a much higher frequency of new cars.

Figure 2: Policy awareness and fuel consumption

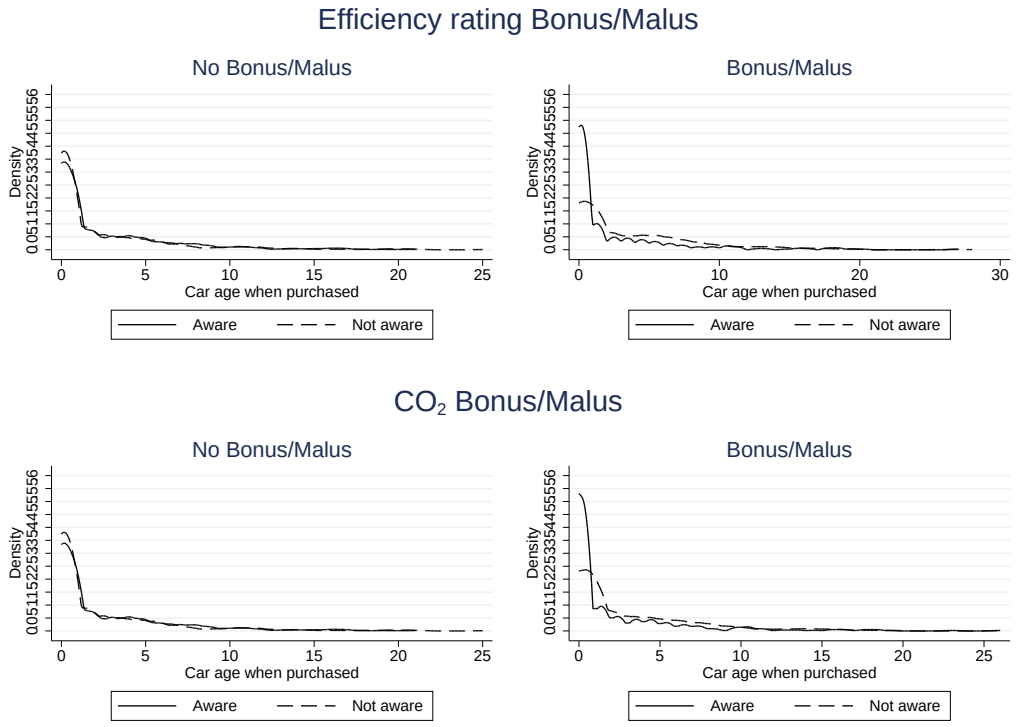


Fuel consumption values are truncated over 17 L/100 km. Vehicles purchased under a bonus with both efficiency and CO_2 requirements are included in both graphs on the left.

Policy adoption, awareness, and respondents' characteristics We are also interested in whether respondents' characteristics are correlated with policy adoption and policy awareness. Appendix C contains various tables showing differences between different groups of respondents in the characteristics used in the main analysis.

First, we want to check how different are respondent living in cantons that had the policy in place, although not necessarily in the year the respondent bought the vehicle, and respondents living in cantons that never had. We find no statistically significant differences between those two groups in terms of baseline characteristics like income, education, occupation or household size. Instead we do find that respondents in cantons with a policy are more likely to live in urban areas, and are slightly older. We do not find systematic differences in other characteristics

Figure 3: Policy awareness and vehicle age



Vehicles purchased under a bonus with both efficiency and CO_2 requirements are included in both graphs on the left.

linked to environmental attitudes or life values. For instance, rate of voting preferences for the Green Party or membership in an environmental club are very similar among the two groups. People in cantons adopting the policy perform worse on average in terms of financial literacy and of certain aspects of energy literacy.[11]

Policy aware and policy unaware respondents appear to be balanced in most of the characteristics considered. We do find however some statistically significant differences in some baseline characteristics. We do find however that policy aware respondents are more likely to be male, with a university education, and older. They are also more likely to provide the correct answer to our financial literacy questions. We do not find systematic differences in environmental

[11] Financial literacy implies the understanding of interest rates and inflation. Energy literacy implies the understanding of energy labels and energy costs of certain products. Detailed explanation of these variables is in Appendix B.

attitudes or behaviors.

Finally, we compare characteristics between respondents who bought their car when the policy was in place and those who bought it when there was no policy. In doing so, we consider separately aware and unaware respondents. The resulting group pairs are those we are going to compare in our econometric specification, so systematic differences in fundamental characteristics might signal an underlying selection issues that might bias our analysis.

We do find both pair of groups to be well balanced, especially in the case of unaware respondents buying a car when the policy was and was not in place. For the case of aware respondents, we find that aware respondents who bought their car under a policy were older and less likely to answer correctly to certain financial and energy literacy question.

5 Identification and Empirical Strategy

The bonus/malus system introduced in some administrative areas in Switzerland decreases the vehicle registration tax on high efficiency cars that consumers need to pay each year. It thus provides incentives for the purchase of vehicles with higher fuel efficiency. This paper aims at estimating the causal effect of individuals' awareness about the presence of the bonus/malus system for the vehicle registration tax on their vehicle choices.

The ideal setting to address the question we are asking in this paper would be one where information about the presence of the incentive scheme had been randomly distributed to a group of individuals in cantons where the bonus/malus system is in place (i.e. by sending a letter), with no possibility of information spillovers to the other consumers in the same areas. If individuals' awareness was determined exogenously, we could estimate the causal effect of being aware about the presence of the policy by simply comparing the fuel consumption of the vehicle purchased by aware consumers to that of unaware consumers only when the bonus/malus system is in place. In this context, the identification of the causal effect of awareness about the presence of the bonus/malus system on vehicle choices is challenging because individuals' policy awareness is endogenous. For instance, awareness about the characteristics of the vehicles in the consumers' choice set as well as the associated fiscal incentives might be determined endogenously prior to the vehicle choice depending on the individual incentives that consumers

face and are unobservable to the researchers.

Or main identification strategy exploits the variation in the bonus/malus system across cantons and over time, as well as the availability of a direct measure of policy awareness both in the presence and in the absence of the policy. Hence, we use aware individuals in cantons without the bonus/malus system as a comparison group in a triple differences approach with multiple treatment periods. In this framework, the key identifying assumption is that the evolution of vehicle choices over time for policy aware consumers in cantons where the bonus/malus system was introduced would have been the same, in the absence of the policy, as that of policy aware consumers in cantons where the bonus/malus system was not introduced. We perform standard pre-treatment parallel trend tests to provide evidence that the necessary condition for the validity of this assumption is satisfied. Moreover, because we exploit data in the form of a repeated cross-section, where the time dimension refers to the year of vehicle purchase, while measuring individual characteristics only at the time of the interview, we need to emphasize that the validity of this strategy relies on the assumption of exogeneity of the control variables.

5.1 Main specification

Our basic empirical specification takes the form:

$$ln(y_{ict}) = \beta Aware_{ict} * B_{ct} + \theta B_{ct} + \gamma Aware_{ict} + \delta X_{ict} + \eta_c + \xi_t + \epsilon_{ict} \tag{4}$$

where y_{ict} is an indicator of the vehicle choice by individual i living in canton c in year t, $Aware$ is a dummy for whether the respondent is policy aware, B is a dummy for whether the bonus/malus system was in place in the canton and year in which the car was purchased, η denotes canton of residence dummies and ξ denotes year of purchase dummies. As discussed in Secton **??** we use fuel consumption per 100 km of the vehicle purchased as main indicator of vehicles' energy efficiency, and then perform robustness checks exploiting information on the vehicles' energy labels on the subsample for which this information is available. We then use the age of the vehicle at the time of purchase to study whether the incentives set by the bonus/malus system induced aware individuals to purchase newer cars. We cluster standard

errors at the canton by year of purchase level.[12] The coefficient of main interest β indicates the reduced form effect of consumer's awareness on the fuel consumption rate of a vehicle she purchases in the presence of the efficiency incentives. The coefficient θ gives the effect of the bonus/malus system for the unaware consumers. In the absence of supply side effects of the policy, we would expect the estimated θ to be equal to zero.

To investigate the importance of considering policy awareness when studying the consequences of the bonus/malus system on vehicle choices, we also estimate equation 4 setting β and γ equal to zero. In this case, θ indicates the average effect of the bonus/malus system on the treated.

We include a large set of covariates to control for compositional differences among policy aware respondents in cantons with and without the policy. These include standard socio-demographics as well as investment literacy and environmental attitudes that can potentially influence both the decision of purchase of an efficient vehicle and the probability to be aware about the presence of the fiscal incentives.[13] We conduct some robustness checks on the main specification. First, to control for possible unobservables that might affect the choice of purchase of efficient cars at the same time as the introduction of the Bonus/Malus incentive scheme, we also estimate equation 4 including canton by year of purchase fixed effects. Second, one could be worried that the time gap between the interview and the decision of purchase might be correlated with the probability to remember about whether the registration tax depended on the vehicle efficiency at the time of purchase, thus determining a mechanical association between the probability to be aware according to our definition and the presence of the policy, i.e. the emergence of non-standard measurement error in policy awareness. To avoid this potential issue, we conduct a robustness check using only information from vehicles purchased after 2010.[14]

[12] Although we show below that our results remain statistically significant when clustering standard errors at the cantonal level, the latter is not our preferred approach as it leaves us with only X clusters.

[13] In particular, the set of controls include: age, age squared, sex, education, monthly gross household income, language, number of persons in the household, political preference for the green party, type of living area (city, agglomeration, countryside), indicators for energy and investment literacy, indicator for having taken energy saving recommendation from environmental organizations, the Swiss Federal Office of Energy, or local authorities, life attitudes, feelings towards the environment, environmental behavior, expectations towards environmental actions, environmental activism, trust and adoption of energy saving advice. See Appendix B for a detailed description of the control variables used in the analysis.

[14] We obtain similar results using different sample period cutoffs.

5.2 Addressing possible threats to the validity of our main strategy

The validity of our main identification strategy for the impact of policy awareness on vehicle choices relies on whether consumers in cantons with no bonus/malus system that are aware about the features of the registration tax system are comparable to aware consumers in cantons where a bonus/malus system is in place. Although the key identifying assumption in this framework is milder than that it would take to simply compare aware and unaware respondents in the presence of the bonus/malus system, some potential issues can undermine its validity: (i) selective introduction of the bonus/malus system across administrative areas; (ii) lack of control for unobserved individual-specific characteristics that influence the process of information accumulation in the presence and in the absence of the policy; (iii) the presence of measurement error in awareness.

Are aware consumers in the treated group comparable to aware consumers in the control group? Although the descriptive evidence presented in Section **??** shows that treated and control group, as well as aware and unaware individuals, are quite balanced in terms of observable characteristics, some compositional differences emerge. For instance, administrative areas that have introduced a bonus/malus system are more urban. In the presence of selection into treatment or awareness based on observables that affect the evolution of vehicle choices over time, the identifying assumption in our basic identification strategy is not valid.

