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Greening the Economy through Voluntary Private Sector Initiatives or Government Regulation? A Public Opinion Perspective

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ABSTRACT

Societal efforts towards greening the economy are typically accompanied by controversy over whether voluntary initiatives by firms or government regulation are more effective to that end. Recent research argues that public opinion plays an important role in this regard because citizens' preferences are crucial when democratic policy-makers decide. We investigate whether and how citizens' general attitudes regarding the relationship between the private sector and government can help explain their policy preferences. We argue that whether citizens perceive the state-private sector relationship as *synergistic* or *antagonistic* has an effect on their support for private sector self-regulation or government regulation respectively. We assess this argument based on information from a representative survey ($N = 1677$) in Switzerland. We find that citizens who regard the state-private sector relationship in environmental policy-making as *synergistic* favor private sector self-regulation. In contrast, citizens who regard the state-private sector relationship as *antagonistic* prefer *either* self-regulation or government intervention. We also observe that views on whether firms engage in self-regulation to gain a competitive economic advantage shape the perception of a *synergistic* state-private sector relationship. Our findings are relevant to current green economy debates as policy-makers in Europe and elsewhere are trying to move beyond the 'either firms or the state' paradigm in regulatory environmental politics.

1. Introduction

Humanity's impact on nature is clearly exceeding what most environmental scientists consider safe, long-run operating limits or 'planetary boundaries' (Steffen et al., 2015). Economic activity driven by consumption, particularly in the richer countries, is threatening to push demand for natural resources beyond what planet Earth can (re)generate (Wackernagel et al., 2019). At the same time, however, the gap between what societies and their policy-makers know they should do and what they actually do to reduce anthropogenic impacts on the environment appears to be increasing.

Though there are many reasons for this knowing-doing gap, one issue is widespread disagreement over whether government intervention in markets is necessary or whether, and to what extent, the private sector could achieve environmental protection goals through voluntary action (self-regulation) (Kinderman, 2016; Tosun et al., 2016). This disagreement reflects the overall picture one gets from looking at the many studies that have examined how effective voluntary environmental initiatives in the private sector are (Boiral et al., 2018; Foster et al., 2017).

In fact, no scientific consensus over whether firms are truly willing and able to internalize environmental costs they can impose on society has been reached (Delmas and Montes-Sancho, 2009; Halkos and Skouloudis, 2016; Rogge and Dütschke, 2018).

If one departs from a simple 'either corporate voluntary measures or state regulation' view, which we do in this paper, the key issue is whether the relationship between private sector firms and the state, and voluntary self-regulation and government regulation respectively, is *synergistic* or *antagonistic*. In other words, do private and public efforts to protect the environment complement each other, or does their relationship follow a zero-sum logic, where more of one weakens the other?

A recent literature argues that public opinion plays a key role in linking private sector environmental initiatives and government-led efforts, and in shaping the choices of policy-makers among the two (Druckman and Valdes, 2019; Harring, 2018). It posits that voluntary corporate environmental initiatives occur in the shadow of government, where citizens' evaluations of voluntary action are likely to affect government choices on whether to support or tolerate voluntary action, or whether to step in and replace voluntary governance schemes by formal

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regulation. Most of the very few pieces of research on this matter are based on survey-embedded experiments that use rather simple scenarios and pay little attention to the effects of prior opinions of study participants and the attitudes underlying citizens' preference formation (Barabas and Jerit, 2010; Bechtel et al., 2015).

We complement this research with novel insights on how pre-existing attitudes and world-views induce differences in citizens' policy preferences in this area, and under what conditions citizens might perceive voluntary measures and state-led policy as complementary. Specifically, we propose that whether citizens perceive, in general terms, the private sector and the government to behave in a *synergistic* or an *antagonistic* manner in solving environmental problems is an important determinant of public preferences on environmental regulatory policy.

In our empirical research, we started with focus group discussions with 41 citizens, civil society representatives, and elected members of local governmental bodies (policy-makers). Building on these insights, we then designed and implemented a survey with a representative sample of adult (≥ 18 years) Swiss citizens in the German and French-speaking parts of Switzerland ($N = 1677$). We focus on Switzerland because of its high environmental impact relative to its country size. In particular, Switzerland's ecological footprint exceeds its biocapacity – its natural capital – by a factor of three (von Stokar et al., 2006v). At the same time, however, the Swiss population holds rather strong pro-environmental attitudes (Bernauer et al., 2018; Rudolph et al., 2019), and in this respect is comparable to other European countries. In Appendix Fig. A.2, we show the similarity of Swiss and other high-income countries' citizens' environmental policy preferences based on data from the International Social Survey (ISSP Research Group, 2018).

This combination of a large global ecological footprint and rather strong environmental values has led to much debate over how the ecological footprint of economic activity could be brought into line with what people seem to prefer and nature can support (Karlsson et al., 2018; McBain et al., 2018). The goal of this process is widely referred to as 'green economy' – i.e., "a production and consumption system that takes into account the scarcity of limited resources and the regeneration capacity of renewable resources, that enhances resource efficiency and thus generally improves the performance of the economy and welfare" (Federal Office for the Environment FOEN, 2013, p. 8). Accordingly, the issue of *how to* best make an economy greener is politically salient on the international political level also in many other advanced economies, such as the Nordic countries, the United Kingdom, Germany, and France (Droste et al., 2016; Gjøllberg, 2011; Gouldson and Sullivan, 2013; Pitkänen et al., 2016; Wolff et al., 2018).

The main finding is that citizens' general perception of the state-private sector relationship as *synergistic* or *antagonistic* influences, all else equal, their preferences with regards to the private vs public environmental regulation issue. In particular, we observe that participants who think that the government and the private sector cooperate express, on average, stronger support for private sector self-regulation. In contrast, those who generally think that one of the two actor types obstructs the other in environmental policy-making prefer an 'either-or' type of environmental policy. We also examine which mechanisms might be driving the perception of the relationship between public and private environmental problem solving. We find that participants who believe in an *automatic* greening process are more likely to perceive the relationship as *synergistic*. In contrast, participants who believe in a *reactive* greening process were more likely to perceive the private sector as obstructing government-led green economy policy efforts.

