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"Not on my plate! Using mental accounting to promote meat substitutes"

Henrik Andersson and Benjamin Ouvrard

Toulouse School of Economics

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Henrik Andersson[1] and Benjamin Ouvrard*[2,3]

[1]Toulouse School of Economics, University of Toulouse Capitole, Toulouse, France, Email: henrik.andersson@tse-fr.eu

[2]Univ Lyon, CNRS, LAET, F-69007, Lyon, France

[3]Université Grenoble Alpes, INRAE, UMR GAEL, 38000 Grenoble, France, Email: benjamin.ouvrard@inrae.fr

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Abstract

We implement an online survey on a sample of 1,088 French respondents to assess their willingness-to-pay (WTP) for meat substitutes and to test the effectiveness of informational treatments aimed at encouraging a switch to these substitutes. Using insights from the mental accounting theory, our treatments inform respondents about the carbon content of the different alternatives. We show that there is no significant difference in the WTP between the veggie and meat-like alternatives, both exceeding the WTP for cultured meat. Second, we detect weak and heterogeneous effects of our informational treatments. Third, our study emphasizes the need for careful consideration in study design, as certain results appeared to challenge the independence of irrelevant alternatives principle.

Keywords: Externalities; Meat substitutes; Mental accounting; Willingness-to-pay

JEL codes: C99; Q18; Q51

*Corresponding author

1 Introduction

It is now widely recognized that both meat production and consumption of meat cause negative environmental effects and health problems (e.g., Godfray et al. 2018, Bonnet et al. 2020). Regarding health, negative issues appear both at the production and consumption levels: emergence of infectious diseases (Espinosa et al. 2020), increased risk of cancers and cardiovascular diseases (e.g., Bouvard et al. 2015, Norat et al. 2015), etc. Concerning the environment, meat production generates substantial GHG emissions (Steinfeld et al. 2006, Fiala 2008, Poore & Nemecek 2018)[1], requires a large amount of land and water (Bonnet et al. 2020), which leads, in turn, to biodiversity losses (Funke et al. 2021). Reduction in meat production and consumption can be an effective way of tackling these issues.

On the demand side, one classic solution in economics to deal with externalities is to implement a tax. However, several empirical studies have demonstrated that carbon taxes implemented to reduce meat consumption might not be an effective solution (see e.g., Bonnet et al. 2018). One reason for this lack of effectiveness is due to consumers' (food) habits that are difficult to change (Bonnet et al. 2018). In addition, relying on simulations of the effects of a tax on animal-based food products, Caillavet et al. (2016) show that although the tax can lead to reductions of CO_2 emissions, it is, however, regressive. Finally, Bonnet et al. (2020) highlight that even if such a carbon tax implemented on food products was implemented with a revenue-neutral perspective, i.e., subsidizing food products with a low carbon footprint, it could have a negative effect on health as some sugary products would be subsidized. This potential lack of effectiveness has led some researchers to turn to nudges as an alternative (see Caputo & Just 2022 for a discussion on food policies).

Alternatively, another solution is on the supply side with the production of greener alternatives, i.e., meat substitutes in our case, which generate less GHG emissions and require less land and water to be produced (Lusk et al. 2022). There are currently three types of meat alternatives (Carlsson, Kataria & Lampi 2022*a*, Treich 2021, Espinosa & Treich 2023): first, veggie ones, which are made with vegetables (corn, zucchini, etc.) and that differ from conventional meat in texture and taste; second, meat-like alternatives, that are made with vegetables and oil, but are more similar to conventional meat in terms of texture and taste; and, third, cultured meat, that is produced from animals' cells and that is very similar in texture and taste to conventional meat.

However, what is the general public's acceptability for these meat alternatives? This is

[1] According to Steinfeld et al. (2006), meat production is responsible for between 15% and 24% of greenhouse gas emissions.

the question that we want to answer in this study relying on a panel of French respondents, with two objectives in mind. First, we want to estimate the WTP for meat substitutes, which we consider as a measure of preferences for, or acceptability of, such alternatives to meat. A better understanding of people's preferences for alternatives to meat is important from a public policy perspective, but also for the introduction of new products such as cultured meat (Espinosa & Treich 2023). Our experimental design follows Carlsson, Kataria & Lampi (2022*a*), but we have extended their design allowing for how WTP for cultured meat compares to the one for other meat substitutes. Our objective with this extension is to examine to what extent the WTP of the respondents for cultured meat depends on the reference alternative.

Next, knowing that some respondents may be reluctant to switch to meat substitutes (Carlsson, Kataria & Lampi 2022*a*,*b*, Espinosa & Treich 2023), our second objective is to test whether a nudge based on the disclosure of some information can increase the WTP of the respondents for meat substitutes. Recently, Bazoche et al. (2023) considered informing the respondents about the negative environmental or health consequences related to meat consumption. Their main conclusion is that such information is likely to be insufficient in the short term to make respondents adopt meat substitutes. We therefore adopt a different strategy to provide the respondents with a carbon footprint due to their own choices of food consumption. Specifically, we provide the treated respondents with some information regarding the current French average carbon footprint due to food consumption (per individual), and express the carbon footprint of the different available burgers as a proportion of that average. The objective is to make respondents aware of the carbon footprint due to their own choices of food consumption.

Our approach is based on the mental accounting theory (Thaler 1985, 1999), according to which agents mentally organize and track the resources they use (e.g., Zhang & Sussman 2018). More precisely, agents mentally hold different types of account (for food, clothes, etc.) and, contrary to what is prescribed by the economic principle of fungibility, elements allocated to one "mental" account cannot be transferred to another (Hahnel et al. 2020). From an empirical point of view, several works have shown that economic agents do hold such mental accounts regarding the management of money (e.g., Heath & Soll 1996, Antonides et al. 2011), of their time (e.g., Rajagopal & Rha 2009), or their food consumption (e.g., Cheema & Soman 2008, Krishnamurthy & Prokopec 2010). As later explained in the article, we provide information in two different ways. We, therefore, expect the treated respondents to less often choose beef burgers as their carbon footprint is the highest.

Our study first contributes to the growing literature on the elicitation of WTP for

meat substitutes (e.g., Asioli et al. 2021, Carlsson, Kataria & Lampi 2022*a*, Espinosa & Treich 2023, Van Loo et al. 2020). Although Asioli et al. (2021) conclude that consumers have a preference for chicken meat over cultured meat, and that they prefer the term "cultured" over "lab-grown" and "artifical", Espinosa & Treich (2023) show that, in their study on French students, 20% of them would never buy the cultured foie-gras product. Second, it contributes to the literature that assesses the effect of providing (health and/or environmental) information to consumers to alter their food choices towards greener ones (e.g., Castellari et al. 2019, Van Loo et al. 2020, Carlsson, Kataria & Lampi 2022*b*, Carlsson, Kataria, Lampi, Nyberg & Sterner 2022, Bazoche et al. 2023). We differ from these studies proposing an original approach based on the mental accounting theory, which has been proven to hold regarding economic agents' spending, but that has not been tested to give incentives to individuals to consume differently.

