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Does future implementation increase public support of a soil conservation tax?

Gilles Grolleau Supagro, UMR 1135 LAMETA, F-34060 Montpellier Burgundy School of Business – LESSAC, F-21000 Dijon grolleau@supagro.inra.fr

Naoufel Mzoughi (Corresponding author)¹ INRA, UR 767 Ecodéveloppement, F-84914 Avignon <u>nmzoughi@avignon.inra.fr</u>

Abstract: A recent behavioral economics literature argues that people are more likely to make "should" choices rather than "want" choices when the decision is scheduled in the future. We investigate this concern in the case of a soil conservation tax. Surveying both a convenience and randomly-selected samples of individuals in a French region suffering from soil degradation, we test whether the suggestion of a future implementation of a soil conservation tax increases public support, compared to an "as-soon-as-possible" implementation. Our results show that scheduling the implementation in the future does not matter, since the support of the considered tax is similar in both samples, regardless of the time perspective of its implementation.

Key-words: Future implementation, soil conservation, taxes, want/should conflict.

JEL codes: C90, Q28.

¹ Address: INRA Ecodéveloppement – CS 40509 – 84914 Avignon Cedex 9 – France. Tel: + 33432722594 – Fax: + 33432722562.

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1. Introduction

Behavioural economics has accumulated evidence showing that individuals exhibit present-biased preferences, notably captured by hyperbolic discounting models, which involve that valuations fall very rapidly for small delay periods, but then fall very slowly for longer delay periods (Frederick et al., 2002). The intra-subjective tension between the immediate and future selves is referred to as a "want/should" conflict (Bazerman et al., 1998; Milkman et al., 2008, 2009). While the "want" self focuses on the short-term pleasure (e.g., eating a cake, spending money), the "should" self represents an individual's long-term interests (e.g., physical exercise, money saving). An increasing number of studies report that people are considerably more likely to favor "want" options over "should" options when making immediate choices, compared to decisions that take effect in the future (Khan et al., 2005; Rogers and Bazerman, 2008; see Milkman et al., 2008 for a comprehensive review). Consequently, delayed or future implementation of a costly but virtuous and binding decision can nudge people in order to increase their support for the considered decision compared to a situation where the implementation is immediate or close.

From a theoretical viewpoint, the literature on intrapersonal conflict in decision making devotes a lot of attention to commitment devices, frequently illustrated by the metaphor of Odysseus tying himself to the mast of his ships in order not to succumb to the Sirens (Ashraf et al., 2006). In short, commitment devices constrain individuals from submitting themselves to temptations of the future "want" self. Several scholars showed that situational factors can influence "should" choices, independently of commitment devices (e.g., Ariely and Wertenbroch, 2002; Ashraf et al., 2006; Rogers and Bazerman, 2008). Among these contextual factors, temporal distance from an event is a convincing candidate. Given that perceptions of the near and distant future are different, modifying the temporal distance between a decision and the time its consequences are felt can increase "should" choices. Moreover, the construal level theory (Liberman and Trope, 1998) argues that the same entity can be construed at different levels of abstraction. It also suggests that varying the temporal distance from an event is a be construed at a high level (abstract, schematic, purpose focused qualities) while events in the near future are more likely to be construed at a low level (detailed, concrete and specific qualities) (Trope and Liberman, 2000; Kivetz and Tyler, 2007; Rogers and Bazerman, 2008).

Empirically, a relatively recent and limited literature (e.g., Rogers and Bazerman, 2008; Milkman et al., 2009, Breman, 2011) provides evidence supporting that individuals tend to think their future selves will behave more virtuously (by making "should" choices) than their present selves (by making