2. The State-Private Sector Relationship and Public Opinion

A large body of literature suggests that firms engage with environmentalism primarily in order to improve their profitability (e.g., Flammer, 2015). Particularly, the inclusion of environmental considerations

in a business model may increase competitiveness (e.g., Rexhäuser and Rammer, 2014) and facilitate more durable and profitable relationships with consumers (Chernev and Blair, 2015; Hainmueller et al., 2015).

It has also been argued that strategic considerations vis-à-vis policy-relevant stakeholders – and government actors in particular – influence corporate decision-making with regard to environmental aspects (Coglianese and Nash, 2016; Delmas and Toffel, 2008). Besides trying to lobby political decision-makers (Lyon et al., 2018), corporate actors may choose to engage with important stakeholders in several other ways in order to benefit from policy-making processes and their outputs (Hong and Liskovich, 2016; Lock and Seele, 2018; Werner, 2015).

With a view to such arguments, academic and policy debates have started to focus on conditions under which interactions between private and public actors strengthen or weaken environmental policy efforts. Some scholars have argued that corporate self-regulation may enhance public environmental policy (Abrams et al., 2018). We call this the *synergistic* perspective. For example, (relatively efficient) firms may self-regulate and thus overcomply with existing environmental regulations (Denicolò, 2008; Urpelainen, 2011).

In contrast, others posit that private sector self-regulation may weaken public environmental policy efforts (Mills, 2016). We call this the *antagonistic* perspective. Voluntary measures by the private sector may, from this viewpoint, serve to demonstrate to policy-makers and other stakeholders that government regulation is not necessary, and by making government regulation appear less beneficial and more costly than voluntary measures (Maxwell et al., 2000; Maxwell and Decker, 2006). Thus, the private sector may use voluntary measures to preempt government regulation (Lutz et al., 2000), for example by self-regulating to a margin where preferences of pivotal political actors (such as for instance one chamber of a bicameral parliament, or the median voter) will block attempts to enact more stringent government regulation (Baron, 2014).

Recent research, on which we build here, has examined how corporate self-regulation affects political pressure for government regulation via mass public opinion. According to this argument, citizens' evaluations of self-regulation matter because these evaluations are likely to influence policy-makers' preferences on whether to allow and/or accept private sector self-regulation (Kolcava et al., 2020; Malhotra et al., 2018). In the research presented here, we are particularly interested in how prior attitudes towards the private-public sector relationship in general influence policy preferences with respect to specific environmental policy challenges. Standard explanations of environmental policy preferences focus on general concern for the environment, norms and political ideology (Drews and van den Bergh, 2016; Harring and Jagers, 2013; McCright et al., 2014). However, they ignore the possibility that citizens' preference formation on who should provide an environmental public good – the government or the private sector – is likely to be influenced by views on how these two players interact. Hence, we argue that, in addition, perceptions of the relationship between the private sector and the government as *synergistic* or *antagonistic* are likely to influence environmental policy preferences with respect to voluntary corporate versus government regulation.

More specifically, we hypothesize that citizens with a *synergistic* perception of the interaction between the state and firms consider private sector self-regulation and government regulation as complements, rather than an either-or issue (Green, 2014; Verbruggen, 2013). That is, from that perspective, voluntary private sector initiatives and public environmental protection efforts are likely to strengthen each other. Either this might occur by means of systematic collaboration (e.g., institutionalized exchange of information) between private sector and government entities, or through a productive interaction, in which both act in a mutually reinforcing manner without explicit collaboration. An example for the latter type of interaction might be the process often referred to as 'ratcheting-up': Some firms may move first, acting in an environment-friendly manner in order to gain a competitive advantage (Denicolò, 2008), whereupon government regulation may follow as a

floor standard whose main purpose it is to ‘mop up’ with respect to environmental laggard firms. Therefore, viewed from the *synergistic* standpoint, public goods provision is achieved most effectively and efficiently when both actors are involved – the private sector potentially even taking the lead.

H1a. *Citizens who perceive the relationship between the private sector and the government as synergistic are more likely to support private sector self-regulation and, at the same time, not oppose government intervention with respect to specific environmental policy challenges.*

In contrast, citizens with an *antagonistic* perception of the interaction between the state and firms will tend to consider private sector-regulation and government regulation in specific environmental areas to follow a zero-sum logic. This zero-sum logic implies that more of one activity weakens the other. Thus, from an *antagonistic* viewpoint, an environmental public good is provided most effectively and efficiently when it is provided by only one of the two actor types. This perspective, hence, requires citizens to form preferences over which actor should provide the public good. Given there are two actors (firms and the government) in this system, this underlying zero-sum logic drives two versions of this argument.

First, the *antagonistic* perspective may align with free market positions on the one hand, from which government regulation is seen as a burden, because it might be overly rigid (Duit and Galaz, 2008; Stringham, 2015, p. 196). Consequently, it would not only hurt firms’ profits, it would also restrict the private sector’s innovative capacity to experiment with and learn about potential solutions to environmental problems (Matschoss and Repo, 2018). Citizens holding this perspective should, therefore, prefer firm-led environmental policy.

To the contrary, according to the second version of the *antagonistic* perspective, voluntary environmental action by firms is perceived to undermine (as outlined above), or at least dilute state-led environmental policy-making efforts (Kinderman, 2016; Malhotra et al., 2018; Vesa et al., 2020). Accordingly, citizens holding this perspective should prefer state-led environmental policy.