Our first result is to show that price is the main determinant of respondents' choice, as in Carlsson, Kataria & Lampi (2022*a*). Besides, the respondents' WTP do not differ between the veggie and meat-like alternatives, and is higher for these than for the cultured meat one. Second, we detect weak and heterogeneous effects of our informational treatments, with the negative mental accounting treatment triggering the strongest effects. As a piece of explanation, we hypothesize the existence of food habits (see e.g., Aasen et al. 2024). Third, the analysis of the WTP for cultured meat when we vary the proposed alternative highlights that more care should be given to the design of studies on the WTP for meat substitutes, as the results depend on the proposed alternatives, therefore violating the independence of irrelevant alternatives principle.

The remainder of this article is organized as follows. Section 2 presents the design of our study. We then present our data in Section 3. In Section 4, we detail our results, while in Section 5 we discuss them and provide some policy implications.

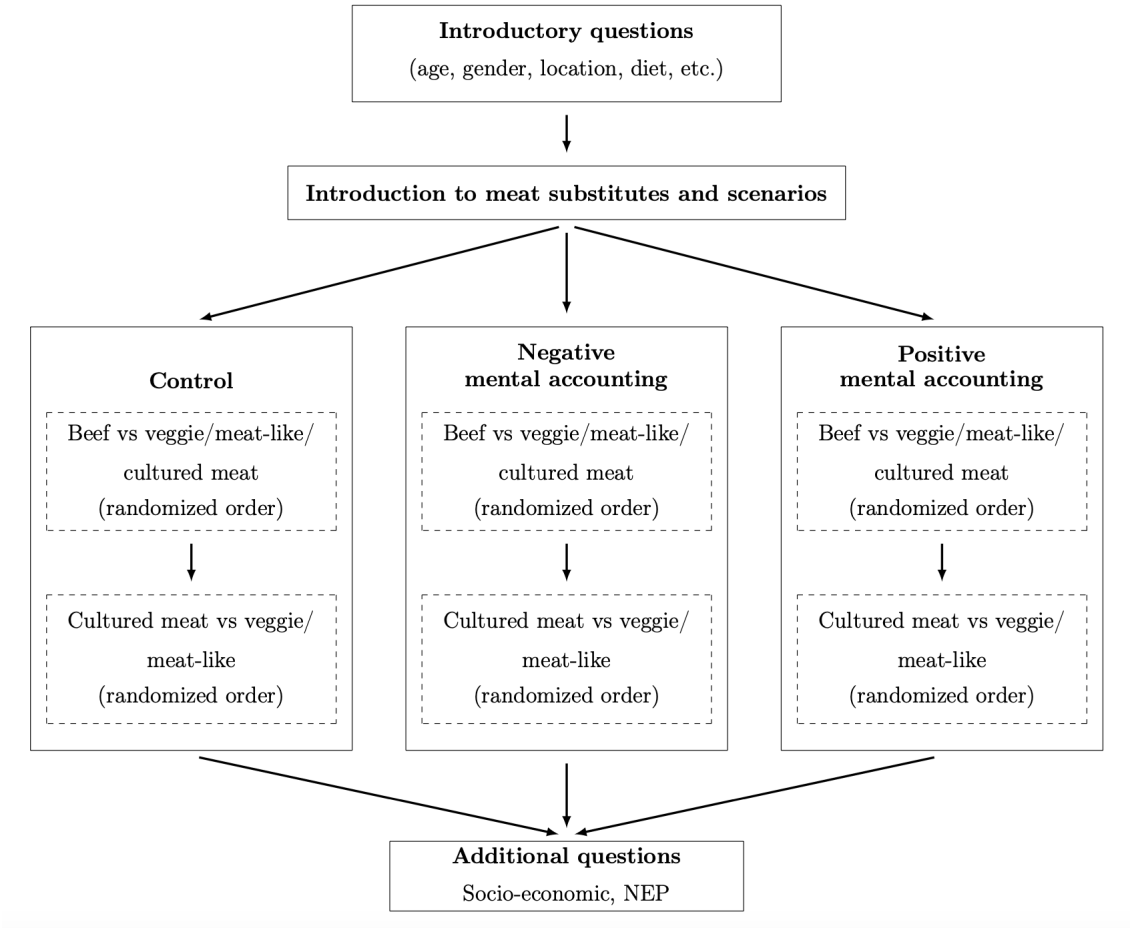
2 Survey design

2.1 General structure

Our survey is constructed out of three blocks and is summarized in Figure 1. The first block contains introductory questions (age, gender, location, etc.), as well as a question on diet. Respondents who indicated following a vegetarian or vegan diet could not go further and were thanked for their participation. In the second block of questions, we elicit respondents' WTP for meat substitutes. We first present the different alternatives to meat-based hamburgers (veggie, meat-like and cultured meat) to the respondents and,

then, explain to them that they will have to make five different pairwise choices (see Section 2.2). The treatments we consider are presented in Section 2.3. In the third block of questions, we ask questions on past experiences with veggie and/or meat-like substitutes, on food habits, political orientation, openness, and environmental preferences (see Section 2.4).

Figure 1: Survey structure



2.2 Willingness-to-pay questions

We elicit respondents' WTP for meat substitutes in the second block. Similarly to Carlsson, Kataria & Lampi (2022*a*), we tell the respondents to consider that they are in a restaurant and that they have to choose between two types of hamburger, both priced at €15.[2] Once they have chosen their preferred alternative, we ask them the price at which they would choose the alternative. The price list goes from €14.5 to €0, with €0.5 intervals. The respondents can also state that they would never choose the alternative

[2]For the sake of comparison, we choose the same price level (converted into euros) as Carlsson, Kataria & Lampi (2022*a*), which is also in line with the market price (in restaurants) in our French context.

burger. See Appendix A for the description of meat substitutes and an example of the WTP question.

We propose several extensions to the design of Carlsson, Kataria & Lampi. First, following Johnston et al. (2017), we precise in the introduction that the respondents' opinion is of particular importance and could inform policymakers for future decisions (to improve political consequentiality). Second, instead of considering three pairwise choices between a meat burger and one of the three substitute alternatives, we consider two additional pair-wise choices: i) between a veggie burger and a cultured-meat burger, and ii) between a meat-like burger and a cultured-meat burger. With these two additional situations, we aim to assess whether the WTP for cultured-meat depends on the type of alternative that is offered to the respondents. To be able to compare our results to those in Carlsson, Kataria & Lampi (2022*a*), respondents start with the same three situations (see Figure 1) and, then, they answer our two additional situations. Third, we control for order effects randomizing the pairwise choices. More precisely, in the first series of three pairwise choices, the respondents choose between a meat burger and one of the three substitute alternatives (presented in a random order). Then, in the second series of choices, the two situations are also presented in a random order.

As explained previously, recent evidence in the literature has emphasized that meat substitutes can trigger strong protest from some individuals, who would not consider buying them even if they would be offered at zero price (Asioli et al. 2021, Carlsson, Kataria & Lampi 2022*a*, Espinosa & Treich 2023). Our first hypothesis is:

H1: A non-zero proportion of respondents rejects meat alternatives even if they are offered at zero price.

Next, based on this literature and, in particular, the recent evidence provided by Carlsson, Kataria & Lampi (2022*a*) and Espinosa & Treich (2023), we expect respondents to be willing to pay more for veggie or meat-like burgers than for cultured meat ones. Our second hypothesis is:

H2: The WTP differ between burgers and, precisely, we expect that:

$$WTP_B > WTP_V \simeq WTP_{ML} > WTP_C$$

WTP_B, WTP_V, WTP_{ML} and WTP_C being respondents' WTP for, respectively, the beef burger, the veggie one, the meat-like one and the cultured meat one.