To overcome this potential issue, we combine our main strategy with a propensity score matching approach that addresses the 'common support problem' (Heckman et al., 1998). The aim is to construct comparison groups that reproduce as close as possible which vehicles the treated would have purchased in the absence of the bonus/malus system (or which vehicles aware consumers would have purchased if they did not know about the fiscal incentives), so that the change in the vehicle choices of aware consumers in the presence of the bonus/malus system is only due to awareness about the fiscal incentives and not by endogenous selection into the treatment or awareness status.

We perform a regression version of the propensity score matching diff-in-diff exploiting the rich set of individual characteristics available in our dataset. The analysis is carried out separately for the presence of the bonus/malus system and awareness status, in two steps. In a first

step, the matching is performed using the propensity score method (Rosenbaum and Rubin, 1983, 1984). In our application, the propensity score $P(X)$ is the probability that an individual lives in areas with a bonus/malus system, or that an individual is aware about the presence of the fiscal incentives, conditional on the matching characteristics X. We estimate the propensity score using Probit models that include a large number of respondents' and cantons' characteristics and then perform a kernel matching.[15] In a second step, we run regression 4 applying the kernel-based weights obtained by the propensity score matching procedure and restricting the estimation sample to the common support defined by the propensity score.

In this context, the standard matching assumption of conditional independence must be valid in terms of the before-after evolution instead of levels. Hence, the identifying assumption is that there are no unobservable characteristics that affect both the change in vehicle choices and the treatment or awareness status (i.e., any potential selection occurs through observable individual characteristics). While the matching procedure takes care of the selection into treatment (or awareness status) based on observables, the difference in difference deals with selection on unobservables under the assumption that the bias is time-invariant, conditional on the set of controls. The credibility of this approach relies on how well the set of covariates used in the matching procedure explain the selection process. We perform the propensity score matching using a long list of individual characteristics that might influence both selection and vehicle choices. Importantly, in addition to a rich set of socio-demographics, we include measures of energy and investment literacy, as well as proxies for environmental values and attitudes.

How is policy awareness determined? A crucial assumption we take to identify the effect of policy awareness exploiting the diff-in-diff strategy is that all control variables X are exogenous (that is, using the potential outcome notation: $X^1 = X^0 = X$). Some concerns about the validity of this assumption might arise for policy awareness. The exogeneity assumption would not be met for policy awareness ($Aware^1 \neq Aware^0$) if the process determining individuals' awareness differed in the presence and in the absence of the bonus/malus system. For instance, in the presence of the bonus/malus system, individuals might be exposed to information about the introduction of the policy that, based on individual-specific factors unobserved to the researchers

[15] The complete list of variables used in the matching procedure is reported in Appendix B.

(e.g., attention to fuel efficiency, opportunity cost of the time spent in accumulating information), might or might not be incorporated in the determination of the knowledge about the features of the incentive scheme for the vehicle registration tax. Moreover, a possible threat to the validity of our basic identification strategy arises in the presence of unobservables that affect both the evolution of vehicle choices and selection into awareness status. In this case, also the conditional independence assumption of the matching diff-in-diff is not met. These threats might be severe in this context because we do not control nor observe the process that determines individuals' awareness about the presence of the bonus/malus system.

Clearly, the presence of unobserved heterogeneity affecting both vehicle choices and policy awareness is the reason why we cannot simply compare the vehicle choices of aware and unaware consumers in the presence of the bonus/malus system to estimate the impact of awareness.

We address the potential issue of endogeneity of policy awareness adopting an instrumental variable (IV) approach. This is implemented both to simply compare vehicle choices of aware and unaware respondents in cantons where a bonus/malus system has been introduced and in the diff-in-diff framework.

A good instrument in this context must be a good predictor of individuals' awareness about the presence of the bonus/malus system, and influence vehicle choices only through individuals' awareness, conditional on the set of controls. We use two instruments for policy awareness: (i) the distance in years from the introduction of the incentives in a specific administrative area and (ii) the voting participation rates to eight national referendums on energy, environmental, and transportation topics at the municipality of respondents' residence level interacted by canton of residence dummies.[16] Because in our difference in difference framework both policy awareness and its interaction with the treatment variable need to be instrumented, we also include in the set of instruments the interaction between (i) and the treatment variable as well as (ii) and the treatment variable.

The distance between the introduction of the policy and the purchase of the car as an instrument for policy awareness exploits the idea that advertisement and promotion of the

[16]The eight referendums were held from 2013 to 2017 and concerned the following issues: increase of highway tolls to fund road infrastructure; replacement of the value added tax with a tax on non-renewable energy; restoration of the Gotthard tunnel; earmarking of the revenue from the mineral oil tax exclusively for road circulation purposes; setting goals for the reduction of natural resources consumption; phasing out nuclear power; creation of a permanent government fund for national roads; approval of the new Swiss energy policy (Energy Strategy 2050).

bonus/malus system in the local media might be higher immediately after its introduction. Hence, the less time has passed from the introduction of the fiscal measure, the higher the probability for consumers to be aware about the incentive scheme when they take the decision of purchase. The exogeneity of the timing of introduction of the fiscal incentives to individuals' decisions of purchase ensures the validity of the exclusion restriction for this instrument.

Individuals living in municipalities with larger participation to the political process might be more likely to be aware about the existence of fiscal incentives to buy a fuel efficient car in their canton. Clearly, the identifying assumption is that participation in ones municipality of residence increases the probability of adopting a cleaner car only through knowledge of the fiscal incentives that have been introduced in that canton. The validity of this instrument depends on the absence of unobserved heterogeneity influencing both participation and the probability to purchase a cleaner vehicle. Because we also control for political preferences (voting for green party), we believe the exclusion restriction is valid.

The IV approach also aims at addressing the issue from the potential measurement error in individuals' awareness.[17]

5.3 Results

Main specification The results indicate the crucial role of individuals' awareness about the presence of the bonus/malus system to evaluate the effectiveness of its fiscal incentives to promote the adoption of energy-efficient vehicles. In fact, as shown in Column 1 of Table 1, the average treatment effect of the bonus/malus system on the treated on the fuel consumption per 100 km of the vehicles purchased, obtained estimating equation 4 when ignoring the role of awareness, is very small and not significant.[18]

The simple comparison of vehicles' fuel consumption between aware and unaware individuals in administrative areas where a bonus/malus system is in place in a regression framework where we control for a large number of respondents' characteristics, reported in Column 2 of Table 1, show that aware individuals own vehicles that consume on average around 7 percent less than

[17] Besides instrumenting awareness, to address potential concerns related to its measurement, we conduct several robustness checks modifying the way we characterize aware individuals.

[18] This finding is consistent with those reported by previews works attempting to evaluate the impact of these policy measures (Alberini and Bareit, 2017).

individuals that are unaware of the presence of such incentives.

We start our investigation of the impact of individuals' awareness on vehicle choices by estimating our basic triple differences specification (4) using OLS. The results are reported in Column 3 to 6 of Table 1.

Estimation results in Column 3 show that the introduction of the bonus/malus system has a negative and highly significant impact of 9.2% percent on the fuel consumption of the vehicles purchased by individuals that are aware about the features of the registration tax scheme. We find no significant effect of the Bonus/Malus system on the vehicle choices of unaware consumers. The results are almost unaffected when we include a large set of respondents, vehicles and cantons characteristics (Column 4), use standard errors clustered at the cantonal level rather than at the canton by year of purchase level (Column 5), include canton by year of purchase fixed effects (Column 6) and consider only vehicles purchased in 2010 or later (Column 7).

Table 1: Main specification results

	(1)	(2)	(3)	(4)	(5)
Aware x Bonus/Malus		-0.092***	-0.092***	-0.087***	-0.083***
		(0.023)	(0.017)	(0.028)	(0.028)
Bonus/Malus	-0.004	0.033	0.033*		0.021
	(0.018)	(0.020)	(0.018)		(0.023)
Aware		0.023	0.023	0.019	0.012
		(0.018)	(0.017)	(0.022)	(0.023)
N	2504	2504	2504	2504	2138

Main estimation results. Dependent variable is the log of fuel consumption per 100 km. For columns 2-5, *Aware* is the direct effect of being correctly informed about presence or absence of the Bonus/Malus; *Bonus/Malus* is the effect of the presence of the policy for the unaware; *Aware x Bonus/Malus* is the additional effect of the policy on aware respondents. Column (1): Effect of Bonus/Malus without considering awareness. Column (2): Main specification from equation 4. Column (3): Standard errors clustered at cantonal level. Column (4): Including canton by year of purchase fixed effects. Column (5): Only vehicles purchased in 2010 or later. Standard errors in parenthesis, clustered at canton by time of purchase unless otherwise specified.

Placebo Bonus/Malus Our basic specification assumes that vehicle choices of aware individuals living in administrative areas where a bonus/system has been introduced would have evolved over time similarly to those of aware individuals in cantons without incentive schemes to promote energy-efficient cars. To provide evidence that such condition is met in the pre-

treatment periods, we perform a placebo test where we set the introduction of the bonus/malus system in some pre-treatment period in each treated canton, and restrict the sample period to years before the actual introduction of the bons/malus system. Clearly, failing to reject the null of parallel pre-treatment trends between vehicle choices of aware individuals in cantons with and without fiscal measure would raise serious concerns about the validity of this strategy. For instance, aware respondents in cantons that eventually introduced a Bonus/Malus might have a stronger preference for efficient cars - not captured by our observables - than aware respondents in cantons without such policy. Then, the effect we would measure in the main specification would not be due to the introduction of the Bonus/Malus, but rather due to the higher propensity to buy the more energy efficient cars launched on the market over the years.

Results of the placebo diff-in-diff regressions are reported in 2, where Columns (1) to (3) report in particular results when the placebo Bonus/Malus is introduced 2 years, 3 years and 4 years earlier than the actual introduction, respectively. In all three specifications the coefficients of interest are small in magnitude and not significant, suggesting that our results are not driven by differences in trend among aware respondents in cantons with and without Bonus/Malus.

Table 2: Placebo treatment regressions

	(1)	(2)	(3)
Aware x Bonus/Malus	0.009	-0.014	0.018
	(0.052)	(0.045)	(0.042)
Bonus/Malus	0.033	0.019	0.016
	(0.037)	(0.041)	(0.042)
Aware	0.027	0.032	0.024
	(0.020)	(0.021)	(0.022)
N	1110	1110	1110

Results using placebo Bonus/Malus. Dependent variable is the log of fuel consumption per 100 km. Column (1): placebo Bonus/Malus starting 2 years before actual introduction. Column (2): placebo Bonus/Malus starting 3 years earlier. Column (3): placebo Bonus/Malus starting 4 years earlier. Years in which the Bonus/Malus was in place are dropped. Standard errors in parenthesis, clustered at canton by year of purchase level.