Despite going in opposite policy directions, given the same zero-sum logic of origin, those two perspectives have in common that they are likely to lead to preferences that lean *either* towards private sector voluntary measures *or* towards government regulation. We, thus, hypothesize that:

H1b. *Citizens who perceive the relationship between the private sector and the government as antagonistic are more likely to support either private sector self-regulation or government regulation with respect to specific environmental challenges.*

Moreover, we argue that citizens’ propensity to hold either a *synergistic* or *antagonistic* perspective results from citizens’ prior beliefs about the motivations of firms to engage in voluntary self-regulation. Specifically, we argue that citizens tend to believe either in an *automatic greening process* or a *reactive greening process* in firms’ business models. The belief in an *automatic* greening process involves a conviction that the inclusion of environmental aspects in a business model generates a competitive advantage (Endrikat et al., 2014), and that corporate self-regulation is an expression thereof. This intrinsic motivation of firms in turn implies that firms move in an environment-friendly direction on their own initiative and government regulation follows in terms of then setting floor standards. This presumption aligns this belief with the *synergistic* perspective (see above). At the same time though, the belief in an *automatic* greening process also aligns with one version of the *antagonistic* perspective, which holds that government regulation places a large burden on the private sector (Stöhr and Michel, 2015).

Conversely, the belief in a *reactive* greening process implies that private sector actors will reduce the environmental impact of their business only when societal or regulatory pressures become strong (Boiral and Heras-Saizarbitoria, 2017; Daudigeos et al., 2018). If, indeed, firms mainly responded to external motivations, corporate

environmentalism would be rather about appearance than about substance due to the absence of incentives that make firms *automatically* develop and adapt their business models in a pro-environmental way. Hence, the belief in a *reactive* greening process is likely to be associated with a conviction that firms are prone to engage in green window-dressing – presenting themselves as green without having the environmental record to back up their claims (Lyon and Montgomery, 2015). Based on these considerations, we hypothesize that:

H2. *Citizens who believe in an ‘automatic’ greening process of the private sector are more likely to perceive the relationship between the private sector and the government as synergistic.*

H3a. *Citizens who believe in an ‘automatic’ greening process are more likely to perceive the government as hindering the private sector in its environmental problem solving efforts.*

H3b. *Citizens who believe in a ‘reactive’ greening process are more likely to perceive the private sector as hindering the government in its environmental problem solving efforts.*

To summarize, we propose that citizens’ policy preferences on how green economy objectives should be reached in specific areas depend by the perceived relationship between the private sector and the government in general terms. We also argue that such perceptions of the state-private sector relationship are rooted in beliefs about why firms commit to environmental stewardship.

3. Study Design

Our empirical approach for assessing the above arguments is organized in two steps. We first conducted six focus group discussions with citizens, civil society representatives, and cantonal and municipal policy-makers in September and October 2018. The main benefit of these discussions was that they allowed us to explore, in a structured, but flexible and qualitative manner, how people form their views and preferences on why and how green economy objectives should be pursued (Davis, 2016; Whitmarsh and Corner, 2017). In a second step, we used these insights to design a survey, which was implemented with a much larger sample. We describe the procedure we implemented in the focus group discussions in Appendix Section A.

Since we are interested in assessing how citizens form their policy preferences with respect to green economy issues broadly defined¹, we focus on four environmental contexts that differ substantially on several dimensions, such as the maturity of current Swiss environmental policy, the saliency in public opinion, and the place within the supply chain where actual environmental problems occur most often – e.g., during the production process or after consumption. Specifically, the contexts we selected are: environmental impacts of peat consumption, plastic waste from packaging, climate(un)friendly pension fund investments, and environmental impacts of textiles (i.e., cotton clothing). As we do not enter the empirical analysis with ex ante theoretical expectations focused on implications of differences across environmental contexts, we leave the issue of how particular green economy issue characteristics might affect public opinion for future research (see Conclusion).

Nevertheless, for the purpose of our study, these environmental contexts share two important characteristics: First, Swiss economic activity and consumption strongly contribute to environmental problems associated with all four contexts (Dinkel et al., 2017; Ferré et al., 2019; Loetscher, 2017; Thomä et al., 2017). Second, all of the environmental contexts have increasingly featured prominently on policy-makers’ agendas in other European contexts as well (Birindelli et al., 2020; Buschmann et al., 2020; Dohmen, 2019; Leal Filho et al., 2019). Below we provide a brief summary

¹ In the focus group discussions, the selection of multiple, very different environmental contexts served the purpose of avoiding argumentation patterns in the discussion rounds to be dominated by opinions towards a particular issue.

of each of the four environmental issues in the Swiss context. The materials used for informing focus group participants (see Appendix Section A) provide further details on the environmental relevance of the four green economy contexts in the Swiss case.

Environmental impacts of peat consumption: Peat extraction has been banned in Switzerland since 1987. Nevertheless, peat is still widely used by both private households and commercial horticulturists in Switzerland as an additive to gardening soil. In 2016, the consumption of peat in Switzerland amounted to around 500,000 m³. These quantities have been imported from Eastern European countries (especially the Baltic states). In 2010, the Swiss parliament requested that the government propose measures to reduce or even ban peat use in Switzerland. In 2012, the government put forward a plan that relies largely on self-regulation by the private sector for the reduction of peat consumption (see e.g., Eymann et al., 2015).

Plastic waste from packaging: Swiss households generate large quantities of plastic waste, primarily from packaging – around 300,000 tons annually. However, Switzerland has a well-developed waste disposal system that relies primarily on waste incineration. 80% of Swiss plastic waste is currently incinerated in these facilities. As of now, there is no policy in place to restrict plastic packaging or banning single-use plastic items in Switzerland, nor is there a compulsory scheme to support recycling of plastic waste. Other European countries consider (or already have) implemented regulation for this purpose. In Switzerland, policy-makers are currently debating whether (and if so how) to achieve a reduction of plastic waste from packaging and single-use plastic items (see e.g., Dinkel et al., 2017).