2.3 Treatments

The other contribution of our approach is that we implement treatments to assess whether it is possible to push respondents to more often choose meat-substitutes. We, therefore, in addition to a control group, implement two treatments with different disclosures of information about the carbon footprint of meat consumption based on mental accounting. Hence, our objective with these treatments is to make respondents track their carbon emission, along the lines of the mental accounting literature (e.g., Thaler 1985, Thaler 1999). To this end, we inform them about the carbon footprint of each alternative, in relation to the daily average amount of carbon emissions by French people due to food consumption.[3] The information used was based on official statistics, and the respondents were given the source of the information. In European countries, consumers are highly supportive of the information about the carbon footprint of products (Deconinck et al. 2023).

Both treatments are illustrated in Figure 2 and the first version of our treatments, that we call *Negative mental accounting*, presents to respondents the share of carbon footprint that results from their choice of meat. Since respondents are informed about the carbon footprint that is emitted from different food choices we have defined it as negatively framed. The second treatment, that we call *Positive mental accounting*, provided the same information as the *Negative mental accounting* treatment. However, instead of being framed as the amount of emissions resulting from the choices made, it is framed as how much more emissions are feasible given a specific choice. That is, with this treatment we inform respondents about the share of carbon footprint they can emit, in relation to the average daily amount of carbon footprint by French people, after having consumed the meat they have chosen. Hence, compared to the previous treatment we define this treatment as positively framed since we inform respondents about what they can do, instead of the effect of a choice.

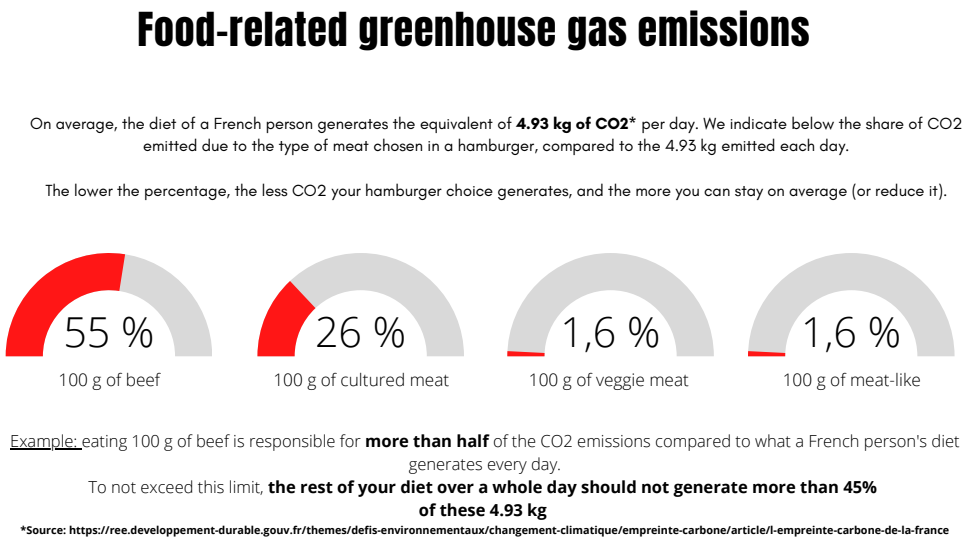
To make the information provided more salient, it was decided to color the percentages in red in the *negative* treatment, and in green in the *positive* treatment. We are aware that this does risk confounding a pure information effect by a color effect. However, for

[3] As of 2020, the estimated carbon footprint was 8.2 ton of CO_2eq per person, and the share related to food consumption was 22% (see https://www.statistiques.developpement-durable.gouv.fr/estimation-de-lempreinte-carbone-de-1995-2020). We used the EWG database to compute the carbon footprint of beef meat (see https://www.ewg.org). We used data from ADEME to compute the carbon footprint for meat-like and veggie burgers (see https://bilans-ges.ademe.fr). For the carbon footprint of cultured meat, we used the average of the estimates proposed in Lynch & Pierrehumbert (2019), which range between 1.69 and 25kg of CO_2eq/kg of cultured meat. There is no consensus yet on the exact carbon footprint related to cultured meat, hence our choice to consider the average of the estimates that currently exist in the scientific literature. Deconinck et al. (2023) discuss the issue related to the lack of consensus on the carbon footprint of some products in the agri-food supply chains

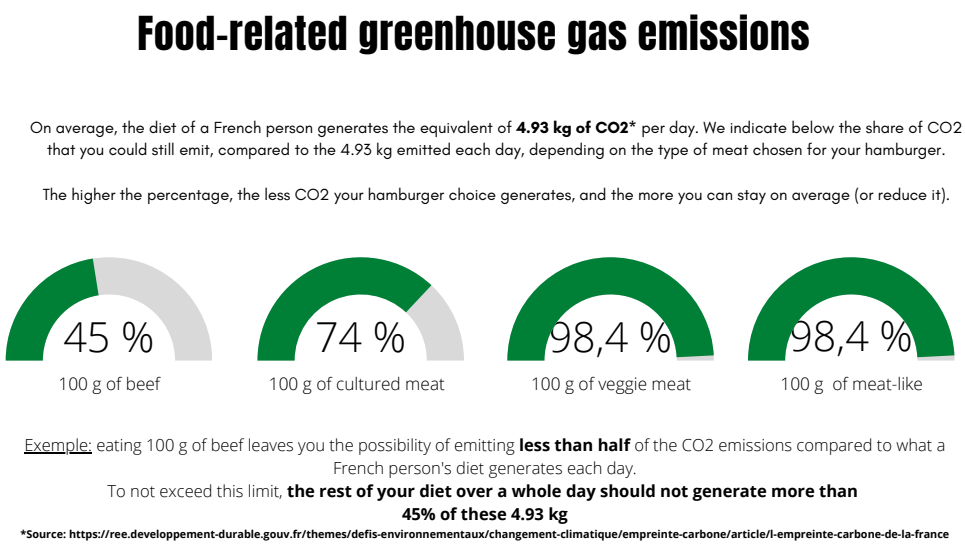
the objective of examining mental accounting through the treatments, we are interested in the combined effect and not a specific information, or color, effect.

Figure 2: Treatments implemented in the survey

(a) Negative Mental Accounting



(b) Positive Mental Accounting



The treatments are implemented as follows. First, the respondents indicate their preference for a beef burger or the meat-alternative that is proposed. Second, the information illustrated in Fig. 2 appears on a new screen. Then, on the next screen, we ask respondents how much cheaper the substitute has to be for them to switch. Respondents are randomly assigned to one of the two treatments or to the control group, and participate in one treatment only.

We expect that through the recognition of the high carbon content of beef burgers, respondents will choose meat substitutes at a price of €15, or accept them (after choosing

the beef burger) at a higher price than in the control group. Our next hypothesis is therefore:

H3: Treated respondents are more likely to adopt meat substitutes, leading to a higher WTP for meat substitutes:

$$WTP_{S^1} > WTP_{S^0}$$

with WTP_{S^1} the respondents' WTP for meat-substitutes (veggie, meat-like or cultured meat burger) when they are treated (with the *Positive* or *Negative* treatment), and WTP_{S^0} the respondents' WTP for meat-substitutes in the control group.