Other robustness checks In table 3, we report the results of other robustness checks. Column 1 simply shows the results of our main specification of column 2 in table 1. In the next two

columns we include in the sample only certain groups of unaware respondents. In column 2, we include in the sample only unaware respondents who answered "Don't know" to our awareness question. In column 3 we do the opposite, including only respondents who gave the wrong answer ("yes" in absence of a Bonus/Malus, "no" when it was present), but not including those who answered "Don't know". In both cases, we observe a strong and significant effect of the Bonus/Malus on aware respondents.

When we consider only people who provided the wrong answer, we observe a positive and significant coefficient for the presence of the Bonus/Malus. That would apparently mean that unaware people in cantons with a Bonus/Malus buy less efficient cars than unaware people in cantons with no such measure. This effect is a possible result of opposite beliefs on the presence of incentives for energy efficient or low emission vehicles: when such incentives are in place, respondents are considered unaware if they believe they do not actually exist, and vice-versa. In particular, respondents convinced of the presence of those incentives - even when there are none - might buy more efficient cars than respondents living in cantons with an actual Bonus/Malus system but convinced of the contrary.

In column 4 we address the possibility that certain respondents in cantons adopting a Bonus/Malus are fundamentally different in terms of observable characteristics compared to respondents living in other cantons. We first calculate the respondents' propensity score for being in a canton that ever adopted a Bonus/Malus system. Then, we drop from our sample 183 respondents (7.41% of the sample) whose propensity score falls off the common support. The effect of our coefficient of interest remains very close to our main specification.

Finally, in column 5 we use an instrumental variable approach to explicitly address the potential endogeneity of policy awareness. We use two set of instrumental variables. The first is the distance in years from the introduction of a Bonus/Malus and the purchase of the vehicle. The second is the interaction of canton of residence dummies with participation rate in each respondent's municipality to eight national referendums on energy, environmental, and transportation topics.[19] With the first instrument, we capture the fact that immediately after its

[19]The eight referendums were held from 2013 to 2017 and concerned the following issues: increase of highway tolls to fund road infrastructure; replacement of the value added tax with a tax on non-renewable energy; restoration of the Gotthard tunnel; earmarking of the revenue from the mineral oil tax exclusively for road circulation purposes; setting goals for the reduction of natural resources consumption; phasing out nuclear power; creation of a permanent government fund for national roads; approval of the new Swiss energy policy (Energy Strategy 2050).

introduction, a Bonus/Malus policy might enjoy more attention on the media, and thus people buying a car in that period are more likely to be aware of it. The second instrument reflect the interest of the population living in the same municipality as the respondent in environmental and transportation issues, and it is a proxy on how much they are informed on vehicle registration taxes in their canton.

Because policy awareness appears twice in equation 4, once by itself and once interacted with a dummy for the presence of the Bonus/Malus, the instruments are included by themselves and also interacted with the dummy for the presence of a Bonus/Malus. Results from our instrumental variable estimation show a larger effect of policy awareness on fuel consumption than what found with our main specification, suggesting that if anything, our main specification underestimates the effect of policy awareness on vehicle choice.

Table 3: Robustness and endogeneity

	(1)	(2)	(3)	(4)	(5)
Aware x Bonus/Malus	-0.092***	-0.079***	-0.109***	-0.081***	-0.200***
	(0.023)	(0.028)	(0.033)	(0.025)	(0.055)
Bonus/Malus	0.033	0.000	0.067**	0.024	0.077***
	(0.020)	(0.024)	(0.031)	(0.021)	(0.026)
Aware	0.023	0.008	0.032	0.032	0.046
	(0.018)	(0.022)	(0.023)	(0.020)	(0.037)
N	2504	1939	1557	2288	2471

Results from various robustness checks. Dependent variable is the log of fuel consumption per 100 km. Column (1): main specification. Column (2): Including only aware respondents and unaware respondents answering "Don't know" to the awareness question. Column (3): Including only aware respondents and unaware respondents giving a wrong answer to the awareness question. Column (4): Dropping respondents out of propensity score's common support. Column (5): Instrumental variable specification using years from introduction of Bonus/Malus and referendum participation rates in the municipality of residence. Standard errors in parenthesis, clustered at canton by year of purchase level.

Alternative dependent variables In the previous specifications and robustness checks, we always used fuel consumption as dependent variable. Fuel consumption is a type of information that almost all our respondents were able to provide and is strongly correlated with both CO_2 emissions and efficiency rating. However, as a check to our main results, in table 4 we repeat our analysis using different dependent variables.

In columns 1 and 2 we use dummies on whether a vehicle has efficiency rating of A, and either A or B respectively. A rating of A or B is generally necessary to be eligible for a Bonus in cantons with a registration tax scheme based on efficiency rating. In both cases we observe a positive effect on the probability of choosing an efficient car by aware respondents when a Bonus/Malus scheme is present: the probability of choosing a rating A car increases by 20.1% and the probability of choosing a rating A or B car increases by 28.6%. Those results are compatible with those obtained in our main specification.

In column 3 we use instead a dummy on whether a vehicle would be eligible to the Bonus. Depending on each canton, Bonus eligibility is based on vehicle age, efficiency rating, and CO_2 emissions per km.

Eligibility indicator is the most precise criteria to measure the effect of policy awareness on the introduction of the Bonus. However, we have to make assumptions on the corresponding hypothetical vehicle eligibility when the Bonus was not in place. In order to obtain conservative estimates of the effect, we choose hypothetical eligibility criteria as loose as possible. For years in which no Bonus was in place, the eligibility dummy is constructed as follows: for cantons that introduced a Bonus in any point in time, eligibility corresponds to the least strict requirement. For cantons that never introduced a Bonus, eligibility is any vehicle with rating A or B up to 4 years old.

Results using the eligibility criteria show again that aware respondents tend to buy more eligible vehicles, with an increase in probability of purchase of 18.3%. In general, results of table 4 seem to confirm the findings from our main specification. One important caveat in interpreting these results is that a large number of respondents were not able to indicate the energy rating of their car. Thus, is possible that our estimates suffer from selection bias. For instance, this subsample of aware people might be even more responsive to a Bonus/Malus system, or people might be more likely to remember the energy rating of a highly efficient car.

Vehicle age and fuel consumption We want to further understand the mechanism causing our results. We saw that as a result of the introduction of a Bonus/Malus, aware respondents tend to buy more energy efficient cars. This could happen due to a combination of two factors. First, aware respondents in a canton with a Bonus/Malus buy newer cars as they tend to be more

Table 4: Other dependent variables

	(1)	(2)	(3)
Aware x Bonus/Malus	0.201***	0.286***	0.183***
	(0.057)	(0.066)	(0.059)
Bonus/Malus	0.092	0.062	-0.038
	(0.059)	(0.068)	(0.055)
Aware	-0.099**	-0.186***	-0.127***
	(0.041)	(0.049)	(0.043)
N	1070	1070	992

Results using different dependent variables. Column (1): Indicator for A rating vehicle as dependent variable. Column (2): Indicator of A or B rating vehicles as dependent variable. Column (3): Indicator for eligibility to a Bonus as dependent variable. Standard errors in parenthesis, clustered at canton by year of purchase level.

fuel efficient on average and they can benefit from a Bonus for a longer period of time. Second, conditional of buying a car of a given age, aware respondents in cantons with a Bonus/Malus prefer more efficient cars.

Table 5 tests these two hypothesis. Column 1 uses the age of the vehicle as dependent variable, to check whether aware respondents buy newer cars when a Bonus/Malus is introduced. Results suggest that on average they indeed buy vehicles about 1.08 years younger. In column 2 we use the log of fuel consumption as dependent variable, but we disaggregate the coefficient of interest of our main specification in three groups: new vehicles (up to one year), used vehicles still potentially eligible for a Bonus (from 2 to 4 years old), and used vehicles not eligible for a Bonus (more than 4 years old). This specification identifies the effect of the Bonus/Malus scheme on the choice of a vehicle, conditional on the decision of buying a car belonging to a certain age group. We find that the Bonus/Malus makes aware people buying more efficient vehicles when they are in the age range eligible for the bonus. However, consistently with our interpretation of the results, the Bonus/Malus scheme has no effect on the choice of vehicle energy efficiency when the car is too old to be eligible for a Bonus.

Heterogeneity by Bonus/Malus policy So far we did not differentiate between different types of Bonus/Malus policy. However, in each canton the registration tax incentives can based only on efficiency rating, only on CO_2 emissions, or on both criteria. The effect of these criteria

Table 5: Mechanism

	(1)	(2)
Aware x Bonus/Malus	-1.081***	
	(0.315)	
Aware x Bonus/Malus (new car)		-0.112***
		(0.030)
Aware x Bonus/Malus (2-4y car)		-0.143***
		(0.037)
Aware x Bonus/Malus (>4y car)		0.002
		(0.039)
Bonus/Malus	0.431*	0.031
	(0.257)	(0.021)
Aware	0.261	0.013
	(0.240)	(0.025)
N	2453	2453

Dependent variable is the log of fuel consumption per 100 km. Column (1): Using age of the vehicle in years at the time of purchase as dependent variable. Column (2): Effect of Bonus/Malus for aware respondents disaggregated by vehicle age groups. Standard errors in parenthesis, clustered at canton by year of purchase level.

on vehicle choice might be different, thus in table 6 we modify the main specification by using three different policy indicators based on the criterion actually adopted by the particular canton of the respondents. Column 1 uses the log of fuel consumption per 100 km as dependent variable, while columns 2, 3, and 4 use indicators on whether the car has rating A, rating A or B, or it is eligible for the Bonus, respectively.

Results in table 6 suggest similar effects on fuel consumption and Bonus eligibility among different Bonus/Malus. Effect on eligibility seem slightly higher for ****MAYBE CHECK IF STATISTICALLY DIFFERENT FROM EACH OTHER?***. On the other hand, we observed no statistically significant effect, or with lower magnitude, from criteria based on CO_2 emissions on probability of buying cars with higher efficiency rate. In fact, while emissions and efficiency rating are not completely uncorrelated, their relationship is weaker.

Table 6: Heterogeneity by type of policy

	(1)	(2)	(3)	(4)
Aware x Both	-0.099***	0.232***	0.403***	0.187***
	(0.032)	(0.075)	(0.076)	(0.061)
Aware x CO2	-0.094***	0.153	0.172*	0.169**
	(0.030)	(0.101)	(0.102)	(0.081)
Aware x Label	-0.077**	0.211***	0.267***	0.222***
	(0.030)	(0.076)	(0.078)	(0.084)
Bonus/Malus both	0.020	0.078	-0.045	-0.053
	(0.025)	(0.069)	(0.067)	(0.056)
Bonus/Malus CO2	0.008	0.137	0.204	-0.186*
	(0.039)	(0.121)	(0.147)	(0.109)
Bonus/Malus label	0.069***	0.074	0.087	0.031
	(0.026)	(0.092)	(0.122)	(0.105)
Aware	0.024	-0.099**	-0.186***	-0.133***
	(0.018)	(0.041)	(0.049)	(0.043)
N	2504	1070	1070	992

Results disaggregating the Bonus/Malus by eligibility criteria. Column (1): Log of fuel consumption per 100 km as dependent variable. Column (2): Indicator for A rating vehicle as dependent variable. Column (3): Indicator of A or B rating vehicles as dependent variable. Column (4): Indicator for eligibility to a Bonus as dependent variable. Standard errors in parenthesis, clustered at canton by year of purchase level.