"want" choices). Using four survey experiments about a variety of domains (e.g., donations, physical exercise, money saving), Rogers and Bazerman (2008) found empirical evidence to the future lock-in effect, since individuals across the considered domains were significantly more likely to choose and support a "should" choice when its implementation is scheduled in the distant future, compared to near future. For instance, individuals in their first study were found more generous when donating future money versus present money. Milkman et al. (2009) also report on a field study demonstrating systematic differences between the preferences people anticipate they will have over a series of options in the future and their subsequent revealed preferences over those options. For example, they found that "should" DVDs (e.g., documentaries) are held significantly longer than "want" DVDs (e.g., action films) within customers and that people are more likely to rent DVDs in one order and return them in the reverse order when "should" DVDs are rented before "want" DVDs. In another contribution, Milkman et al. (2010) used data from an online grocery to explore the tendency of consumers to select "want" options (e.g., ice cream) in the short run but weigh towards "should" options (e.g. vegetables) when the impact will be felt in the future. They found that as the delay between order completion and delivery increases, consumers spend less, order a higher percentage of "should" items and order a lower percentage of "want" items. Moreover, using data from two field experiments about charitable giving, Breman (2011) proposed an innovative strategy called "Give More Tomorrow" and found that among donators who had agreed to increase their monthly donations, those who were asked to increase their donations in 2 months were willing to increase their monthly donations by 32% more than those who were asked to increase their donations in 1 month.

This note extends the above-mentioned literature to the environmental realm. Protecting the environment frequently involves tensions and tradeoffs between immediate (private) benefits and delayed (collective) ones. Individuals frequently agree they *should* adopt an environmentally friendly behavior but do not *want* to do it immediately because of monetary, behavioral, or other (present) costs. For example, using public transportations rather than personal cars is frequently perceived as a "should" choice, but it also means giving up convenience, making many people unwilling to do it immediately. Given that environmentally friendly decisions frequently reflect "should" choices, which are rather abstract, purpose-focused and superordinate, they are more attractive when construed at a higher level. Hence, using French survey data, we explore whether the support of an environmental policy, namely a soil conservation tax, is influenced or not by the temporal focus of its implementation. In other words, we examine whether public support of such a tax increases or not when a future implementation is suggested, compared to an "as-soon-as-possible" implementation. We selected the tax instrument because it is one of the most frequent prescriptions of economists to curb pollution. Taxes are price-based instruments that aim to raise the price of polluting the environment or exploiting a natural resource so that economic agents take it into account (Cropper and Oates, 1992).

From a welfare economics' viewpoint (Pigou, 1932), taxes are levied on polluters in order to correct the negative externalities due to their activities. In France, environmental taxes are mainly based on energy consumption, especially on fossil fuels and polluting activities. Despite some governmental intentions regarding the strategies to improve the environmental tax system,² green taxes represent only 4.9% of total taxes, which ranks France 26th out of 27 European countries.³ Interestingly, in 1982, Missouri was losing soil at a rate of 10.9 tons per acre each year on cultivated cropland and was ranked as the second highest rate of erosion in the USA. A tax was passed by Missouri voters in 1984 to fund state parks and soil and water conservation efforts. "Since 1982, Missouri's erosion rate dropped more than any other state. It is estimated that more than 148 million tons of soil have been saved since the start of the sales tax" (http://www.dnr.mo.gov/env/swcp/history.htm).

Moreover, the French committee for green taxes (*Comité pour la fiscalité Ecologique*) has recently proposed to rearrange local tax policies in order to curb soil artificialization.⁴ Unlike water and air, soil degradation in France and the European Union has not received the same level of attention in policymaking. Contrary to the United States, there is no global regulation devoted to soils at the French and European levels. The situation is different in the United States notably because of the lessons drawn from the Dust Bowl. Even if soil issues are addressed to some extent in regulatory texts related to other issues such as water, urbanism, and common agricultural policy, soil conservation per se is not at the core of these regulations. To fill this gap, the European Commission proposal for a Soil Framework Directive (COM(2006)) aiming at ensuring "an adequate level of protection for all soils in Europe" was until recently (i.e., May, 2014) under consideration. Among other goals, the proposal of the European Soil Framework Directive was to require from member states to list areas sensitive to various risks such as erosion, compaction or decrease of organic matter and to set objectives and adopt programs to reduce these risks. Nevertheless, the Soil Directive has been abandoned after several years of debate because of the opposition of some member states such as Austria, France, Germany and United Kingdom. In France, one of the main arguments of unions against this directive was the likelihood of increasing unnecessarily the bureaucratic burden (http://www.solenvie.com/directiveeuropeenne-protection-sols/).