Our next hypothesis is related to the use of positive and negative framing. Since the work of Kahneman & Tversky (1979) on prospect theory, there are large evidence in the literature that individuals do not behave the same when information is presented negatively (in terms of losses) or positively (in terms of gains) (see, e.g., De Dreu et al. 1994, De Dreu 1996). Among the reasons explaining this difference, it has been argued that under the loss framing subjects more seriously consider their payoff (De Dreu et al. 1994), and that the loss framing increases subjects' attention (Baumeister et al. 2001, Yechiam & Hochman 2013). Our fourth hypothesis is therefore:

H4: Treated respondents with the *Negative mental accounting* treatment are more likely to adopt meat substitutes than those treated with the *Positive mental accounting*, leading to a higher WTP for those treated with the *Negative mental accounting* treatment:

$$WTP_{S^1|Neg.} > WTP_{S^1|Pos.}$$

with $WTP_{S^1|Neg.}$ and $WTP_{S^1|Pos.}$ the WTP for meat-substitutes when being treated with the *Negative mental accounting* and the *Positive mental accounting* treatments, respectively.

2.4 Environmental preferences

To gain further understanding of respondents' decisions to choose one of the proposed meat-substitute burgers, we include in the last part of the survey a set of attitudinal questions to measure respondents' environmental preferences.

In the literature, it has been shown that environmental concern influences the adoption of several pro-environmental behaviors: the adoption of smart home objects (Schill et al. 2019), of organic food (Grunert & Juhl 1995, Panzone et al. 2016), of eco-friendly driving

behavior (Delhomme et al. 2013), etc. Moreover, and in line with studies that test non-monetary incentives, My & Ouvrard (2019) and Lazaric & Toumi (2022) showed that the individuals most concerned about the environment are also those on which the effects of the examined incentives were the strongest.

In our case, environmental preferences are measured using the New Environmental Paradigm (NEP) questionnaire (Dunlap et al. 2000), a survey with 15 questions that present a high internal reliability and that is often used both in psychology and economics (see e.g., van Dam & van Trijp 2011, Lazaric & Toumi 2022). The questionnaire is available in Appendix B. Our last hypothesis, therefore, is based on the existence of treatment heterogeneity focusing on environmental concern:

H5: Compared to respondents with a low NEP score, those with a high NEP score treated with the mental accounting treatments are willing to pay more for the meat-substitutes.

3 Data

Before data collection, we obtained approval from TSE's Institutional Review Board (in January 2022), and we pre-registered the survey on the American Economic Association RCT Registry's website (AEARCTR-0008752). The survey was implemented in January-February 2022 by the survey company Enov.[4]

A total of 1,220 respondents completed the survey. To control for data quality, we implemented the trap question from Douenne & Fabre (2020).[5] We removed 132 respondents who did not satisfy this attention check. Our final sample therefore comprises 1,088 respondents.

The main characteristics of our respondents are described in Table 1. We reject that our sample is representative of the French population in terms of income and education. However, conducting balancing tests between our different treatments, we do not detect any significant differences regarding respondents' age, gender, type of employment, income and location.

To compute the NEP score, we have recoded the respondents' responses from 1 ("Strongly disagree") to 5 ("Strongly agree") for pro-environmental behaviors, and in the opposite way for anti-environmental behaviors. Then we computed a total score per respondent (which therefore ranges between 15 and 75 since there are 15 questions). The Cronbach's alpha considering the full sample is 0.84, thus suggesting that the internal

[4] https://enov.fr

[5] Respondents were asked, near the end of the survey: "Please select "A little" . [List of answers: Not at all; A little; A lot; Completely; PNR (Don't know, don't say)]".

reliability of the NEP scale is consistent. Finally, we do not detect any significant differences in the average total scores between treatments. In the rest of the analysis, we consider that a respondent has strong environmental preferences (*NEP High*) if his/her total score is higher than the average total score of the full sample (54.91).

Table 1: Descriptive statistics and comparison with the French population

Variable	All	France	Test (All vs France)	Control	Neg. MA	Pos. MA	Test (between treatments)
Age[a]	48.70	49.45	T-test $p\text{-value} = 0.133$	48.61	48.69	48.81	Kruskal-Wallis test $p\text{-value} = 0.990$
Gender							
Female	54%	51.6%	Prop. test $p\text{-value} = 0.064$	55.10%	54.19%	53.95%	χ^2 test $p\text{-value} = 0.948$
University diploma[b]	53.40%	41.50%	Prop. test $p\text{-value} = <0.01$	53.72%	50.84%	55.59%	χ^2 test $p\text{-value} = 0.435$
Income[c,d]	3018.38	2518	T-test $p\text{-value} < 0.01$	3002.28	2927.68	3122.77	Kruskal-Wallis test $p\text{-value} = 0.143$
NEP score	54.91			54.74	54.67	55.31	Kruskal-Wallis test $p\text{-value} = 0.416$
Eat more meat than average[e]	22.06%			22.59%	21.79%	21.80%	χ^2 test $p\text{-value} = 0.956$
Observations	1,088			363	358	367	

[a] See: https://www.insee.fr/fr/statistiques/6688661?sommaire=6686521. French average based on age interval 18 to 86 years old, corresponding to the age interval in our sample.
[b] See Insee
[c] https://www.insee.fr/fr/statistiques/6436313
[d] See Insee
[e] We consider an average consumption of butcher's meat, poultry or game other than cold meats of four times a week (see https://www.credoc.fr/publications/les-nouvelles-generations-transforment-la-consommation-de-viande).

4 Results

4.1 General results

4.1.1 Choice of meat substitutes at a zero price

To test **H1**, we assess whether or not a non-zero proportion of respondents chooses a beef burger even when meat substitutes are offered for free. In Table 2, we summarize the choices of the respondents in the control and treatment groups, as well as their WTP for meat substitutes.

We first focus on the control group. We observe that most of the respondents choose the beef burger when the price is €15: 83% of them choose it when the substitute is the veggie burger or the meat-like, and 87% of them when it is cultured meat. Moreover, 30% of the respondents would not choose the cultured meat burger even if it was free, while it is the case of 21% of those being proposed the veggie burger, and 24% for those being proposed the meat-like burger. Overall, these shares are significantly higher than zero (signed-rank test, *p-value* < 0.01 for all meat substitutes).

Turning to the two treatments, we achieve the same conclusion: a non-zero proportion of respondents would not choose the meat substitutes even if they would be offered for free. In addition, none of the mental accounting treatments affects these shares.

Given that subjects receive the treatment for the first time after having answered whether they prefer the beef or the meat-substitute burger, and before expressing how much cheaper the alternative should be to accept to switch, we also control if the share of respondents choosing beef before seeing the treatment is the same between treatments. We do not detect any significant difference.[6] This is therefore an additional indication that our respondents are, *a priori*, the same between treatments as we do not detect significant deviations in their behavior before being treated.

This leads to our first result:

Result H1: We find evidence for "protesters" among respondents. These respondents would choose the meat burger even if the meat-substitutes were free.

[6]Conducting χ^2 tests to detect significant differences between treatments regarding the shares of respondents choosing the beef burger during their first decision, the *p-values* are: 0.165 when the first alternative is the veggie burger, 0.476 when it is the meat-like one, and 0.785 when it is the cultured meat one.