Heterogeneity by respondents' characteristics So far our results emphasized that on average perspective car buyers are receptive to Bonus/Malus incentives towards adoption of energy efficient cars, if they are sufficiently informed about them. This does not mean though that all aware respondents would automatically respond in the same way to the presence of an incentive. For instance, some people might have very strong preferences towards less efficient cars and would be unlikely to change their choice even when conscious of the monetary gains they would obtain in doing so.

In table 7 we test the hypothesis of heterogeneity of the effect of policy awareness by interacting the effect of the Bonus/Malus for the aware with selected respondents' characteristics.[20] There is considerable heterogeneity in the response of aware people to the Bonus/Malus. In particular, we find that respondents with strong pro-environmental attitudes, shown by supporting the Green Party or being a member of an environmental club, tend to buy even more fuel efficient vehicles in response to a Bonus/Malus than other aware respondents, with a twice as large decrease in fuel consumption. On the other hand, aware respondents in high income households or who consider important certain life values like wealth, pleasure, or enjoyment, tend to react less to the Bonus/Malus and buy less efficient vehicles compared to other aware respondents.

[20] Such characteristics are also included as controls.

Table 7: Heterogeneity by respondents' characteristics

	(1)	(2)	(3)	(4)	(5)	(6)
Aware x Bonus/Malus (baseline)	-0.126***	-0.082***	-0.089***	-0.116***	-0.154***	-0.138***
	(0.031)	(0.024)	(0.023)	(0.024)	(0.031)	(0.035)
6001-9000 CHF	0.010					
	(0.030)					
9001-12000 CHF	0.077**					
	(0.033)					
>12000 CHF	0.062					
	(0.043)					
Green party		-0.086**				
		(0.040)				
Env. club			-0.123*			
			(0.070)			
Value: wealth				0.065**		
				(0.027)		
Value: pleasure					0.082***	
					(0.027)	
Value: enjoy life						0.059*
						(0.032)
Bonus/Malus	0.032	0.032	0.032	0.033	0.034*	0.033*
	(0.020)	(0.020)	(0.020)	(0.020)	(0.020)	(0.020)
Aware	0.024	0.023	0.024	0.024	0.024	0.024
	(0.018)	(0.018)	(0.018)	(0.018)	(0.018)	(0.018)
N	2504	2504	2504	2504	2504	2504

Results disaggregating the effect of awareness under Bonus/Malus by selected respondents' characteristics. Dependent variable is the log of fuel consumption per 100 km. Coefficients associated with respondents' characteristics (rows 2-8) show the change in the effect compared to the baseline (row 1). Standard errors in parenthesis, clustered at canton by year of purchase level.

6 Conclusion

Our main finding is that policy aware individuals are responsive to the incentive scheme while unaware individuals are not. The result is robust to a series of specification checks, including controlling for the potential endogeneity of the awareness variable. One conclusion is that average treatment effect estimates that ignore heterogeneity in awareness might be driven only by the subgroup of aware individuals and thus might underestimate consumers' response to fiscal incentives.

Clearly, people ignoring the existence of a policy do not react to it. However, is not granted that awareness by itself is sufficient to cause a change in choices. When dealing with fiscal policies like the one analysed in this paper, people have to face trade-offs - for instance buying a more efficient but less powerful car in order to benefit from the bonus. If consumers have strong enough preferences towards certain characteristics of a good (e.g. vehicle engine size) they would be unwilling to modify their choices even when informed about the financial incentives to do so. On the contrary, our results show that awareness has a prominent role in the effectiveness of these fiscal measures.

A more speculative conclusion is that even awareness of basic characteristics of a policy can improve its effectiveness. In our setting, respondents classified as aware know that the registration tax depends in some way on fuel economy, even if they might not know the exact mechanism or how much they could save in their specific case[21]. Policy aware individuals might buy a more efficient car based on this generic understanding of the registration tax mechanism, or they might be prompted to look for more information before making a decision.

This result has two main implications. First, because only a fraction of the population has a basic understanding of the registration tax in their canton, interventions based on information provision have the potential to fill the knowledge gap between aware and unaware individuals, thus boosting the effectiveness of incentives towards cleaner cars. More generally, introducing a policy without an appropriate information campaign might cause disappointing results, which could be wrongly blamed on flaws on the policy design. The other implication is that the

[21] We cannot exclude that all policy aware individuals are knowleadgeable of most details of the registration tax in their canton. However, that would assume a vast information gap between them and the rest of the respondents. It's more likely that policy aware respondents have different levels of understanding on how the registration tax is calculated

tax burden of fiscal measures would disproportionally impact unaware individuals. That is because aware individuals can modify their behavior to benefit the most from the policy, while by definition non aware individuals cannot do so.

Our analysis focuses on identifying the effect of awareness on individual choice. The results suggest that some information treatment has the potential to narrow the awareness gap and thus improve the effectiveness of fiscal measures. Future research should focus on studying which type of information treatment would be able to improve awareness, and whether it would be desirable on efficiency grounds.

References

Adamou, A., Clerides, S. and Zachariadis, T. (2012), 'Trade-offs in CO2-oriented vehicle tax reforms: A case study of Greece', *Transportation Research Part D: Transport and Environment* **17**(6), 451–456.

Alberini, A. and Bareit, M. (2017), 'The Effect of Registration Taxes on New Car Sales and Emissions: Evidence from Switzerland', *Resource and Energy Economics* **Article in press**.

Alberini, A., Bareit, M., Filippini, M. and Martinez-Cruz, A. L. (2016), 'The Impact of Emissions-Based Taxes on the Retirement of Used and Inefficient Vehicles: The Case of Switzerland', *CER-ETH Economics Working Paper* **16/257**.

Allcott, H. and Knittel, C. (2017), 'Are Consumers Poorly-Informed about Fuel Economy? Evidence from Two Experiments', *NBER Working Paper* **23076**.

Allcott, H., Mullainathan, S. and Taubinsky, D. (2014), 'Energy policy with externalities and internalities', *Journal of Public Economics* **112**, 72–88.

Alstadsæter, A. and Jacob, M. (2013), 'The effect of awareness and incentives on tax evasion', *Arqus Discussion Paper* **147**.

Bhargava, S. and Manoli, D. (2015), 'Psychological Frictions and the Incomplete Take-Up of Social Benefits: Evidence from an IRS Field Experiment', *American Economic Review* **105**(11), 3489–3529.

Blasch, J., Boogen, N., Daminato, C. and Filippini, M. (2018), Empower the consumer! Energy-related financial literacy and its socioeconomic determinants, CER-ETH Economics working paper series 18/289, CER-ETH - Center of Economic Research (CER-ETH) at ETH Zurich. **URL:** *https://ideas.repec.org/p/eth/wpswif/18-289.html*

Blasch, J., Filippini, M., Kumar, N. and Martinez-Cruz, A. L. (2017), 'Narrowing the energy efficiency gap: The impact of educational programs, online support tools and energy-related investment literacy', *CER-ETH Economics Working Paper* **17/276**.

Cerruti, D., Alberini, A. and Linn, J. (2017), 'Charging Drivers by the Pound: The Effects of the UK Vehicle Tax System', *CER-ETH Economics Working Paper* **17/271**.

Chetty, R., Friedman, J. N., Leth-Petersen, S., Nielsen, T. H. and Olsen, T. (2014), 'Active vs. Passive Decisions and Crowd-Out in Retirement Savings Accounts: Evidence from Denmark', *The Quarterly Journal of Economics* **129**(3), 1141–1219.

Chetty, R., Friedman, J. N. and Saez, E. (2013), 'Using Differences in Knowledge Across Neighborhoods to Uncover the Impacts of the EITC on Earnings', *American Economic Review* **103**(7), 2683–2721.

Chetty, R., Looney, A. and Kroft, K. (2009), 'Salience and Taxation: Theory and Evidence', *American Economic Review* **99**(4), 1145–1177.

DellaVigna, S. (2009), 'Psychology and Economics: Evidence from the Field', *Journal of Economic Literature* **47**(2), 315–372.

D'Haultfuille, X., Durrmeyer, I. and Fvrier, P. (2016), 'Disentangling sources of vehicle emissions reduction in France: 20032008', *International Journal of Industrial Organization* **47**, 186–229.

D'Haultfuille, X., Givord, P. and Boutin, X. (2014), 'The Environmental Effect of Green Taxation: The Case of the French Bonus/Malus', *The Economic Journal* **124**(578), 444–480.

Finkelstein, A. (2009), 'E-ztax: Tax salience and tax rates', *The Quarterly Journal of Economics* **124**(3), 969–1010.

Grigolon, L., Reynaert, M. and Verboven, F. (2017), 'Consumer valuation of fuel costs and the effectiveness of tax policy: Evidence from the European car market', *Working Paper* .

Heckman, J. J., Ichimura, H. and Todd, P. (1998), 'Matching as an econometric evaluation estimator', *The review of economic studies* **65**(2), 261–294.

Huse, C. and Koptyug, N. (2017), 'Taxes vs. standards as policy instruments: Evidence from the auto market', *Working Paper* .

Klier, T. and Linn, J. (2015), 'Using Taxes to Reduce Carbon Dioxide Emissions Rates of New Passenger Vehicles: Evidence from France, Germany, and Sweden', *American Economic Journal: Economic Policy* **7**(1), 212–242.

Kling, J. R., Mullainathan, S., Shafir, E., Vermeulen, L. C. and Wrobel, M. V. (2012), 'Comparison Friction: Experimental Evidence from Medicare Drug Plans', *The Quarterly Journal of Economics* **127**(1), 199–235.

Liebman, J. B. and Luttmer, E. F. P. (2015), 'Would People Behave Differently If They Better Understood Social Security? Evidence from a Field Experiment', *American Economic Journal: Economic Policy* **7**(1), 275–299.

Lusardi, A. and Mitchell, O. S. (2014), 'The Economic Importance of Financial Literacy: Theory and Evidence', *Journal of Economic Literature* **52**(1), 5–44.
URL: *https://ideas.repec.org/a/aea/jeclit/v52y2014i1p5-44.html*

Mastrobuoni, G. (2011), 'The role of information for retirement behavior: Evidence based on the stepwise introduction of the Social Security Statement', *Journal of Public Economics* **95**(7-8), 913–925.