Climate-(un)friendly pension fund investments: By signing the Paris Agreement, Switzerland has agreed to contribute to keeping global warming below 2 °C. One important aspect of the Paris agreement is the promotion of climate-friendly investment. In Switzerland, pension funds currently manage more than 900 billion Swiss francs (830 billion Euros). Although neighboring states (and the EU) are currently enacting sustainability-related regulation targeted at financial institutions (and pension funds in particular), federal authorities in Switzerland are hesitant to interfere with the investment practices of pension funds. Instead, the Swiss government currently aims at increasing climate-friendly investment through self-regulation by financial institutions (see e.g., Thomä et al., 2017).

Environmental impacts of textiles (cotton clothing): 75% of cotton worldwide is used for the production of clothing. The process from raw material to finished garment has various environmental impacts, mostly occurring in developing countries. Swiss consumption of clothing (including cotton clothing) has grown strongly in the last 15 years. Between 2004 and 2014, the per capita purchases of garments per year doubled, while the lifetime of the products halved. Currently, the average consumer in Europe (Switzerland included) buys 16 kg of clothing per year. In order to reduce the environmental impacts caused by Swiss consumption of cotton clothing, both international clothing retailers and Swiss clothing manufacturers are currently being encouraged to participate in roundtables with the Swiss Environment Agency (see e.g., Loetscher, 2017).

We fielded our original survey through Respondi's² commercial online panel from 23 July to 15 August 2019. A sample of 1677 Swiss citizens older than 18 (eligible to vote) was drawn from the panel. We implemented interlocked quotas on age and gender as well as a quota on education to make the sample representative of the Swiss voting population with respect to these criteria. Overall, the implementation of such a survey through a commercial online panel (instead of an address-based random sample drawn from official population registries) should allow for valid inferences about the subject population (Ansolahehere and Schaffner, 2014; Wang et al., 2015). Nevertheless, we assess the representativeness of the sample concerning a non-quota characteristic in Appendix Section B³. Moreover, Respondi did not have access to

participants' responses to our original survey, and we did not have access to participants' names and addresses – both of which jointly ascertain full respondent anonymity. We fielded the survey in German and French, Switzerland's two major languages. The survey was approved by ETH Zurich's Ethics Review Commission (decision EK 2019-N68).

The survey consisted of three parts. In the first and third part of the survey, we recorded socio-demographic information. In the second part, respondents were randomly assigned to one of the four environmental contexts. Respondents were given a short information text on that context (see Appendix Section C). These texts closely followed information publicly available on the website of the Swiss Federal Office for the Environment (FOEN). The intention was to contextualize the debate about corporate self-regulation or government regulation in the respective policy area. Participants had to pass a comprehension check before being forwarded to subsequent items.

We use three survey items for our principal outcome (dependent variable (policy preferences))⁴. The wordings of these three items differ slightly to fit the respective environmental context (see Appendix Section C). They consist of statements on which respondents were asked to indicate their agreement or disagreement on a 5-point scale. They were presented to participants in randomized order and captured support for governmental monitoring, command-and-control regulation, and self-regulation by the private sector in the respective environmental policy area (translation from German original for the context of peat consumption):

Support for monitoring of corporate behavior: *"The state should by law oblige all importers of peat to collect and publish detailed information on where the imported peat comes from and what it is used for in Switzerland."*

Support for command-and-control government regulation: *"The import and use of peat in Switzerland should be drastically reduced over the next few years through government regulation and should be banned from 2029."*

Support for private sector self-regulation: *"Voluntary measures are sufficient to solve the problem. There is no need for new government measures in this area."*

In the next part of the survey, we asked respondents to indicate their agreement or disagreement on a 5-point scale with regard to a battery of statements (presented one-by-one at a time, in randomized order, identical wording across contexts). These items aimed at eliciting perceptions of the state-private sector relationship on the one hand and recording beliefs about corporate motivations to commit to self-regulation on the other. As indicated earlier, we built on discussion patterns in the focus groups for the design of these survey items. The original German wordings are included in the replication materials. Below, we list translations thereof to English, and report the corresponding distributions of the responses in Appendix Table A.1. The two items measuring the perception of the state-private sector relationship as being *antagonistic* were the following:

"Government regulations prevent companies from developing their own solutions to environmental problems."

"The private sector prevents the state from solving environmental problems efficiently and effectively."

The item capturing perceptions of the state-private sector relationship as being *synergistic* was:

² www.respondi.com/EN/our-work

³ In Appendix Fig. A.1 we illustrate the representativeness of our sample based on information on the distribution of environmental concern in our sample and in a conventional random sample of the Swiss voting population.

⁴ We also recorded participants' self-stated intention to consume in a sustainable manner with regard to the environmental context they were assigned in the survey. This allowed us to spot potential differences in respondents' attitudes towards particular environmental topics (see Appendix Table A.1).

“The private sector and the state in Switzerland work together efficiently and effectively to solve environmental problems.”

We used two types of items to capture respondents' beliefs about private sector motivations to self-regulate. We recorded to what extent respondents thought of voluntary environmental measures by the private sector as being symptomatic of a *reactive* greening process i.e. a result of societal pressure, or a result of green window-dressing by firms:

“Firms reduce their impact on the environment especially when there is a lot of societal pressure.”

“Many firms do not commit themselves to voluntary pro-environmental measures by conviction. They do this only in order to be perceived as environmentally friendly by society.”

We also recorded whether respondents thought that those measures by the private sector were part of an *automatic* greening process i.e. a result of corporate competition for being sustainable, or a result of genuine corporate interest in protecting the environment.⁵

“Nowadays, firms can only be successful with their customers if they are environmentally friendly.”

“Voluntary measures show that Swiss firms attach great importance to protecting the environment at home and abroad.”