Investigating the effect of an immediate versus future implementation of a soil conservation tax can usefully inform policymakers on how to improve policy framing by considering small, low-cost

² <u>http://www.developpement-durable.gouv.fr/Fiscalite-ecologique,12396.html</u>. Accessed December 19, 2014.

³ <u>http://www.alternatives-economiques.fr/fiscalite-verte--la-france-reste-a-la-traine_fr_art_633_48615.html</u>. Accessed December 19, 2014.

⁴ <u>http://www.actu-environnement.com/ae/news/sols-artificialisation-fiscalite-ecologique-taxe-amenagement-</u> versement-sous-densite-18186.php4. Accessed December 19, 2014.

interventions that could have first-order effects. Moreover, while the few available empirical studies have been conducted in the United States (e.g., Rogers and Bazerman, 2008), we survey individuals in a French metropolitan area, namely Montpellier (Southern France). Montpellier is the biggest city of the Region Languedoc Roussillon. In 2011, its population was 264,538 inhabitants; the average households' income around 20,752 €; and the unemployment rate about 20%.⁵ We chose this region because of its commitment to environmental issues. For instance, Montpellier received in 2011 the award for being both the French and European capital of biodiversity (http://www.montpellier.fr/3313biodiversite.htm). Moreover, the Languedoc Roussillon region suffered from dryness and flooding events during the last few years, partly due to relatively poor soil quality and a high level of concreting. This region is considered one of the most concerned French regions for erosion and is affected by an increase of built-up areas which is likely to affect soils' environmental functions, namely their role in extreme climatic events, such as flooding. These events received wide news coverage, especially in local media, likely to raise awareness among inhabitants.⁶ Even in the national media, the Languedoc Roussillon is considered the region with the most risky climate in France. For example, while the level of annual precipitations is the same in Montpellier and Paris, the number of raining days in the former is twice less.⁷

The remainder of this note is organized as follows. Section 2 presents the empirical strategy and main results. Section 3 concludes.

2. Immediate *versus* future implementation of a soil conservation tax: a quasi-experimental survey

2.1. Data and methods

In order to empirically investigate whether time implementation perspectives matter, we designed a short questionnaire regarding the willingness to support a soil conservation tax which would be implemented in order to ensure a soil sustainable management program. The survey was conducted in Montpellier (Southern France) in June and September 2012. We surveyed two samples of individuals: the first sample is a convenience one, composed of 58 students studying an economics course. The second one is composed of 185 randomly selected people met at a popular square of the city.

⁵ Further socio-demographic information and a map of Montpellier are available on <u>http://www.insee.fr/fr/themes/dossier_complet.asp?codgeo=COM-34172</u> (Accessed December 19, 2014).

⁶ See, for example, <u>http://www.herault-tribune.com/articles/6647/languedoc-roussillon-la-vitrine-de-vos-talents/</u> and <u>http://www.lemonde.fr/planete/article/2009/03/28/inventories-les-sols-francais-sont-dans-un-etat-mediocre-</u> <u>mais-pas-catastrophique 1173728_3244.html</u> (Accessed on March 8, 2013).

⁷ <u>http://www.lexpress.fr/region/entretien-laquo-le-languedoc-est-la-r-eacute-gion-la-plus-agrave-risques-de-france-raquo_476717.html</u> (Accessed December 19, 2014).

Noteworthy, some behavioral economics studies use convenience and student samples (Solnick and Hemenway, 1998; Grolleau et al., 2012; Exadaktylos et al., 2013) and suggest that such a choice does not skew results. For instance, investigating the importance of relative standings, Grolleau et al (2012) show that convenience and random samples yield very similar findings. Nevertheless, our experiment addresses a different question and our data material is small. So, we might have found significant differences between convenience and random samples if we had a larger sample size.

Some descriptive statistics about our samples are provided in Table 1. Except for gender distribution, the two samples are significantly different. Respondents in the convenience sample are younger and earn less than randomly-selected individuals. Before conducting the ultimate survey, we performed a pre-test of the questionnaire among a group of friends, colleagues, and family members. We gathered information regarding the understanding of soil quality dynamics, relevance of the proposed scenarios and so on. This step allowed us to improve the understanding and attractiveness of the questionnaire.