Rosenbaum, P. R. and Rubin, D. B. (1983), 'The central role of the propensity score in observational studies for causal effects', *Biometrika* **70**(1), 41–55.

Rosenbaum, P. R. and Rubin, D. B. (1984), 'Reducing bias in observational studies using subclassification on the propensity score', *Journal of the American statistical Association* **79**(387), 516–524.

Simon, H. A. (1955), 'A Behavioral Model of Rational Choice', *The Quarterly Journal of Economics* **69**(1), 99–118.
URL: *https://ideas.repec.org/a/oup/qjecon/v69y1955i1p99-118..html*

Swiss Federal Statistical Office (2017), Comportement de la population en matire de transports: rsultats de microrecensement mobilit et transports 2015, Technical report, Neuchtel.

A Description of cantonal bonus systems

We reconstructed the evolution of the vehicle registration tax and the bonus-malus system for each canton by looking at the official cantonal legislation between 2005 and 2018. We have information on thresholds of CO_2 emissions and/or efficiency rating necessary to be eligible to the bonus, the maximum age of the car, the size of the bonus itself (in most cases a percentage discount on the baseline registration tax), and the years in which the bonus was implemented. Some cantons require a vehicle to be first registered only in certain years to be eligible. Table 8 and figure 4 represent the characteristics of the bonus systems and which cantons adopted them.

Seven cantons also implemented a malus - that is, an increase in the baseline tax if a car has low energy rating or high CO_2 emissions. Because malus policies are always implemented along with bonuses, we do not consider them in our analysis. Some cantons have also benefits for hybrid electric vehicles, plug in battery electric vehicles, or other alternative fuel vehicles. These vehicles represent a very small amount of the SHEDS sample and therefore these policies are not considered in the analysis.

Figure 5 illustrates the information contained in the vehicle energy label that people see when buying a car: baseline vehicle characteristics, fuel economy, CO_2 emissions per km, and energy efficiency rating. Therefore the label reports two clear indicators on the level of energy efficiency of a car - fuel economy and energy efficiency category - and an environmental indicator - CO_2 emissions. Estimates of fuel costs per km or vehicle registration taxes are not shown.

The thresholds for each category are recalculated each year. ***INTEGRARE NEL TESTO APPENDICE***

Table 8: Summary bonus-malus policies

Canton	**Implemented**	**Efficiency rating**	**CO_2**	**Max age**
AR	2011-2014	No	Yes	No limit
BE	2013-2018	Yes	No	4 years
BL	2014-2018	No	Yes	4 years
BS	2013-2018	No	Yes	4 years
FR	2011-2018	Yes	No	3 years
GE	2010-2018	No	Yes	Some*
GL	2012-2018	Yes	No	3 years
GR	2009-2018	No	Yes	Some*
NE	2014-2018	No	Yes	Some*
NW	2009-2018	Yes	No	3 years
OW	2009-2018	Yes	No	3 years
SG	2009-2018	Yes	Yes	3 years
TG	2009-2018	Yes	No	4 years
TI	2009-2018	Yes	Yes	Some*
VD	<2005-2018	No	Yes	No limit
VS	2010-2015	Yes	Yes	No limit
ZH	2014-2018	Yes	Yes	4 years

Description of main characteristics of bonus-malus policies in Swiss cantons. Only cantons with policies are reported. Some cantons have special eligibility limits. GE: only cars first registered after 2009; GR: thresholds for bonus change every 3 years; NE: no age limit, but size of bonus is based on age; TI: only cars first registered after 2008.

Figure 4: Current bonus systems in Swiss cantons

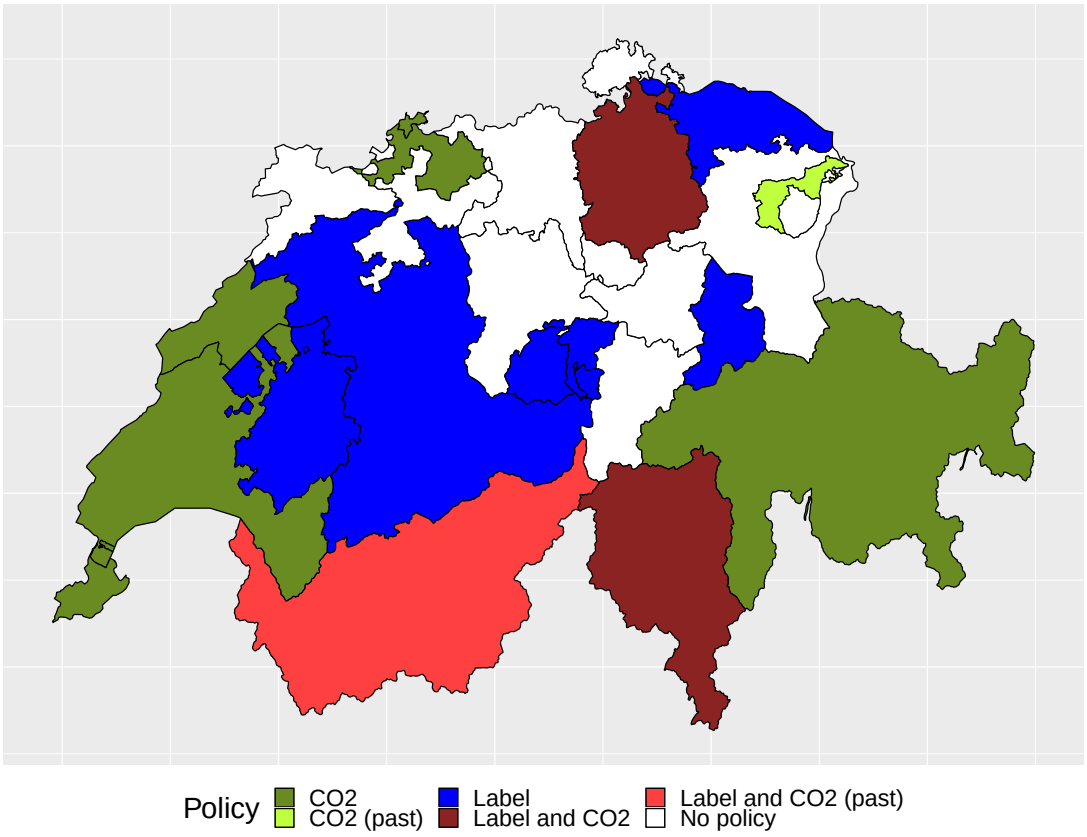
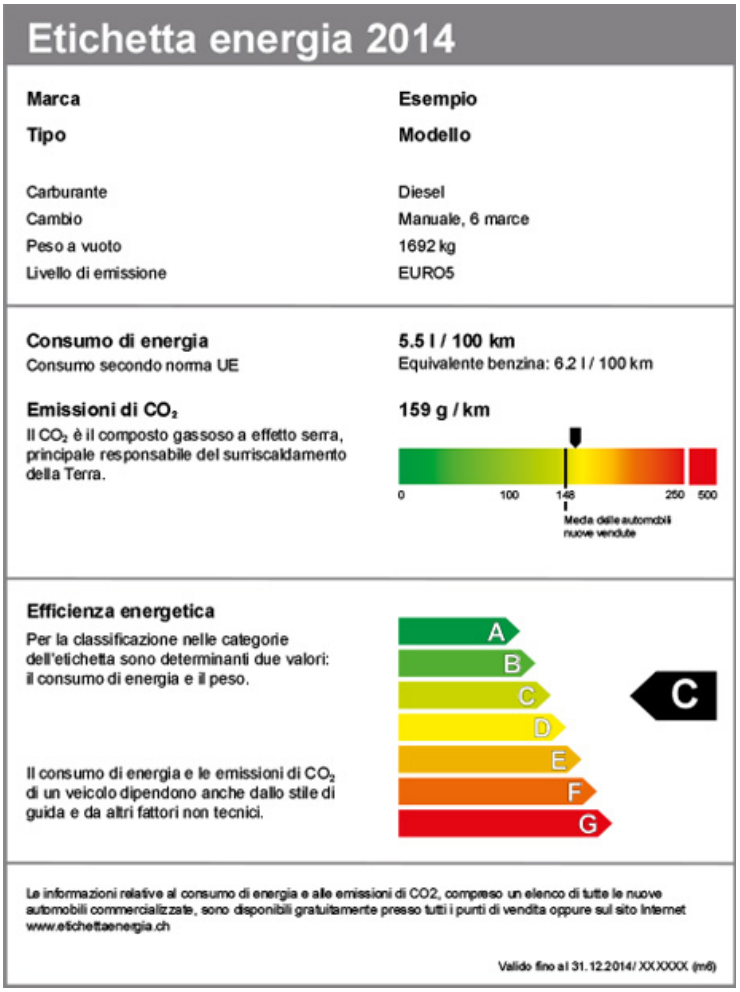


Figure 5: Example of the Swiss vehicle energy label



B Information on SHEDS questionnaire

SHEDS is organized in multiple waves, from 2016 to 2020, carried out by survey company Intervista. Participants are taken from a larger pool of potential respondents, and some individuals are surveyed in multiple waves. Each wave, the pool of respondents is selected to be representative of the French and German Swiss population. People living in the canton of Ticino are not surveyed.

Our main data comes from the 2018 wave. Baseline respondent characteristics, like income, education, and household size, are collected by Intervista each year outside the questionnaire. In our survey some questions are asked only once to new respondents i.e. individuals who were never interviewed in the previous waves. We use data from 2016 and 2017 wave to collect the answers in case of recurring respondents.

The 2018 wave of SHEDS contains 5011 respondents. Among those, 3621 (72.26%) own at least a car in their household. Due to the presence of missing variables, the final sample used in the baseline analysis contains 2504 respondents. Table 9 shows how many observations have been omitted among respondents with a car.

Table 9: Missing observations

Variable	**Missing**	**Percentage**
Fuel consumption	198	5.47%
Year first registration	171	4.72%
Year of purchase	100	2.76%
HH monthly income	541	14.94%
Financial literacy	405	11.18%
Other	26	0.72%

Statistics on numbers of missing observations among variables used in the analysis. Percentages are over the number of respondents owning one or more vehicle. Some respondents have multiple variables missing.

The majority of missing observations comes from two variables: financial literacy and household monthly income. The former is simply due to the fact that all respondents surveyed in both waves 2016 and 2018 were not asked the two questions that compose the financial literacy

variable used in the analysis. We argue that whether a respondent participated to a specific wave is essentially exogenous to our phenomenon of interest. Some other respondents were reluctant to provide information on household income. Nevertheless, repeating our main analysis either excluding these two variables or including the missing variables under a separate index does not change our results.

We also trim the top and bottom 0.5% fuel consumption percentiles (24 observations), to exclude patently wrongly reported values. That means dropping values of fuel consumption (L/100 km) lower than 2 and higher than 40. As in the previous case, including those observations in the analysis does not affect our conclusions.