We proceed with the empirical analysis in two steps. First, the outcome variable Y_i captures respondents' policy preferences and the main independent variables X_i are the survey items measuring respondents' perceptions of the state-private sector relationship as *synergistic* or *antagonistic*. The stylized empirical model thus takes the following form:

$$\text{Policy Pref.}_i = \beta_1 \text{Relationship Perception}_i + \beta_2 C_i + U_i$$

Second, the outcome variable Y_i represents respondents' perceptions of the state-private sector relationship. The main independent variables of interest X_i in this second step are the survey items measuring respondents' beliefs about firms' motivations to self-regulate. This second step of the data analysis allows us to investigate what mechanisms (in the form of the above-mentioned beliefs) drive respondents' perceptions of the state-private sector relationship. Hence, the following stylized model:

$$\text{Relationship Perception}_i = \beta_1 \text{Belief Corporate Behavior}_i + \beta_2 C_i + U_i$$

We control for a vector C_i of socio-demographic and political variables⁶. In the following section, we report coefficients obtained by estimating a linear regression. Despite recent research suggesting the use thereof for the analysis of survey data (Norman, 2010; Wu and Leung, 2017), the optimal statistical method for the analysis of survey items (e. g., Likert scales) is contested (see e.g., Carifio and Perla, 2008). We, therefore, estimate an ordered logit model as well and report the results in Appendix Tables A.5 and A.6. We find that the two statistical approaches do not lead to differing conclusions concerning our hypotheses. Appendix Section D lists the software used in the analysis.

⁵ We also included an item to control for potential perceptions of government intervention as being too slow and inefficient to deal with environmental problems (see Appendix Section C).

⁶ These include respondents' gender, age group, education level, employment status, rural vs urban residency, language, self-placement on left-right scale, environmental concern, liberal attitudes, and the environmental context assigned in the survey. Appendix Section C summarizes the survey items used to measure environmental concern (Diekmann and Preisendörfer, 2003) and liberal attitudes (Bernauer et al., 2018).

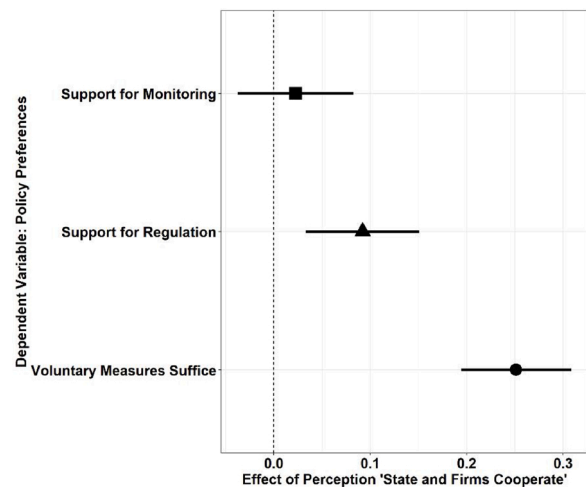


Fig. 1. Effect of perceived synergistic state-private sector relations on policy preferences measured by the outcome variables MONITORING (square, $N = 1161$), REGULATION (triangle, $N = 1160$), and VOLUNTARY MEASURES SUFFICE (circle, $N = 1158$). Responses on outcome variables were measured on a 5-point scale (5: ‘completely agree’; 1 ‘completely disagree’). Whiskers report 95% confidence intervals. The regression models include control variables. Full results are reported in Appendix Table A.2.

4. Results

4.1. How Perceived State-Private Sector Relations Affect Support for Regulatory Action

In Hypothesis *H1a* we propose that citizens who perceive the state-private sector relationship as *synergistic* are more likely to support private sector self-regulation while not opposing government regulation. In contrast, according to *H1b*, citizens who perceive the state-private sector relationship as *antagonistic* are more likely to support either private sector self-regulation or government regulation⁷. Thus, to test these hypotheses, we assess whether respondents' regulatory policy preferences are affected by their perception of the state-private sector relationship.

Fig. 1 depicts the estimated effects of a *synergistic* relationship (STATE AND FIRMS COOPERATE) on policy preferences⁸. The results show that the STATE AND FIRMS COOPERATE variable has no significant effect on support for MONITORING by the government. However, we find that it has a positive effect on support for REGULATION. This coefficient can be read as follows: If respondents increase their agreement with the STATE AND FIRMS COOPERATE statement by 1 step (on a 5-point scale), all else equal, they are more likely to agree by 0.09 (on a 5-point scale) that the Swiss government should enact new regulatory measures. This effect is not large but statistically significant⁹. Nonetheless, considering that this effect represents only one explanatory factor of policy preferences, and we control for influential respondent characteristics (amongst others, environmental concern, see below), we consider it still mentionable. At the same time, we find that an increase on the state and firms COOPERATE variable significantly increases the likelihood of a participant agreeing with the statement that voluntary measures SUFFICE by 0.25¹⁰, which is a substantially large effect.

⁷ We report the distributions of respondents' policy preferences in Appendix Figs. A.3 and A.4.

⁸ For comparison, we report the estimates for ENVIRONMENTAL CONCERN and LIBERAL ATTITUDES in Appendix Fig. A.5.

⁹ We consider significance at the 5% level as threshold to label coefficients ‘statistically significant’.

¹⁰ About one fifth of a standard deviation of the dependent variable.