		Whole population (N=243)	Random (N=185)	Convenience (N=58)	Wilcoxon test
	Mean age	33 years	37 years	22 years	***
Gender -	Men	45%	44%	48%	ns
	Women	55%	56%	52%	ns
Income (/month)	<500€	37%	29%	65%	***
	Between 500 and 1000€	28%	28%	28%	ns
	Between 1000 and 1500€	17%	19%	7%	**
	More than 1500€	18%	24%	0%	***

Table 1: Some characteristics of our samples

The Wilcoxon test compares the random and convenience samples. (**) and (***) stand for parameter significance at the 5 and 1 percent level, respectively. (ns) stands for not significant.

We considered two treatments for each sample: one where the tax would be implemented as soon as possible (denoted *Present*) and another one where the tax would be implemented after two years (denoted *Future*). Our quasi-experimental methodology relies on the two following principles: (1) we described exactly the same environmental improvement and tax across treatments, and (2) changed as few words as possible between treatments. As a consequence, if the differences in time implementation have an impact on support, we can infer that deeper changes in the framing could have even greater impacts on behavior.

After briefly describing the importance of safeguarding soil quality by emphasizing the importance of soil services to human beings (a full version of the questionnaire is available in Appendix 1), the respondents were asked to answer the following question: "In order to promote sustainable management of soils, suppose that public authorities creat a tax of 40ϵ /person/year. This tax would be voted the next month and go into effect as soon as possible [in 2 years]. In other words, you would

start paying this tax as soon as possible after passing [after two years in the second treatment]. Choose the level which corresponds to your support of this measure, on a scale from 1 (no support at all) to 9 (strongly support)." The level of the tax policy has been discussed with experts of the European Common Agricultural Policy to reflect a realistic amount. We also followed the experimental procedure in Bulte et al. (2005) related to a hypothetical scenario presented with a cheap talk to avoid an overstatement regarding the support of the tax policy.

2.2. Results

The main results are reported in Table 2. We report the mean level of responses to the abovementioned question by type of sample and treatment. We also present results by gender.

	Ran	dom sample (N	N=185)	Convenience Sample (N=58)			
	Present	Future	Wilcoxon	Present	Future	Wilcoxon	
	(N=92)	(N=93)	test	(N=28)	(N=30)	test	
Mean response	4.63	4.74	ns	4.85	4.73	ns	
Mean response (men only)	4.66	4.34	ns	5.23	4.73	ns	
Mean response (women only)	4.60	5.12	ns	4.53	4.73	ns	

Table 2: Mean response by type of sample and treatment

The Wilcoxon test compares responses across the two treatments. (ns) stands for not significant.

In the two samples, people express an intermediate level of support for the instrument ranging from 4.63 to 4.85. Surprisingly, the results suggest that the hypothetical choice by surveyed people of an immediate *versus* future implementation of a soil conservation tax does not matter. In the two samples, there is no significant difference between the as-soon-as-possible and future implementation of the tax. Moreover, no gender effect has been detected between the two treatments.⁸ In short, even if the results do not show any effect of delaying the implementation, they also reveal that surveyed people are not too much tax-averse.

These results are only tentative and should not be over-interpreted. However, these findings raise questions about the applicability of future lock-in in various contexts. Several factors can explain why our results differ from those obtained by other scholars (e.g., Rogers and Bazerman, 2008). For instance, the environmental issue selected (soil *versus* fossil-fuel consumption, for example) or the time frame can play a role in explaining individuals' responses. People may feel more concerned at the

⁸ Our data do not allow us to perform a more rigorous econometric analysis, mainly due to the sample size and potential omitted variables bias. Nevertheless, we tested a logistic model of the effect of the treatment on the level of tax support, controlling for age, gender, income, and sample type. The results (not reported) show that the level of responses is not influenced by the suggested treatment, neither control variables. In other words, men and women surveyed in both samples behave the same with regards to their support of a soil conservation tax, regardless of their age and monthly income.