In the analysis we include a rich set of controls to take into account of factors related to the fuel consumption of the car respondents bought.[22] These are summarized in tables 10, 11, 12, 13 and 14. While some of the questions were asked in wave 2018, others were not asked again in case of participation to multiple waves. For what concerns vehicle information, many questions were not asked every wave unless the respondent told she changed vehicle between waves.

Besides baseline information on respondents and household and vehicle characteristics, we have also question on energy and financial literacy (table 10). Financial literacy measures whether respondents answered correctly to two standard questions on interest rates and inflation. For energy literacy, we have indicator for correct answers to four questions: electricity cost for running a desktop computer for one hour; electricity cost for running a washing machine at 60C with 5 kg load; whether knowledge that vehicle energy efficiency rating is a relative measure of efficiency rather than absolute; which has higher energy cost per 100 km between a gasoline car consuming 5 L/100 km and an electric car consuming 20 kWh per 100 km.

Another set of controls represents general attitudes towards life. We ask respondents how important certain values or lifestyles are for them using a scale from 1 (*Not at all important*) to 5 (*Very important*), and we create indicators equal to 1 for those who indicated 4 or 5, and zero otherwise. The list of values and lifestyles are summarized in table 11.

The first set of environmental controls used in the paper are shown in table 12. They represent statements about feelings towards the environment, to which respondents are asked to

[22]The exact phrasing of all questions used can be found in the complete questionnaire text: https://www.sccer-crest.ch/research/swiss-household-energy-demand-survey-sheds/

Table 10: Variables used - Main

Variable	**Wave**
Baseline	
Age	2018
Age squared	2018
Gender	2018
Education	2018
Profession	2018
Language	2018
HH monthly gross income	2018
HH size	2018
HH living area	2018
Policy awareness	2018
Vehicle	
Year of purchase	When car changed
Year of first registration	When car changed
Fuel consumption (L/100 km)	2018
Efficiency rating	When car changed
Literacy	
Financial literacy	Earliest
Efficiency rating	Earliest
Energy cost: computer	Earliest
Energy cost: washing machine	Earliest
Vehicle fuel cost	Earliest
Prone to financial risks	Earliest

Table 11: Variables used - Life attitudes

Variable	Wave
Life values	
Equality	2018
Respecting the earth	2018
Social power	2018
Pleasure	2018
Unity with nature	2018
A world at peace	2018
Wealth	2018
Authority	2018
Social justice	2018
Enjoying life	2018
Protecting the environment	2018
Influence	2018
Helpfulness	2018
Preventing pollution	2018
Self-indulgent	2018
Ambitious	2018
Important things in life	
Good health	2018
Good relations	2018
Freedom	2018
Safety	2018
Own identity lifestyle	2018
Privacy	2018
Clean environment	2018
Job access	2018
Free time	2018
Comfort	2018
Enjoy nature and culture	2018
Pleasant experiences	2018
Appreciation and respect	2018
Nice possessions	2018

indicate their degree of agreement with a scale between 1 and 5 (from *totally disagree* to *totally agree*). We then create indicators on whether people answered 4 or 5.

Table 12: Variables used - Feelings towards environment

Variable	**Wave**
Sentiment towards environmental actions	
Proud when environmentally friendly	Earliest
Happy when conserving resources	Earliest
Guilty when harming environment	Earliest
Appreciation towards those acting environmentally friendly	Earliest
Warm towards those conserving resources	Earliest
Content when acting environmentally friendly	Earliest
Indignant towards those acting environmentally unfriendly	Earliest
Regret when wasting resources	Earliest
Ashamed when acting environmentally unfriendly	Earliest
Disgusted when others waste resources	Earliest
Positive towards those acting environmentally friendly	Earliest
Feeling when pushed to act environmentally friendly/unfriendly	
Frustrated when can't act environmentally friendly	Earliest
Angry when my freedom constrained to protect environment	Earliest
Annoyed when others try to convince me to act environmentally friendly	Earliest
Dissatisfied when can't conserve resources	Earliest
Hostile when forced to act environmentally friendly	Earliest
Angry when forced to act environmentally unfriendly	Earliest
Feelings towards environment and environmental change	
Grateful for planet and nature	Earliest
Worried for future of nature	Earliest
Awe for planet and nature	Earliest
Anxious about future of planet	Earliest
Sad about how mankind treats nature	Earliest
Overwhelmed by beauty of nature	Earliest

We also have a second set of environmental controls about environmental activism, and behavior and expectations towards the environment (table 13). The latter are once more based on a scale of agreement between 1 and 5, and they are transformed into binary indicators under the same criteria as before.

Finally, we control whether people trust energy saving information coming from various groups (scale from 1 to 5, converted in binary indicator) and whether they actually followed any

Table 13: Variables used - Environmental behavior and expectations

Variable	**Wave**
Expectations towards environmental actions	
HH expects I behave environmentally friendly	2018
Acquaintances behave environmentally friendly	2018
Acquaintances expects I behave environmentally friendly	2018
Personally obliged to behave environmentally friendly	2018
Swiss society expects people behave environmentally friendly	2018
Opinions towards environmental actions	
Know how to behave environmentally friendly	Earliest
It is easy to conserve resources	Earliest
Able to protect the environment when I want so	Earliest
I behave environmentally friendly despite daily inconveniences	Earliest
Acting environmentally friendly protects planet and nature	Earliest
Acting environmentally friendly prevents consequences of global warming	Earliest
Acting environmentally friendly saves resources	Earliest
Environmental activism	
Green party voter	2018
Member of environmental club	2018

of their suggestions to change energy consumption. Those are reported in table 14.

Table 14: Variables used - Trust and adoption of energy saving advice

Variable	**Wave**
Trust in groups for energy saving information	
Family, friends, colleagues	Earliest
Neighbors	Earliest
Swiss Federal Office of Energy (SFOE)	Earliest
Local authorities	Earliest
Local energy supply utility	Earliest
Scientists	Earliest
Consumer organizations	Earliest
Environmental organizations	Earliest
Technical experts	Earliest
Property management company	Earliest
Associations/clubs	Earliest
Took up recommendation for changing energy consumption	
Family, friends, colleagues	Earliest
Neighbors	Earliest
Swiss Federal Office of Energy (SFOE)	Earliest
Local authorities	Earliest
Local energy supply utility	Earliest
Scientists	Earliest
Consumer organizations	Earliest
Environmental organizations	Earliest
Technical experts	Earliest
Property management company	Earliest
Associations/clubs	Earliest

C Summary statistics and awareness

Table 15: Baseline statistics

	Not Aware			**Aware**		
	No Policy	Policy	T-test	No Policy	Policy	T-test
Age	47.810	46.049	* (2.19)	50.955	47.036	*** (4.25)
Female	0.489	0.520	(-1.20)	0.384	0.393	(-0.28)
Educ.: compulsory	0.077	0.078	(-0.12)	0.048	0.074	(-1.71)
Educ.: apprenticeship	0.342	0.303	(1.59)	0.342	0.281	* (2.09)
Educ.: high school/vocat.	0.159	0.155	(0.18)	0.103	0.158	* (-2.51)
Educ.: university	0.423	0.464	(-1.57)	0.508	0.487	(0.64)
Job: employee	0.653	0.658	(-0.22)	0.636	0.653	(-0.55)
Job: self-empl.	0.063	0.042	(1.81)	0.080	0.091	(-0.59)
Job: retired	0.155	0.141	(0.75)	0.198	0.144	* (2.31)
Job: other	0.129	0.159	(-1.62)	0.085	0.112	(-1.40)
HH income: <6000	0.285	0.277	(0.36)	0.216	0.264	(-1.75)
HH income: 6000-9000	0.281	0.325	(-1.79)	0.307	0.308	(-0.05)
HH income: 9001-12000	0.254	0.219	(1.55)	0.274	0.235	(1.41)
HH income: >12000	0.180	0.180	(-0.00)	0.204	0.193	(0.43)
HH size: 1	0.199	0.206	(-0.30)	0.216	0.202	(0.55)
HH size: 2	0.443	0.436	(0.24)	0.455	0.432	(0.71)
HH size: 3	0.147	0.158	(-0.60)	0.138	0.146	(-0.34)
HH size: 4	0.153	0.142	(0.60)	0.146	0.168	(-0.98)
HH size: 5	0.058	0.058	(0.01)	0.045	0.052	(-0.46)
Area: city	0.392	0.422	(-1.14)	0.354	0.396	(-1.36)
Area: agglomeration	0.332	0.304	(1.11)	0.349	0.322	(0.92)
Area: countryside	0.276	0.274	(0.09)	0.296	0.282	(0.50)
Green party	0.083	0.112	(-1.82)	0.123	0.108	(0.76)
Env. club	0.037	0.032	(0.53)	0.033	0.024	(0.81)
N	757	690	1447	398	659	1057

Table 16: Baseline statistics

	Policy ever in place			**Policy aware**			
	No	Yes	T-test	No	Yes	T-test	Tot
Age	46.446	47.998	* (-2.22)	46.970	48.512	* (-2.54)	47.621
Female	0.442	0.460	(-0.75)	0.504	0.390	*** (5.69)	0.456
Educ.: compulsory	0.061	0.075	(-1.21)	0.077	0.064	(1.25)	0.072
Educ.: apprenticeship	0.342	0.306	(1.65)	0.323	0.304	(1.05)	0.315
Educ.: high school/vocat.	0.132	0.154	(-1.35)	0.157	0.137	(1.37)	0.149
Educ.: university	0.465	0.464	(0.06)	0.442	0.495	** (-2.60)	0.464
Job: employee	0.673	0.645	(1.27)	0.655	0.646	(0.47)	0.651
Job: self-empl.	0.069	0.067	(0.18)	0.053	0.087	*** (-3.34)	0.067
Job: retired	0.137	0.161	(-1.44)	0.148	0.165	(-1.14)	0.155
Job: other	0.122	0.128	(-0.38)	0.144	0.102	** (3.10)	0.126
HH income: <6000	0.237	0.276	(-1.89)	0.281	0.246	* (1.97)	0.266
HH income: 6000-9000	0.286	0.310	(-1.12)	0.302	0.307	(-0.29)	0.304
HH income: 9001-12000	0.271	0.233	(1.92)	0.237	0.250	(-0.73)	0.242
HH income: >12000	0.206	0.181	(1.36)	0.180	0.197	(-1.08)	0.187
HH size: 1	0.184	0.211	(-1.42)	0.202	0.207	(-0.29)	0.204
HH size: 2	0.414	0.448	(-1.46)	0.440	0.441	(-0.07)	0.440
HH size: 3	0.163	0.143	(1.17)	0.152	0.143	(0.64)	0.148
HH size: 4	0.173	0.147	(1.55)	0.148	0.160	(-0.82)	0.153
HH size: 5	0.066	0.051	(1.43)	0.058	0.049	(0.97)	0.054
Area: city	0.289	0.429	*** (-6.18)	0.406	0.380	(1.32)	0.395
Area: agglomeration	0.372	0.309	** (2.87)	0.319	0.332	(-0.71)	0.324
Area: countryside	0.339	0.262	*** (3.70)	0.275	0.288	(-0.69)	0.280
Green party	0.097	0.106	(-0.63)	0.097	0.114	(-1.36)	0.104
Env. club	0.031	0.032	(-0.05)	0.035	0.027	(1.01)	0.032
N	608	1896	2504	1447	1057	2504	2504