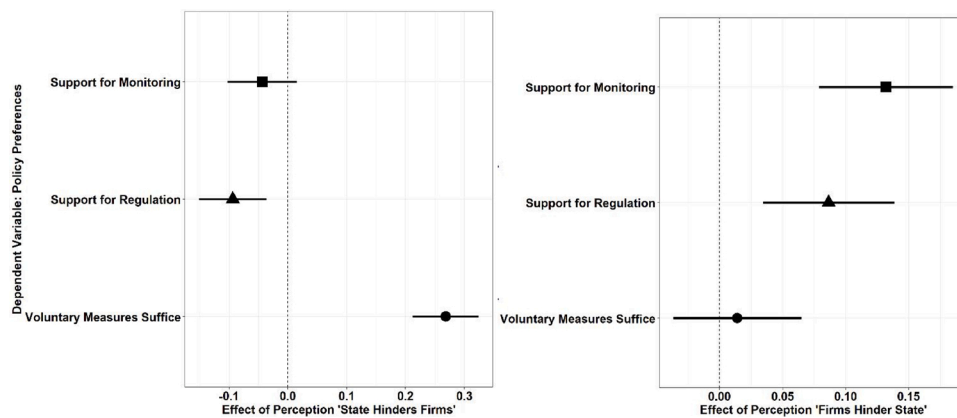


Fig. 2. Effect of perceived antagonistic (left panel: State Hinders Firms, right panel: Firms Hinder State) state-private sector relations on policy preferences measured by the outcome variables monitoring (squares, $N = 1161$), regulation (triangles, $N = 1160$), and voluntary measures suffice (circles, $N = 1158$). Responses on outcome variables were measured on a 5-point scale (5: 'completely agree'; 1 'completely disagree'). Whiskers report 95% confidence intervals. The regression models include control variables. Full results are reported in Appendix Table A.2.

In sum, the results illustrated by Fig. 1 show that citizens who perceive the relationship between the government and the private sector as *synergistic* express stronger support for private sector self-regulation, and to some extent also government regulation. One interpretation of the latter finding is that, in the eyes of some respondents, government regulation may follow private sector self-regulation to establish a floor standard. Either way, this finding lends support to *H1a*.

Fig. 2 reports the estimated effects of the perceived state-private sector relationship as *antagonistic* on policy preferences. In the left panel, we observe that the STATE HINDERS FIRMS variable has no significant effect on preferences for government MONITORING. However, it has a negative and, statistically significant effect of 0.09 on support for REGULATION. In addition, respondents who indicated that the STATE HINDERS FIRMS were significantly more likely to indicate that VOLUNTARY MEASURES SUFFICE. The corresponding coefficient amounts to 0.27 and is thus substantially large¹¹. Turning to the right panel of Fig. 2, a higher level of agreement with the statement that FIRMS HINDER THE STATE significantly increases support for both MONITORING (0.13) and REGULATION (0.09), which are not large but noteworthy effect sizes.

To summarize, concerning the perception that the relation between the government and the private sector is *antagonistic*, we observe that participants who believe that one of the actors obstructs the other in environmental policy-making prefer *either* government intervention *or* private sector self-regulation. This finding corroborates *H1b*.

As expected, we observe significant effects of some of our control variables in our tests of Hypotheses *H1a* and *H1b* (see Appendix Fig. A.5 and Appendix Table A.2). Specifically, we observe that environmental concern is positively associated with preferences in favor of government MONITORING and REGULATION and, at the same time, negatively associated with the statement that voluntary measures SUFFICE. The liberal attitudes variable has the opposite effect.

4.2. What Beliefs about Firms Drive Perceived State-Private Sector Relations

Given our findings above, we now look at why citizens might perceive the state-private sector relationship as *synergistic* or *antagonistic*. This relates to our argument that beliefs about the motivation of firms to commit to environmental self-regulation are a key mechanism in this regard. Hypothesis *H2* posits that citizens who perceive the relationship as *synergistic* are likely to do so because they believe in an *automatic* greening process. Similarly, in Hypothesis *H3a* we argue that citizens who perceive the government as hindering the private sector in environmental problem solving do so partly because they believe in an *automatic* greening process as well. If, in contrast, citizens perceive the

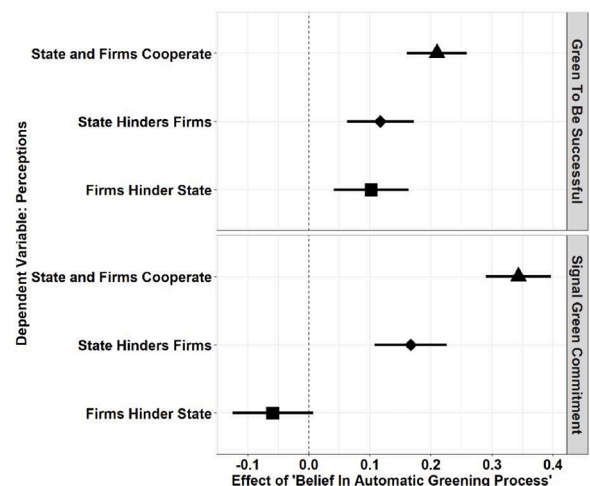


Fig. 3. Effect of belief in automatic greening process on perceived state-private sector relations measured by the outcome variables STATE AND FIRMS COOPERATE (triangles, $N = 1188$), STATE HINDERS FIRMS (diamonds, $N = 1188$), and FIRMS HINDER STATE (squares, $N = 1177$). Responses on outcome variables were measured on a 5-point scale (5: 'completely agree'; 1 'completely disagree'). Whiskers report 95% confidence intervals. The regression models include controls variables. Full results are reported in Appendix Table A.3.

private sector as hindering the government in environmental problem solving this may be rooted in a belief that greening processes are *reactive* (Hypothesis *H3b*).

To assess these arguments we estimate the effects of the above-mentioned beliefs on respondents' perceptions of the state-private sector relationship. The main results relating to the belief in an *automatic* greening process are depicted in Fig. 3, whereby GREEN TO BE SUCCESSFUL and GREEN COMMITMENT are the two indicators of main interest¹². We see that both variables, GREEN TO BE SUCCESSFUL (0.21) and SIGNAL GREEN COMMITMENT (0.34), have significant positive and substantially large effects on the perception that STATE AND FIRMS COOPERATE¹³. Since both of these variables measure the belief in an *automatic* greening process, this observation supports Hypothesis *H2*.

We now move to the tests of *H3a* and *H3b*. Hence, we are interested in the effects of respondents' beliefs about why firms engage in environmental self-regulation on perceptions of the state-private sector relationship as *antagonistic*. In Fig. 3, we observe that the perception that the state hinders firms variable is significantly influenced by beliefs in an

¹² For comparison, we report the estimates for ENVIRONMENTAL CONCERN and LIBERAL ATTITUDES in Appendix Fig. A.6.