Table 2: Share of respondents, per treatment, choosing meat burgers depending on the price, and mean WTP for substitutes in euro (standard deviation in parentheses)

	Control group			Negative mental accounting			Positive mental accounting		
Price substitute	Meat vs. veggie	Meat vs. meat-like	Meat vs. cultured	Meat vs. veggie	Meat vs. meat-like	Meat vs. cultured	Meat vs. veggie	Meat vs. meat-like	Meat vs. cultured
15	0.83	0.83	0.87	0.75	0.81	0.87	0.84	0.87	0.86
10	0.41	0.42	0.48	0.40	0.43	0.47	0.43	0.41	0.44
5	0.26	0.27	0.34	0.26	0.29	0.36	0.28	0.28	0.33
0	0.21*	0.24*	0.30*	0.22*	0.25*	0.32*	0.24*	0.24*	0.30*
Mean WTP for substitute	8.97	8.73	7.98‡,◇	9.06	8.61‡	7.77‡,◇	8.59	8.58	8.08‡,◇
(all decision)	(5.63)	(5.78)	(5.98)	(5.84)	(5.82)	(6.09)	(5.61)	(5.58)	(5.98)
Observations		N = 363			N = 358			N = 367	

* Significantly different from 0 at the 1% level (signed-rank test)

‡ Significantly different from WTP_{veggie} at the 5% level (paired t-test)

◇ Significantly different from $\text{WTP}_{meat-like}$ at the 5% level (paired t-test)

4.1.2 WTP differences between meat substitutes

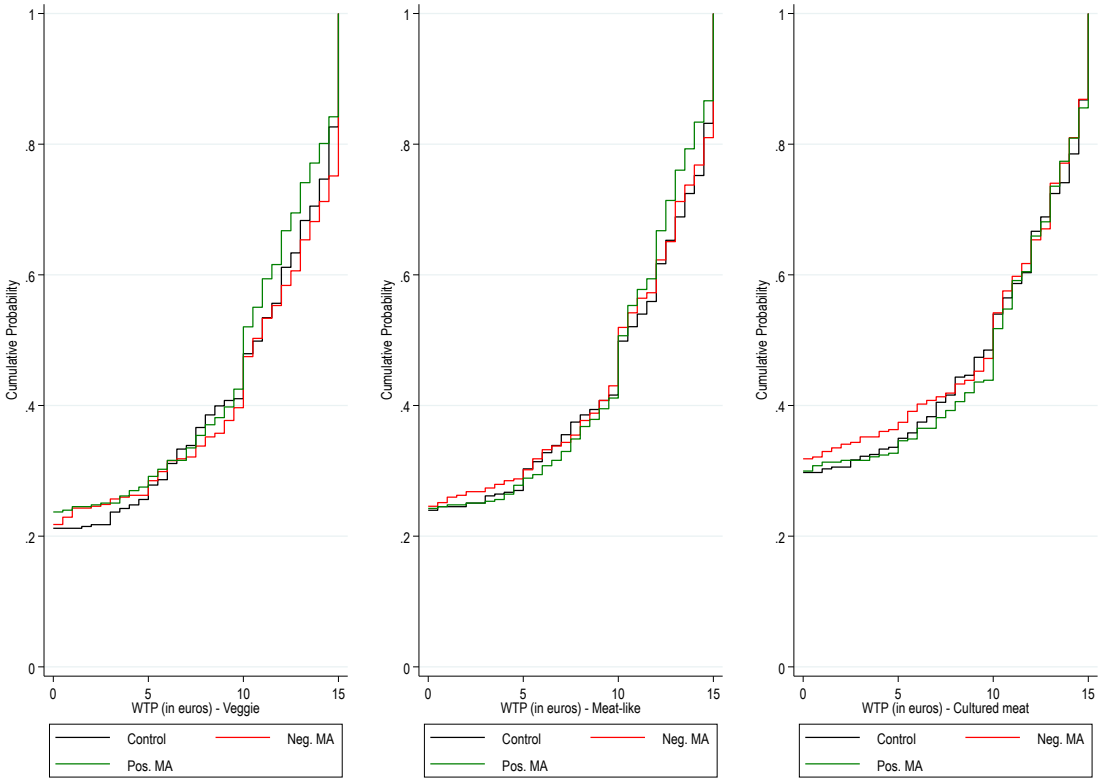
To test **H2**, we now assess whether it is possible to rank the WTP for the different meat substitutes. In the control group, the WTP for the veggie burger and the meat-like burger are close, while the one for cultured meat is lower than the one of the two meat substitutes. These observations are corroborated by paired t-tests (see bottom of Table 2).

Turning to the mental accounting treatments, we observe the same result in both treatments. This leads to our next result:

Result 2: In line with **H2**, the respondents' WTP can be ranked with the WTP for veggie and meat-like burgers being higher than the WTP for cultured meat.

To gain further understanding, we report in Fig. 3 the cumulative distributive functions (CDF) of the WTP for the different meat substitutes per treatment. These curves indicate, for each type of meat (veggie on the right, meat-like in the center, and cultured meat on the left), the probability (y axis) that the associated WTP is less than, or equal to, the corresponding price (x axis). Moreover, we disentangle the CDF between treatments (in black for the control group, in red for the Negative mental accounting, and in green for the Positive mental accounting).

Figure 3: Cumulative distribution functions of WTP for meat substitutes per treatment



These figures confirm our previous observations. In particular, whatever the meat substitute and the treatment group, the CDFs are very similar. The only difference is for veggie: we observe more respondents who would switch starting at a €10 price when treated with the positive mental accounting compared to the control and the negative mental accounting treatment. In contrast, compared to the control, there are less respondents treated with the positive mental accounting who would adopt the cultured meat burger below a €10 price.

Performing two-sample Kolmogorov-Smirnov tests, the only significant difference we find is when comparing the distributions of the WTP for the veggie burger between the negative and the positive mental accounting treatments, but at the 10% only ($p\text{-}value = 0.094$)

4.2 Treatment effects

4.2.1 Do the mental accounting treatments lead respondents to more often choose meat substitutes?

Next, we analyze the effect of the mental accounting treatments on the WTP to test **H3**, still using Table 2. Regarding the negative mental accounting treatment, less respondents are willing to choose the beef burger at a €15 price when the alternative is the veggie burger (75% against 83% in the control group). However, the shares of respondents who chose the beef burger for the other price levels are very similar to those observed in the control group. We observe very similar shares of respondents choosing the beef burger when the alternative is the meat-like burger or the cultured meat burger, compared to those observed in the control group.

Turning to the positive mental accounting treatment, the shares of respondents choosing the beef burger when the alternative is a meat substitutes are very similar to those observed in the control group, except that we observe slightly more respondents choosing the beef burger when the alternative is the veggie burger and the price is €0, and slightly less respondents choosing the beef burger when the alternative is the cultured meat burger and the price is €10.

This lack of clear effect on the shares of respondents choosing the beef burger when the alternative is a meat substitute (either the veggie, meat-like or cultured meat burger) translates into non-significant differences in the respondents' WTP for these meat substitutes (see Appendix C).

Result 3: Differently from **H3**, we do not find evidence for higher WTP for meat sub-

stitutes expressed by respondents treated with mental accounting.