Table 17: Energy and financial literacy

	Not Aware			**Aware**		
	No Policy	Policy	T-test	No Policy	Policy	T-test
Financial literacy	0.650	0.623	(1.06)	0.751	0.654	*** (3.33)
Efficiency rating	0.520	0.538	(-0.65)	0.540	0.461	* (2.49)
Energy cost: computer	0.328	0.314	(0.53)	0.405	0.317	** (2.89)
Energy cost: washing mach.	0.136	0.129	(0.40)	0.138	0.120	(0.87)
Vehicle fuel cost	0.390	0.354	(1.42)	0.435	0.405	(0.94)
Risk taker	0.107	0.104	(0.16)	0.136	0.131	(0.24)
N	757	690	1447	398	659	1057

Table 18: Energy and financial literacy

	Policy ever in place			**Policy aware**			
	No	Yes	T-test	No	Yes	T-test	Tot
Financial literacy	0.720	0.640	*** (3.64)	0.637	0.691	** (-2.79)	0.660
Efficiency rating	0.561	0.497	** (2.73)	0.529	0.491	(1.86)	0.513
Energy cost: computer	0.375	0.320	* (2.50)	0.321	0.350	(-1.50)	0.333
Energy cost: washing mach.	0.146	0.125	(1.36)	0.133	0.127	(0.43)	0.130
Vehicle fuel cost	0.416	0.383	(1.46)	0.372	0.416	* (-2.22)	0.391
Risk taker	0.122	0.116	(0.41)	0.106	0.132	* (-2.05)	0.117
N	608	1896	2504	1447	1057	2504	2504

Table 19: Life values

	Not Aware			**Aware**		
	No Policy	Policy	T-test	No Policy	Policy	T-test
Equality	0.707	0.726	(-0.81)	0.671	0.741	* (-2.43)
Respect Earth	0.757	0.735	(0.97)	0.714	0.783	* (-2.56)
Social power	0.096	0.110	(-0.86)	0.098	0.114	(-0.80)
Pleasure	0.687	0.713	(-1.08)	0.681	0.780	*** (-3.59)
Unity w/nature	0.675	0.661	(0.57)	0.643	0.659	(-0.51)
World peace	0.816	0.828	(-0.55)	0.789	0.812	(-0.91)
Wealth	0.313	0.335	(-0.88)	0.362	0.363	(-0.03)
Authority	0.120	0.148	(-1.54)	0.126	0.188	** (-2.66)
Social justice	0.686	0.706	(-0.83)	0.676	0.684	(-0.29)
Enjoying life	0.707	0.761	* (-2.33)	0.734	0.794	* (-2.25)
Protect env.	0.775	0.793	(-0.80)	0.751	0.788	(-1.37)
Influence	0.285	0.326	(-1.68)	0.322	0.311	(0.36)
Helpfulness	0.573	0.533	(1.53)	0.487	0.546	(-1.86)
Prevent pollut.	0.775	0.777	(-0.06)	0.749	0.780	(-1.17)
Self-indulgence	0.509	0.551	(-1.60)	0.465	0.619	*** (-4.95)
Ambition	0.328	0.425	*** (-3.83)	0.387	0.379	(0.25)
N	757	690	1447	398	659	1057

Table 20: Life values

	Policy ever in place			**Policy aware**			
	No	Yes	T-test	No	Yes	T-test	Tot
Equality	0.688	0.724	(-1.74)	0.716	0.714	(0.09)	0.715
Respect Earth	0.734	0.756	(-1.13)	0.746	0.757	(-0.60)	0.751
Social power	0.089	0.110	(-1.50)	0.103	0.108	(-0.39)	0.105
Pleasure	0.678	0.730	* (-2.52)	0.699	0.743	* (-2.38)	0.718
Unity w/nature	0.625	0.674	* (-2.20)	0.668	0.653	(0.81)	0.662
World peace	0.785	0.823	* (-2.14)	0.822	0.803	(1.17)	0.814
Wealth	0.344	0.339	(0.23)	0.323	0.362	* (-2.03)	0.340
Authority	0.113	0.157	** (-2.65)	0.133	0.165	* (-2.18)	0.147
Social justice	0.663	0.698	(-1.62)	0.695	0.681	(0.75)	0.689
Enjoying life	0.725	0.756	(-1.53)	0.733	0.771	* (-2.20)	0.749
Protect env.	0.765	0.784	(-1.01)	0.784	0.774	(0.58)	0.780
Influence	0.298	0.313	(-0.70)	0.305	0.315	(-0.55)	0.309
Helpfulness	0.528	0.546	(-0.77)	0.554	0.524	(1.49)	0.542
Prevent pollut.	0.740	0.783	* (-2.21)	0.776	0.768	(0.46)	0.773
Self-indulgence	0.475	0.564	*** (-3.82)	0.529	0.561	(-1.60)	0.542
Ambition	0.367	0.381	(-0.62)	0.374	0.382	(-0.42)	0.377
N	608	1896	2504	1447	1057	2504	2504

Table 21: Important things in life

	Not Aware			**Aware**		
	No Policy	Policy	T-test	No Policy	Policy	T-test
Health	0.962	0.975	(-1.48)	0.967	0.971	(-0.35)
Relations	0.847	0.874	(-1.49)	0.852	0.883	(-1.48)
Freedom	0.902	0.922	(-1.30)	0.915	0.941	(-1.63)
Safety	0.878	0.894	(-0.94)	0.884	0.900	(-0.79)
imp_identity	0.696	0.712	(-0.64)	0.661	0.798	*** (-5.03)
Privacy	0.888	0.907	(-1.22)	0.927	0.926	(0.09)
Clean env.	0.877	0.916	* (-2.41)	0.884	0.927	* (-2.37)
Job	0.797	0.820	(-1.14)	0.804	0.824	(-0.81)
Free time	0.882	0.883	(-0.01)	0.882	0.873	(0.45)
Comfort	0.666	0.700	(-1.40)	0.686	0.792	*** (-3.90)
Nat./cult. beauty	0.687	0.732	(-1.88)	0.711	0.777	* (-2.41)
Experiences	0.777	0.780	(-0.14)	0.756	0.841	*** (-3.40)
Respect	0.762	0.758	(0.19)	0.744	0.733	(0.39)
Possessions	0.324	0.338	(-0.57)	0.332	0.322	(0.33)
N	757	690	1447	398	659	1057

Table 22: Important things in life

	Policy ever in place			**Policy aware**			
	No	Yes	T-test	No	Yes	T-test	Tot
Health	0.949	0.975	** (-3.24)	0.968	0.970	(-0.22)	0.969
Relations	0.836	0.874	* (-2.41)	0.860	0.871	(-0.84)	0.865
Freedom	0.898	0.927	* (-2.26)	0.912	0.931	(-1.76)	0.920
Safety	0.880	0.892	(-0.85)	0.886	0.894	(-0.64)	0.889
imp_identity	0.655	0.743	*** (-4.25)	0.704	0.746	* (-2.37)	0.722
Privacy	0.906	0.910	(-0.31)	0.897	0.926	* (-2.51)	0.909
Clean env.	0.872	0.912	** (-2.91)	0.896	0.911	(-1.28)	0.902
Job	0.827	0.806	(1.14)	0.808	0.816	(-0.54)	0.812
Free time	0.887	0.878	(0.59)	0.883	0.876	(0.49)	0.880
Comfort	0.666	0.726	** (-2.85)	0.682	0.752	*** (-3.83)	0.712
Nat./cult. beauty	0.671	0.745	*** (-3.56)	0.708	0.752	* (-2.43)	0.727
Experiences	0.762	0.801	* (-2.07)	0.778	0.809	(-1.87)	0.791
Respect	0.763	0.746	(0.84)	0.760	0.737	(1.32)	0.750
Possessions	0.362	0.318	* (2.03)	0.330	0.325	(0.26)	0.328
N	608	1896	2504	1447	1057	2504	2504

Table 23: Sentiment towards environmental actions

	Not Aware			**Aware**		
	No Policy	Policy	T-test	No Policy	Policy	T-test
Proud	0.655	0.659	(-0.17)	0.613	0.646	(-1.09)
Happy	0.724	0.719	(0.21)	0.666	0.754	** (-3.11)
Guilty	0.559	0.536	(0.86)	0.477	0.539	(-1.93)
Appreciation	0.715	0.681	(1.39)	0.681	0.710	(-1.00)
Warm	0.600	0.555	(1.72)	0.565	0.577	(-0.36)
Content	0.803	0.809	(-0.27)	0.754	0.804	(-1.94)
Indignant	0.444	0.446	(-0.10)	0.425	0.454	(-0.92)
Regret	0.581	0.548	(1.28)	0.518	0.598	* (-2.56)
Angry	0.450	0.406	(1.72)	0.402	0.439	(-1.16)
Ashamed	0.446	0.414	(1.23)	0.422	0.408	(0.44)
Disgusted	0.399	0.378	(0.81)	0.354	0.458	*** (-3.33)
Positive	0.769	0.748	(0.93)	0.739	0.728	(0.37)
N	757	690	1447	398	659	1057

Table 24: Sentiment towards environmental actions

	Policy ever in place			**Policy aware**			
	No	Yes	T-test	No	Yes	T-test	Tot
Proud	0.641	0.649	(-0.35)	0.657	0.634	(1.21)	0.647
Happy	0.709	0.725	(-0.78)	0.721	0.721	(0.03)	0.721
Guilty	0.513	0.541	(-1.20)	0.548	0.516	(1.61)	0.534
Appreciation	0.702	0.698	(0.21)	0.699	0.699	(-0.02)	0.699
Warm	0.590	0.571	(0.84)	0.578	0.572	(0.30)	0.576
Content	0.763	0.808	* (-2.40)	0.806	0.785	(1.26)	0.797
Indignant	0.431	0.448	(-0.75)	0.445	0.443	(0.11)	0.444
Regret	0.539	0.575	(-1.53)	0.565	0.568	(-0.12)	0.566
Angry	0.444	0.422	(0.96)	0.429	0.425	(0.22)	0.427
Ashamed	0.456	0.414	(1.83)	0.431	0.413	(0.89)	0.424
Disgusted	0.363	0.414	* (-2.21)	0.389	0.419	(-1.51)	0.402
Positive	0.763	0.743	(1.01)	0.759	0.732	(1.51)	0.748
N	608	1896	2504	1447	1057	2504	2504