individual level by fossil fuel consumption than soil issues, especially at a short term horizon. In addition, our sample includes French inhabitants and may suggest cross-cultural differences regarding the effect of time framing. Yet it can be relevant to consider the interaction between the environmental issue (and even the specific policy instrument) and time horizon. Considering that the more distant the time perspective, the greater the preferences for identity versus instrumental benefits (Kivetz and Tyler, 2007), is the selected time horizon relevant to make people activate the idealistic rather than the pragmatic self for a specific environmental domain? Regarding soil issues in the examined area and at the survey time, what is a distant point of time: 6 months, 1 year, 2 years, or 5 years? Moreover, if an extreme event related to soil issues, such as flooding or dryness, is salient in the minds of surveyed people, the close *versus* distant frame can be different from what is expected and people may express similar preferences for a "should" choice, regardless of time. Moreover, the specific environmental policy considered in this paper may have limited the relevance of future implementation, compared to an immediate one. In other words, it is plausible that the time horizon may also interact with the way the policy instrument is construed (e.g., a tax versus ban).

3. Conclusion

Using a quasi-experimental survey among a sample of French individuals in the French Southern city *Montpellier*, we did not find empirical evidence for an effect of time framing (present *versus* future) on the support of the implementation of a soil conservation tax. Our findings are different from the results of previous studies (e.g., Rogers and Bazerman, 2008; Milkman et al., 2009). Hence, based on our survey results, one may conclude that policy-makers do not need to (strategically) use time perspectives in order to increase individuals' willingness to support an environmental tax. The willingness or not of individuals to pay taxes may be related to other factors, such as the potential of taxes to reach the claimed objectives, the way taxes are perceived (i.e., discriminatory or not), and the bureaucratic burden/transaction costs.⁹

A natural extension of our work has to consider the possible effect of time framing on the support of various instruments of environmental policy, such as command-and-control instruments. It would be also interesting to investigate the effect of time framing when the considered measure does not apply to the surveyed individuals (e.g., voters) but other entities (e.g., companies). A more thorough analysis is needed by comparing different time frames in various contexts and considering other environmental policies. The relevance of future implementation remains an under-researched area and requires more examination to usefully inform decision-makers. In other words, we believe that time framing can be a crucial dimension to nudge people in socially desirable directions and must not be neglected. Similarly, considering different environmental issues, other than soil conservation, may reveal

⁹ <u>http://www.shapingtomorrowsworld.org/greggTax.html</u> (Accessed December 19, 2014).

different behavioral patterns. Indeed, some environmental issues are closer to people than others and this feature can affect their reactions to time framing. In short, rather than providing clear cut conclusions, our contribution must be considered as an additional stone calling for more academic attention. Robust findings in this area can lead to practical and low-cost tips that can help policymakers to gain support for the policy or at least decrease reluctance.

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Appendix 1: Survey instrument (translated from French)

Changes among treatments (Present versus Future) are mentioned in bold.

Anonymous survey

(Please, answer the following questions as much precisely as possible. There is no right or wrong answer. Only your opinion matters.)

Soils, just like air and water, are an important environmental component. They play an important role in maintaining biodiversity and provide numerous useful services to society, such as water refining or carbon storage. In order to encourage a sustainable management of soils, notably through erosion and concreting control, and increase soil organic material, public authorities are considering the implementation of several measures. Nevertheless, such measures are costly.

Generally, surveyed people indicate more than what they are effectively willing to pay. When answering the question below, try to think if you would effectively pay the suggested amount, knowing that this money will not be available for other uses.

A. In order to promote sustainable management of soils, suppose that public authorities creat a tax of $40 \notin$ person/year. This tax would be voted the next month and go into effect as soon as possible [in 2 years]. In other words, you would start paying this tax as soon as possible after passing [after two years]. Choose the level which corresponds to your support of this measure, on a scale from 1 (no support at all) to 9 (strongly support).

1	2	3	4	5	6	7	8	9
No support at all Strongly support							Strongly support	

B. Give the answers corresponding to your situation:

1 Age · vears	3. Monthly net income:				
yours	a)	Less than 500€	□ c) Between 1000 € and 150	0€□	
2. Gender : Man 🗆 Woman 🗆		Between 500 € and 1000 €	€ □ d) More than 1500 €		

C. Comments:

Thanks for your participation