4.2.2 Regression analyses

The previous analysis does not account for individual characteristics. In Table 3, we therefore report Tobit estimates to explain the WTP of the respondents for the different meat substitutes (one regression per type of substitute), taking into account those individual characteristics.

We include controls for respondents' socio-economic characteristics since recent empirical analyses on the adoption of meat substitutes have revealed the importance of these variables to notably explain food habits (see e.g., Van Loo et al. 2020, Carlsson, Kataria & Lampi 2022*a*). Specifically, we control for the following variables: *Female* (equal to 1 if the respondent is a female); *Age 30 to 49*, *Age 50 to 67* and *Age* $\geq$ *67* (the reference being the respondents aged between 18 and 29); *Income (in k euro)*; and *University diploma* (a dummy equal to 1 if the respondent has a university diploma). We also control for those who eat more meat than the French average with the dummy *Eat more meat than the average*. We also include the dummies *Negative mental accounting* and *Positive mental accounting* that are equal to 1 for those who, respectively, have been treated with the corresponding treatment (the reference being those in the control group). To capture the attitudes of the respondents towards the environment, we also include the dummy *High score NEP* that is, as explained, a dummy equal to 1 if the respondents have a NEP score higher than the average score. To assess potential heterogeneous effects of the treatments, we interact this dummy with those for positive and negative mental accounting treatments.

We explain respondents' WTP separately for each meat-substitute, with three different models. First, we only assess the effect of the treatments in models (1), (4) and (7) for, respectively, the veggie, meat-like and cultured meat burger. Second, in addition to the dummies for the treatments, we add the control variables in models (2), (5) and (8) for, respectively, the veggie, meat-like and cultured meat burger. Finally, models (3), (6) and (9) replicate the previous ones adding the interactions between the treatments and the NEP score variables, notably to test **H5**. Given that we are interested in the treatment effect of the mental accounting interventions, we only consider here the second and third WTP decisions.[7]

[7]Recall that the intervention is implemented after respondents have expressed a preference for the beef burger or a meat alternative, and before they indicate how much cheaper the alternative should be to accept to switch.

Table 3: Tobit estimations to explain the WTP per type of meat substitute

	Veggie burger			Meat-like burger			Cultured meat burger		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Neg. mental accounting	1.369	1.270	0.285	0.396	0.180	-1.020	-0.849	-0.496	-1.480
	(0.880)	(0.853)	(1.210)	(0.862)	(0.830)	(1.151)	(1.037)	(0.998)	(1.396)
Pos. mental accounting	-0.675	-0.638	-2.028*	-0.126	-0.337	-1.770	0.627	0.829	0.169
	(0.848)	(0.822)	(1.198)	(0.868)	(0.836)	(1.187)	(1.029)	(0.991)	(1.400)
NEP high		0.434	-1.031		0.870	-0.956		0.256	-0.903
		(0.698)	(1.148)		(0.682)	(1.184)		(0.809)	(1.438)
Neg. mental accounting × NEP high			1.919			2.525			2.022
			(1.700)			(1.655)			(1.999)
Pos. mental accounting × NEP high			2.634			2.897*			1.380
			(1.645)			(1.669)			(1.987)
Female		0.996	0.953		0.631	0.653		0.0152	0.0193
		(0.693)	(0.693)		(0.679)	(0.678)		(0.809)	(0.808)
Eat more meat than average		-3.593***	-3.545***		-3.517***	-3.519***		-2.558***	-2.505**
		(0.849)	(0.848)		(0.814)	(0.812)		(0.986)	(0.988)
Age 30 to 49		-2.159**	-2.138*		-1.905*	-1.999*		-4.281***	-4.291***
		(1.093)	(1.092)		(1.062)	(1.059)		(1.328)	(1.329)
Age 50 to 67		-4.853***	-4.857***		-4.738***	-4.770***		-7.449***	-7.529***
		(1.101)	(1.100)		(1.065)	(1.065)		(1.352)	(1.357)
Age ≥ 68		-6.014***	-6.092***		-5.993***	-6.069***		-10.07***	-10.17***
		(1.263)	(1.262)		(1.268)	(1.265)		(1.571)	(1.573)
Income (in k euro)		0.00103	-0.00516		0.229	0.230		0.0141	0.0163
		(0.251)	(0.251)		(0.241)	(0.240)		(0.282)	(0.282)
University diploma		1.199	1.158		0.854	0.890		-0.253	-0.260
		(0.741)	(0.740)		(0.715)	(0.713)		(0.858)	(0.857)
Constant	8.780***	11.55***	12.36***	8.344***	10.62***	11.49***	6.521***	12.62***	13.19***
	(0.590)	(1.324)	(1.418)	(0.615)	(1.322)	(1.397)	(0.749)	(1.540)	(1.643)
Observations	728	728	728	697	697	697	751	751	751
Left-censored	160	160	160	165	165	165	245	245	245
Right-censored	146	146	146	113	113	113	116	116	116
LR χ^2	5.39	60.69	63.44	0.40	59.06	62.64	2.14	60.96	62.03
Prob. $> \chi^2$	0.0674	0.0000	0.0000	0.8179	0.0000	0.0000	0.3426	0.0000	0.0000

The reference variables are: the control group regarding the mental accounting treatments, those with a low NEP score regarding environmental preferences, males regarding gender, those below 30 regarding age, and those who do not have a university diploma regarding education. Standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

We start with the assessment of the treatment effects (models 1, 4 and 7). We do not find any statistically significant effect of the mental accounting treatments on the WTP of respondents for meat substitutes. These observations are robust when controlling for respondents' individual characteristics (models 2, 5 and 8), as well as for heterogeneous treatment effects (models 3, 6 and 9). We only detect a statistically negative effect of the positive mental accounting on respondents' WTP for veggie burgers, and a positive effect of that treatment on those with a high NEP score (model 3), but at the 10% level in both cases.

Turning to individual characteristics, we do not find any statistically significant effect of income, education, or gender. However, for all meat substitutes we find that those who eat more meat than the French average are willing to pay significantly less for the meat-substitutes, and we detect a robust age effect: those above 29 years old are willing to pay less for meat substitutes.

Result 4: Differently from **H3** and **H4**, we do not find evidence of any robust treatment effect, nor that the Negative mental accounting pushes respondents to declare higher WTP for meat substitutes than those treated with the Positive mental accounting.

4.3 Analysis of the determinants to switch

The previous analyses do not examine the characteristics of the respondents willing to switch. We, therefore, report in Table 4 the results of multinomial logit estimations with the objective here to better understand what the main individual characteristics are of individuals who belong to the different classes in the model. In a sense, these analyses are complementary to those run in Table 3, except that we focus here on the willingness to accept to switch depending on the price. We consider four different classes, those who are: i) willing to choose the meat-substitute at a €15 price, ii) willing to switch for a price between €14.5 and €5.5 (our reference category), iii) willing to switch for a price between €5 and €0, iv) indicating that they will never change and we consider as "protesters".[8]

For each type of meat-substitute (veggie, meat-like and cultured meat), we thus report the estimates for three different classes (except for the reference category $[5.5; 14.5]$).

[8]These categories were considered as we observe, within each category, approximately the same shares of respondents between the different meat substitutes.