¹³ About one quarter of a standard deviation of the dependent variable.

¹¹ About one quarter of a standard deviation of the dependent variable.

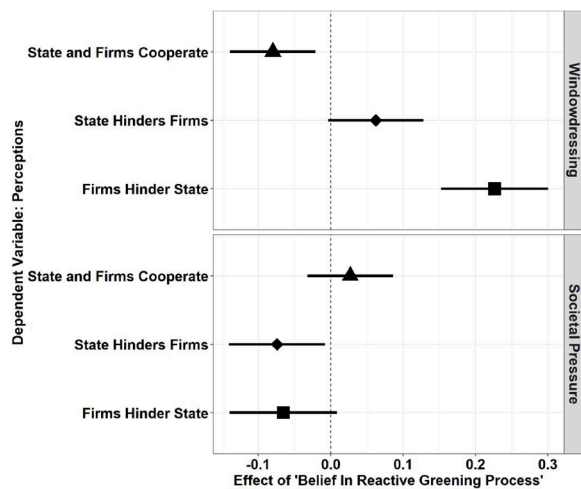


Fig. 4. Effect of belief in reactive greening process on perceived state-private sector relations measured by the outcome variables STATE AND FIRMS COOPERATE (triangles, $N = 1188$), STATE HINDERS FIRMS (diamonds, $N = 1188$), and FIRMS HINDER STATE (squares, $N = 1177$). Responses on outcome variables were measured on a 5-point scale (5: ‘completely agree’; 1 ‘completely disagree’). Whiskers report 95% confidence intervals. The regression models include controls variables. Full results are reported in Appendix Table A.3.

automatic greening process, i.e., by the green to be successful VARIABLE (increase by 0.12) and by the signal green COMMITMENT variable (increase by 0.17). These effects are rather substantial in size. In brief, the evidence reported in Fig. 3 corroborates Hypothesis H3a insofar as the perception that the state hinders FIRMS is positively associated with indicators capturing the belief in an *automatic* greening process.

Finally, Fig. 4 summarizes our findings concerning the belief in a *reactive* greening process. The corresponding two estimators are WINDDRESSING and SOCIETAL PRESSURE. We observe that the WINDDRESSING variable has a significant and substantial¹⁴ effect (increase by 0.23) on the perception that FIRMS HINDER THE STATE in environmental problem solving. Furthermore, the SOCIETAL PRESSURE variable is, on average, associated with lower levels (decrease by 0.07) of the perception that the STATE HINDERS FIRMS in environmental problem solving. This effect is rather small, but still statistically significant at the 5% level. The evidence shown in Fig. 4 leads to the following overall conclusions with respect to Hypothesis H3b. We find partial support for H3b, since the belief that firms engage in WINDDRESSING is an important determinant of the perception that FIRMS HINDER THE STATE. However, we do not find such evidence with regard to our second variable (SOCIETAL PRESSURE) measuring the belief in a *reactive* greening process.

As before, we observe significant effects of some of our control variables (see Appendix Fig. A.6 and Appendix Table A.3)¹⁵. Higher levels of environmental concern are associated with a weaker perception that state and firms COOPERATE. We also observe a positive effect of liberal attitudes on the perception that the state hinders FIRMS¹⁶. The results further suggest that respondents with higher levels of environmental concern and lower levels of liberal attitudes are more likely to agree with the statement that FIRMS HINDER THE state.

¹⁴ About one fifth of a standard deviation of the dependent variable.

¹⁵ We ran robustness checks including control variables measuring trust in political institutions and the private sector (see Appendix Table A.4). Overall, our coefficients turn out to be robust when trust measurements are included in the regression.

¹⁶ Moreover, respondents who believe that government REGULATION IS SLOW are more likely (increase by 0.19, significant at the 0.1% level) to think that the STATE HINDERS FIRMS (see Appendix Table A.3).

4.3. Differences between Environmental Contexts

In the following we explore differences in the results across the four environmental contexts¹⁷. To recall, we focused on four different environmental issues in order to gauge how generalizable our findings are in view of the considerable differences across these issue. We refrain from drawing strong conclusions based on the tendencies in the data reported below because we did not formulate theoretical expectations on differences across environmental issues. Also, given that each respondent was assigned to one environmental context only, the number of observations in subgroup analyses is small, which is why the models might lack statistical power to clearly differentiate responses. The results for environmental context subgroups are reported in Appendix Figs. A.7 to A.14. Overall, we do not find substantial differences between the subgroups concerning the effects of perceived state-private sector relations as *synergistic* or *antagonistic* on policy preferences (see Appendix Figs. A.7 to A.10). However, we observe the tendency that respondents' policy preferences are more strongly influenced by their perceptions of the relationship between the government and the private sector in the plastic and the clothing contexts, which we think are likely to be more publicly salient. Separating the analysis by environmental context does not meaningfully differentiate the results on how beliefs concerning the greening process of corporate business conduct affect perceived state-private sector relations. In tendency, the effects of the WINDDRESSING variable on perceived *antagonistic* state-private sector relations are slightly stronger in the clothing and peat contexts. In both these context, most environmental impacts materialize upstream, i.e., at the production end of the supply chain. We, hence, recommend future research in this direction.

5. Conclusion

In this paper, we contribute to an unresolved debate in the environmental policy literature focusing on how voluntary and state-led green economy measures relate (Delmas et al., 2019), and on whether voluntary measures enhance or weaken governmental environmental policy efforts (Malhotra et al., 2018). Public opinion plays a crucial role in this regard. Many studies have in fact shown that governmental policy choices tend to line up with prevailing policy preferences of citizens (the mass public) (Anderson et al., 2017; Burstein, 2003; Page and Shapiro, 1983). We thus examined the determinants of support (or opposition) with respect to voluntary green economy measures by the private sector and government regulation respectively. We did so with a particular focus on whether and why citizens' perceptions of the relationship between the government and the private sector influence their regulatory policy preferences.