Table 25: Feeling when pushed to act environmentally friendly

	Not Aware			**Aware**		
	No Policy	Policy	T-test	No Policy	Policy	T-test
Frustrated	0.494	0.526	(-1.22)	0.523	0.533	(-0.32)
Angry if const.	0.202	0.241	(-1.76)	0.266	0.217	(1.83)
Annoyed	0.339	0.358	(-0.74)	0.399	0.296	*** (3.47)
Dissatisfied	0.538	0.562	(-0.94)	0.558	0.552	(0.17)
Hostile	0.196	0.236	(-1.88)	0.266	0.185	** (3.12)
Angry if forced	0.425	0.443	(-0.69)	0.465	0.410	(1.75)
N	757	690	1447	398	659	1057

Table 26: Feeling when pushed to act environmentally friendly

	Policy ever in place			**Policy aware**			
	No	Yes	T-test	No	Yes	T-test	Tot
Frustrated	0.492	0.526	(-1.46)	0.509	0.529	(-0.97)	0.518
Angry if const.	0.212	0.232	(-0.99)	0.220	0.236	(-0.89)	0.227
Annoyed	0.352	0.340	(0.56)	0.348	0.335	(0.70)	0.343
Dissatisfied	0.521	0.561	(-1.72)	0.549	0.554	(-0.25)	0.552
Hostile	0.229	0.211	(0.92)	0.215	0.216	(-0.05)	0.215
Angry if forced	0.438	0.431	(0.29)	0.434	0.430	(0.18)	0.433
N	608	1896	2504	1447	1057	2504	2504

Table 27: Feeling towards environment and environmental change

	Not Aware			**Aware**		
	No Policy	Policy	T-test	No Policy	Policy	T-test
Grateful	0.840	0.826	(0.72)	0.829	0.812	(0.71)
Worried	0.765	0.730	(1.51)	0.726	0.748	(-0.79)
Awe	0.720	0.738	(-0.76)	0.739	0.778	(-1.47)
Anxious	0.522	0.510	(0.44)	0.407	0.552	*** (-4.62)
Sad	0.711	0.703	(0.33)	0.691	0.741	(-1.74)
Overwhelmed	0.803	0.812	(-0.41)	0.849	0.756	*** (3.64)
N	757	690	1447	398	659	1057

Table 28: Feeling towards environment and environmental change

	Policy ever in place			**Policy aware**			
	No	Yes	T-test	No	Yes	T-test	Tot
Grateful	0.842	0.822	(1.13)	0.833	0.818	(0.99)	0.827
Worried	0.752	0.743	(0.44)	0.748	0.740	(0.49)	0.745
Awe	0.709	0.754	* (-2.23)	0.728	0.763	* (-1.99)	0.743
Anxious	0.479	0.518	(-1.69)	0.516	0.498	(0.92)	0.508
Sad	0.686	0.722	(-1.72)	0.707	0.722	(-0.81)	0.713
Overwhelmed	0.831	0.791	* (2.15)	0.807	0.791	(1.01)	0.800
N	608	1896	2504	1447	1057	2504	2504

Table 29: Pressure towards environmental actions

	Not Aware			**Aware**		
	No Policy	Policy	T-test	No Policy	Policy	T-test
From HH	0.538	0.472	* (2.48)	0.563	0.519	(1.38)
acquait. behavior	0.464	0.464	(-0.00)	0.410	0.446	(-1.16)
From acquait.	0.398	0.348	(1.96)	0.362	0.431	* (-2.22)
Obliged	0.744	0.700	(1.86)	0.731	0.681	(1.71)
From society	0.575	0.616	(-1.60)	0.573	0.633	(-1.94)
N	757	690	1447	398	659	1057

Table 30: Pressure towards environmental actions

	Policy ever in place			**Policy aware**			
	No	Yes	T-test	No	Yes	T-test	Tot
From HH	0.508	0.522	(-0.60)	0.507	0.535	(-1.43)	0.519
acquait. behavior	0.441	0.454	(-0.55)	0.464	0.432	(1.56)	0.450
From acquait.	0.354	0.398	(-1.94)	0.374	0.405	(-1.58)	0.387
Obliged	0.729	0.708	(0.96)	0.723	0.700	(1.24)	0.713
From society	0.554	0.616	** (-2.71)	0.594	0.610	(-0.80)	0.601
N	608	1896	2504	1447	1057	2504	2504

Table 31: Opinions towards environmental actions

	Not Aware			**Aware**		
	No Policy	Policy	T-test	No Policy	Policy	T-test
Know how	0.783	0.754	(1.34)	0.814	0.760	* (2.05)
Easy	0.427	0.399	(1.09)	0.417	0.469	(-1.64)
Can	0.712	0.726	(-0.59)	0.683	0.760	** (-2.74)
Able	0.523	0.510	(0.49)	0.475	0.590	*** (-3.67)
Protection	0.724	0.728	(-0.15)	0.668	0.748	** (-2.80)
Prevention	0.635	0.628	(0.31)	0.535	0.646	*** (-3.60)
Saving	0.771	0.764	(0.35)	0.739	0.750	(-0.39)
N	757	690	1447	398	659	1057

Table 32: Opinions towards environmental actions

	Policy ever in place			**Policy aware**			
	No	Yes	T-test	No	Yes	T-test	Tot
Know how	0.793	0.768	(1.27)	0.769	0.781	(-0.67)	0.774
Easy	0.439	0.425	(0.61)	0.413	0.449	(-1.80)	0.429
Can	0.709	0.729	(-0.96)	0.719	0.731	(-0.70)	0.724
Able	0.485	0.544	* (-2.52)	0.517	0.547	(-1.48)	0.530
Protection	0.701	0.729	(-1.38)	0.726	0.718	(0.42)	0.722
Prevention	0.587	0.631	(-1.93)	0.632	0.605	(1.38)	0.620
Saving	0.753	0.760	(-0.34)	0.768	0.746	(1.29)	0.758
N	608	1896	2504	1447	1057	2504	2504

Table 33: Trust in groups for energy saving information

	Not Aware			**Aware**		
	No Policy	Policy	T-test	No Policy	Policy	T-test
Family	0.485	0.501	(-0.63)	0.442	0.490	(-1.51)
Neighbors	0.214	0.200	(0.66)	0.156	0.194	(-1.58)
SFOE	0.639	0.619	(0.81)	0.580	0.656	* (-2.45)
Local auth.	0.489	0.496	(-0.26)	0.435	0.548	*** (-3.58)
Local energy	0.528	0.499	(1.13)	0.475	0.528	(-1.68)
Scientists	0.550	0.552	(-0.10)	0.565	0.601	(-1.14)
Consum. org.	0.519	0.507	(0.45)	0.535	0.601	* (-2.10)
Envir. org.	0.510	0.465	(1.70)	0.452	0.527	* (-2.34)
Experts	0.526	0.554	(-1.06)	0.550	0.572	(-0.69)
Property man.	0.161	0.145	(0.86)	0.133	0.167	(-1.47)
Clubs	0.110	0.106	(0.24)	0.098	0.147	* (-2.32)
N	757	690	1447	398	659	1057

Table 34: Trust in groups for energy saving information

	Policy ever in place			**Policy aware**			
	No	Yes	T-test	No	Yes	T-test	Tot
Family	0.485	0.484	(0.07)	0.493	0.472	(1.02)	0.484
Neighbors	0.207	0.192	(0.82)	0.207	0.180	(1.72)	0.196
SFOE	0.599	0.638	(-1.75)	0.630	0.627	(0.12)	0.629
Local auth.	0.482	0.503	(-0.89)	0.492	0.505	(-0.65)	0.498
Local energy	0.490	0.518	(-1.22)	0.514	0.508	(0.30)	0.512
Scientists	0.558	0.569	(-0.50)	0.551	0.588	(-1.83)	0.566
Consum. org.	0.505	0.551	* (-1.99)	0.513	0.576	** (-3.11)	0.540
Envir. org.	0.480	0.497	(-0.71)	0.489	0.499	(-0.49)	0.493
Experts	0.539	0.553	(-0.57)	0.539	0.564	(-1.23)	0.550
Property man.	0.168	0.149	(1.10)	0.153	0.154	(-0.05)	0.154
Clubs	0.115	0.117	(-0.13)	0.108	0.129	(-1.61)	0.117
N	608	1896	2504	1447	1057	2504	2504

Table 35: Recommendation for energy savings

	Not Aware			**Aware**		
	No Policy	Policy	T-test	No Policy	Policy	T-test
Family	0.329	0.328	(0.06)	0.307	0.288	(0.63)
Neighbors	0.061	0.062	(-0.12)	0.055	0.061	(-0.36)
SFOE	0.196	0.181	(0.70)	0.196	0.140	* (2.42)
Local auth.	0.065	0.058	(0.53)	0.070	0.047	(1.60)
Local energy	0.144	0.149	(-0.28)	0.141	0.164	(-1.01)
Scientists	0.112	0.103	(0.57)	0.143	0.085	** (2.98)
Consum. org.	0.125	0.107	(1.08)	0.153	0.117	(1.70)
Envir. org.	0.141	0.138	(0.20)	0.158	0.091	*** (3.32)
Experts	0.111	0.104	(0.41)	0.116	0.120	(-0.21)
Property man.	0.034	0.035	(-0.05)	0.020	0.021	(-0.13)
Clubs	0.007	0.003	(1.01)	0.008	0.009	(-0.27)
N	757	690	1447	398	659	1057

Table 36: Recommendation for energy savings

	Policy ever in place			**Policy aware**			
	No	Yes	T-test	No	Yes	T-test	Tot
Family	0.354	0.302	* (2.40)	0.328	0.295	(1.76)	0.314
Neighbors	0.066	0.059	(0.65)	0.062	0.059	(0.30)	0.060
SFOE	0.209	0.167	* (2.38)	0.189	0.161	(1.80)	0.177
Local auth.	0.069	0.056	(1.20)	0.062	0.056	(0.60)	0.059
Local energy	0.128	0.157	(-1.74)	0.147	0.155	(-0.60)	0.150
Scientists	0.141	0.097	** (3.12)	0.108	0.107	(0.07)	0.107
Consum. org.	0.141	0.117	(1.63)	0.117	0.131	(-1.04)	0.123
Envir. org.	0.166	0.118	** (3.07)	0.140	0.116	(1.71)	0.130
Experts	0.113	0.112	(0.11)	0.108	0.118	(-0.82)	0.112
Property man.	0.038	0.026	(1.54)	0.035	0.021	* (2.03)	0.029
Clubs	0.005	0.007	(-0.52)	0.005	0.009	(-1.14)	0.006
N	608	1896	2504	1447	1057	2504	2504