Table 4: Multinomial logit estimations to explain the willingness to switch to a meat substitute depending on the price

	Veggie burger			Meat-like burger			Cultured meat burger		
	15	[0-5]	Protesters	15	[0-5]	Protesters	15	[0-5]	Protesters
Neg. mental accounting	0.726**	0.334	0.582	1.032***	0.456	0.908***	0.518	0.204	0.594**
	(0.342)	(0.523)	(0.369)	(0.381)	(0.511)	(0.342)	(0.390)	(0.542)	(0.301)
Pos. mental accounting	-0.106	-0.0138	0.595*	-0.266	-0.471	0.500	0.146	-0.0984	0.0520
	(0.383)	(0.537)	(0.349)	(0.464)	(0.591)	(0.344)	(0.401)	(0.556)	(0.308)
NEP high	0.136	0.634	0.497	0.795**	0.422	0.729**	0.668*	0.0592	0.544*
	(0.352)	(0.456)	(0.348)	(0.395)	(0.506)	(0.353)	(0.391)	(0.584)	(0.313)
Neg. mental accounting × NEP high	-0.263	-0.989	-1.049**	-1.106**	-0.838	-1.440***	-0.923*	0.126	-0.941**
	(0.484)	(0.718)	(0.523)	(0.522)	(0.718)	(0.493)	(0.547)	(0.770)	(0.430)
Pos. mental accounting × NEP high	0.286	-0.722	-0.591	-0.412	-0.413	-1.137**	-0.368	-0.470	-0.411
	(0.510)	(0.712)	(0.476)	(0.598)	(0.812)	(0.490)	(0.536)	(0.855)	(0.432)
Female	0.588***	0.217	-0.0351	0.0605	-0.0264	-0.213	0.107	-0.459	0.0338
	(0.208)	(0.295)	(0.202)	(0.222)	(0.313)	(0.199)	(0.220)	(0.322)	(0.174)
Eat more meat than average	-0.893***	-0.0722	0.642***	-0.977***	0.182	0.609***	-0.348	0.506	0.400*
	(0.305)	(0.367)	(0.227)	(0.344)	(0.363)	(0.220)	(0.295)	(0.363)	(0.206)
Age 30 to 49	0.0339	-0.0211	0.940**	0.189	0.720	1.059**	-0.164	0.146	0.994***
	(0.297)	(0.469)	(0.444)	(0.319)	(0.589)	(0.418)	(0.300)	(0.613)	(0.366)
Age 50 to 67	-0.165	0.487	1.522***	0.0320	1.330**	1.599***	-0.710**	0.939	1.331***
	(0.308)	(0.450)	(0.437)	(0.331)	(0.573)	(0.413)	(0.331)	(0.586)	(0.367)
Age $\geq$ 68	0.140	0.383	2.162***	-0.0234	0.845	1.987***	-0.919**	0.968	1.823***
	(0.361)	(0.543)	(0.459)	(0.423)	(0.680)	(0.441)	(0.460)	(0.657)	(0.394)
Income (in k euro)	-0.0900	-0.133	-0.0330	-0.0787	-0.249**	-0.0662	0.00421	-0.124	-0.00100
	(0.073)	(0.108)	(0.075)	(0.077)	(0.119)	(0.074)	(0.074)	(0.120)	(0.062)
University diploma	0.379*	0.508	-0.251	0.361	0.531	-0.105	0.189	0.170	0.187
	(0.218)	(0.319)	(0.216)	(0.234)	(0.332)	(0.209)	(0.232)	(0.343)	(0.186)
Constant	-1.387***	-2.330***	-2.568***	-1.591***	-2.573***	-2.419***	-1.205***	-2.273***	-2.037***
	(0.412)	(0.611)	(0.522)	(0.457)	(0.707)	(0.502)	(0.426)	(0.689)	(0.428)
Observations	728			697			751		
Log-likelihood	-808.9			-749.0			-845.4		
LR(36)	101.8			98.18			79.62		
Prob. $> \chi^2$	0.0000			0.0000			0.0000		

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Let us first focus on the treatments. The only positive and significant effect (at the 5%) we detect regarding our treatments is for the negative mental accounting treatment on veggie and meat-like burgers: compared to respondents in the control group, those treated with that treatment are more likely to switch to veggie or meat-like burgers at a €15 price. However, this observation does not hold for the cultured meat burger.

Interestingly, we also observe a form of "boomerang" effect as those treated with the negative mental accounting treatment are more likely to be "protesters" when being proposed meat-like or cultured meat burgers. We also note that those treated with the positive mental accounting treatments are more likely to be "protesters" when being proposed the veggie burger (but the effect is only significant at the 10% level).

Next, in line with **H5** we find that respondents with strong environmental preferences (*NEP high*) and treated with the negative mental accounting treatment are less likely to be "protesters" for all types of meat substitutes. This observation qualifies our previous observation regarding the "boomerang" effect of the negative mental accounting treatments on protesters. Note also that those with strong environmental preferences and treated with the negative mental accounting treatment are less likely to choose the meat-like and cultured meat burgers.

The only complementarity between the positive mental accounting and those with strong environmental preferences that we observe is regarding meat-like burgers: These respondents are less likely to be "protesters" when being proposed meat-like burgers (negative and significant coefficient at the 5% level).

Regarding respondents' characteristics, the most robust effect we find is that those who eat more meat than the French average are significantly less likely to switch to adopt veggie and meat-like burgers at a €15 price (negative and significant coefficient at the 1% level), and are more likely to be "protesters" whatever the considered meat substitute type (positive and significant coefficient at the 1% level for veggie and meat-like burgers, and at the 10% level only for cultured meat). Second, we also find that, compared to those under 30 years of age, older respondents are more likely to be "protesters" whatever the type of meat substitute considered. Food habits could justify these two observations.

Result H5: We find evidence for heterogeneous treatments effects.

4.4 WTP for cultured meat and the Independence of Irrelevant Alternatives principle

The last interest of our approach is to propose a robustness analysis of our WTP estimates for cultured meat burgers varying the type of alternative. We focus here on cultured meat since recent evidence has highlighted that respondents' WTP for that alternative is generally lower than the one for other meat substitutes (see e.g., Carlsson, Kataria & Lampi 2022*a*, Espinosa & Treich 2023). From a methodological point of view and according to the Independence of Irrelevant Alternatives (IIA) principle, we expect no change of preferences for cultured meat when the alternative is either the veggie or meat-like burger, instead of the beef one.

In Table 5, we present the WTP for cultured meat depending on the type of alternative respondents face in the survey. Our analysis reveals that when we evaluate the preferences of the respondents regarding cultured meat while varying the reference from beef burger to veggie or meat-like burger, then the respondents "dislike" the cultured meat burger. Indeed, in Table 2 we observe that the price at which respondents would accept to give up a beef burger for a cultured meat one represents between 86 and 94% of the price at which respondents would accept to give up beef burger for a veggie or meat-like one. In contrast, in Table 5 we observe that respondents would be willing to give up the veggie/meat-like burger if the price of the cultured meat burger is now between 60 and 65% of the price of veggie/meat-like burger.

Result 6: We find evidence that preferences for cultured meat depend on the type of alternative.

This result therefore highlights that the Independence of Irrelevant Alternatives principle does not hold in our case. This is of particular importance, as this result emphasizes the need to consider robustness measures for preferences regarding meat-substitutes and, in particular, for cultured meat.