We find that respondents who perceive the relationship between the private sector and the government as *synergistic* are more likely to support corporate self-regulation and, to some extent, ‘floor standard’ regulation by the government. In contrast, if respondents perceive the relationship between the private sector and the government as *antagonistic* (whereby, one actors obstructs the other), they are more likely to either only support firm-led environmental policy, or only support state-led environmental policy. Notably, these opposed outcomes of the *antagonistic* viewpoint are in line with the same proposition that an environmental good is provided most effectively if one of the two policy-making modes – voluntary firm-led or compulsory state-led – is assigned clear primacy.

Moreover, we provide evidence for two mechanisms that are likely drivers of citizens' perception of the relationship between the private sector and the government. Specifically, respondents who tend to

¹⁷ With the exception of controlling for the environmental context, this analysis is based on the same empirical model as the analysis reported in the main paper.

believe in an *automatic* greening process, whereby including environmental considerations in business models is a success factor for firms, and this intrinsic motivation pushes firms towards more sustainable business practices regardless of what the government does, are likely to perceive the firms-state relationship as *synergistic*. These respondents are also more likely to perceive the government as hindering the private sector in its environmental problem solving efforts – thus, subscribing to the first version of the *antagonistic* perspective. In contrast, citizens, who tend to believe in a *reactive* greening process, whereby firms are likely to engage in green window-dressing, and mainly reduce the environmental impacts of business conduct only in response to strong societal pressure, are likely to perceive the private sector as hindering the government in its environmental problem solving efforts – thus, subscribing to the second version of the *antagonistic* perspective.

These findings are of practical relevance to current green economy debates, as policy-makers in Europe and elsewhere are trying to find an appropriate balance between what is both politically feasible and effective in terms of reducing society's environmental footprint (Huber et al., 2020; Wicki et al., 2019). In particular, policy-makers are currently trying to implement green economy strategies that go beyond the 'either firms or the state' paradigm in regulatory environmental politics (Dauvergne, 2018). These new regulatory approaches – sometimes referred to as 'smart policy mixes' – rely to a much larger extent than traditional command-and-control regulation on cooperation between the private sector and government authorities (Schmid et al., 2019). That is, oftentimes these new policies build on self-regulatory measures by the private sector that are supported (e.g., through coordination by government agencies), but also constrained and monitored within state-set co-regulatory frameworks – i.e., institutional arrangements such as formal environmental reporting requirements for firms vis-à-vis public authorities (Héritier and Eckert, 2008; Provost, 2012).

Our findings speak to these recent developments in policy-making. Citizens who perceive the state-firm relationship as *synergistic* are likely to support these new modes of regulation. However, our results suggest that policy-makers seeking to combine voluntary private sector initiatives with government-led efforts should pay particular attention to those parts of the public viewing the private sector-government relationship as *antagonistic*. Those citizens might oppose and potentially even impede these recent advances in policy-making combining private and public regulation. This might run counter to environmental protection objectives, as some research suggests that these new regulatory approaches have in fact the potential to meaningfully contribute to environmental problem solving, because firms might command exclusive knowledge on specific environmental impacts of economic activity (Ren et al., 2018; Thorlakson et al., 2018).

In our analysis, whether citizens think that firms engage in green window-dressing has turned out to be a key driver of the perception of the state-firms relationship as *antagonistic*. Reducing the prevalence of this belief might thus be a potential lever to reduce skepticism towards firms and the state collaborating in environmental policy. This could e.g. be achieved by stricter monitoring and evaluation of corporate claims about voluntary environmental action, ambitious environmental target-setting, and provisions that allow public authorities to resort to more stringent regulatory measures in case corporate self-regulation does not lead to the desired outcomes. Even so, the belief that firms might engage in green window-dressing appears to be an aspect of public opinion that deserves further attention by research. For instance, it raises the question of how likely firms are going to be held accountable by changes in public opinion in favor of more mandatory state-led measures, if indeed insufficient environmental problem solving by firms – potentially, contrary to corporate claims – should be exposed. Survey-experimental research might provide further insights in this respect.

Survey-experimental evidence could also provide further insights into a few theoretical and empirical limitations of our study. First, even though our study provides a good starting point for probing deeper into the underlying mechanisms, citizens' policy preferences are recorded

from a bird's-eye view – i.e., with regard to general modes of environmental policy (firm-led vs. government-led). Hence, a more nuanced analysis of what particular combinations of voluntary corporate and government policies citizens prefer, and why, would be very useful – especially in the light of the above-mentioned recent developments in environmental policy. Second, like previous research in this realm, our study has focused for the most part on effectiveness-related aspects of private sector self-regulation (e.g., Barkemeyer et al., 2015). That is, we put much emphasis on the (perceived) capacity of the private sector to contribute to environmental problem solving. There are other aspects of the topic that should also be studied (Goulden et al., 2019). Again referring to the recent developments towards more inclusive, and somewhat more complex, modes of regulation: When political actors (e.g., parliament) cooperate and take regulatory decisions jointly with non-elected actors (e.g., firms, business associations, or civil society), this might introduce a democratic deficit into environmental policy-making (Klausen and Winsvold, 2019; Peeters and Müller, 2017). This might be the case as these complex decision-making structures may reduce the extent to which citizens can assign clear accountability for policy performance to elected politicians. We believe that our analysis of how citizens perceive the relationship between the private sector and the government is a step in that direction. But there is much room for further research on whether such a democratic deficit materializes from a public opinion perspective.

Finally, we studied public opinion in the context of four very different environmental contexts. Future research could more systematically assess how particular characteristics of environmental contexts – e.g., whether environmental problems materialize on the consumption or the production end of the supply chain – affect citizens' formation of environmental policy preferences.

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Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Supplementary Data

Supplementary material related to this article can be found, in the online version: <https://doi.org/10.1016/j.envsci.2020.09.013>.

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