Table 5: Share of respondents, per treatment, choosing cultured meat burgers compared to reference burger

	Control group			Mental accounting red			Mental accounting green		
Price substitute	Meat vs. cultured	Veggie vs. cultured	Meat-like vs. cultured	Meat vs. cultured	Veggie vs. cultured	Meat-like vs. cultured	Meat vs. cultured	Veggie vs. cultured	Meat-like vs. cultured
15	0.87	0.69	0.71	0.87	0.66	0.67	0.86	0.65	0.66
10	0.48	0.40	0.39	0.47	0.38	0.37	0.44	0.35	0.38
5	0.34	0.29	0.29	0.36	0.26	0.25	0.33	0.26	0.28
0	0.30*	0.26*	0.26*	0.32*	0.22*	0.23*	0.30*	0.22*	0.25*
Mean WTP for substitute all individuals	7.98 (5.98)	9.11‡ (6.16)	9.05‡ (6.15)	7.77 (6.09)	9.53‡ (5.98)	9.53‡ (6.01)	8.08 (5.98)	9.75‡ (6.03)	9.42‡ (6.15)
Observations		N = 363			N = 358			N = 367	

Standard error in parentheses

* Significantly different from 0 at the 1% level (signed-rank test)

‡ Significantly different from the WTP when beef if the alternative at the 1% level (paired t-test)

5 Discussion and Policy implications

Our objective in this study was twofold. First, we wanted to assess the French population acceptability of meat substitutes; and second, we have tested the effectiveness of informational treatments based on the mental accounting theory to give incentives to respondents to adopt meat substitutes.

Our results are informative in several directions. First, we show that respondents' choices are mostly determined by the proposed price, as in Carlsson, Kataria & Lampi (2022*a*). Besides, even when they are treated with a mental accounting treatment (either the Positive or the Negative one), a non-zero proportion of respondents are reluctant to choose meat substitutes when their price is zero. This result is in line with the existing literature (Carlsson, Kataria & Lampi 2022*a*, Espinosa & Treich 2023), although we are closer to the shares observed in Espinosa & Treich (2023) than those reported in Carlsson, Kataria & Lampi (2022*a*). Moreover, we show that our informational treatments have very weak effects on respondents, although we document heterogeneous treatment effects, in line with the recent study of Bazoche et al. (2023) (which considers different pieces of information). This result highlights that to influence individuals' behavior, the right incentive should be considered.

However, the literature so far has ignored the assessment of preferences' stability, which we consider in the present study. Specifically, we highlight that, contrary to what is expected with the IIA principle, preferences for cultured meat do depend on the type of alternative. This result seems to indicate that the opposition to cultured meat generally found in the literature (e.g., Carlsson, Kataria & Lampi 2022*a*, Espinosa & Treich 2023) may be even stronger than hypothesized, which is interesting for at least two reasons. First, in a context where a solution to mitigate climate change through a reduction of GHG emissions is to avoid meat consumption, it appears that the strong opposition to cultured meat represents, currently, an issue for policymakers who cannot rely on the general population's willingness to switch between the two types of meat. Second, this result is also relatively good news as, compared to veggie and meat-like substitutes, the production of cultured meat generates more carbon emissions. Therefore, the general population's preferences for veggie and meat-like substitutes over cultured meat is promising from a carbon footprint point of view.

In terms of policy implications, our results confirm that relying on informational campaigns is not enough to trigger a change among the population. Having in mind, as explained in the introduction, that a carbon tax on meat consumption might not be an effective solution as well (Caillavet et al. 2016, Bonnet et al. 2018, 2020), and the strong

food habits in the reported decisions of the respondents that we document, we argue that policy-makers may rely on education, especially in young ages. Second, our study highlights that policymakers may have an interest in voluntarily restricting the number of food options available to consumers, given that our result on the lack of stability of preferences. In particular, absent meat options, consumers may be more likely to choose veggie or meat-like options, which represent the most environmentally friendly options.

Related to the question of education is the topic of experiencing the good. Recently, Caputo et al. (2023) have emphasized that a "positive sensory experience" is indeed a key to making individuals buy food products repeatedly over time and, in particular, plant-based food products. In the case of cultured meat experience is currently not possible because of the existing regulation in most countries that forbid food suppliers to sell those products.

Moreover, meat substitutes, and cultured meat in particular, are relatively new products offered to consumers. Therefore, since meat consumption is also explained by existing social norms (Aasen et al. 2024), some time is needed to create a new norm on the consumption of meat substitutes. In our case, our informational treatments are likely to be insufficient to reach a new "tipping point" (Welsch 2022) such that the consumption of meat substitutes becomes the norm. Having in mind that price is also an important dimension in consumers' decisions to choose food products, one direction could be to combine our informational treatment with monetary incentives (e.g., a subsidy on meat substitutes) to foster the adoption of meat substitutes. We leave it for future research.

Our results also show that researchers interested in this type of analysis should carefully design their study, as we highlight that preferences for cultured meat are sensitive to the type of alternatives that are proposed to respondents. To the best of our knowledge, we are the first to highlight such a change. From a methodological point of view, but also in a quest to inform policy-makers, this is therefore of particular importance.

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A Survey

Our survey wording was partly adapted from Carlsson, Kataria & Lampi (2022*a*). We focus here on the meat substitutes scenarios.

First screen: Introduction

A variety of different alternative meat products are now available to consumers, each tasting and looking like real meat to varying degrees. Some people appreciate the availability of meat-free alternatives on the market, while others have little interest in them.

None of these preferences are right or wrong.

In the questions that follow, we only want to know more about your personal opinions. Your answers are important and could help public decision-makers in the construction of future public policies.

Second screen: Presentation of the meat substitutes

We are going to present you three different alternatives to consuming beef burgers.

Veggie burgers
Veggie burger patties are based on various vegetables, such as carrots, corn and zucchini. There are clear differences in texture, color and taste between veggie burgers and conventional meat-based burgers.

Plant-based meat-like burgers
Manufacturers of these burgers mix plant-based products (such as peas and soy) with ingredients such as starch and oil to produce a patty that is very meat-like in terms of texture, color and taste.

Cultured, or lab-based, meat
Cultured, or lab-based, meat is not yet available in the market, but several companies have managed to produce it and say they will soon be able to deliver products to supermarkets. It will initially be very expensive to buy. Cultured meat is grown in a laboratory using cells from animals, which when mixed with blood plasma from unborn calves and chickens start

to divide and turn into muscle tissue. Cultured meat tastes very much like conventionally produced meat.

Third screen: Example of question with the veggie burger

Imagine being at a restaurant. You have just decided you would like to order a burger and now need to choose one of two types:
A. Beef-based burger
B. Veggie burger

The two types are of equal size and only differ in what the patties are made of.

Which type would you choose? Both burgers, including condiments and French fries/a salad, cost 15 euros. Your preferred choice may of course vary from day to day. We ask you to state what type of burger you believe you would choose most times: - Beef-based burger - Veggie burger

Note: Veggie burger patties are based on various vegetables, such as carrots, corn and zucchini. There are clear differences in texture, color and taste between veggie burgers and conventional meat-based burgers.

Fourth screen: Mental accounting treatment

If the respondent belongs to a treatment (either positive or negative mental accounting treatment), Fig. 2 is shown in this screen. Otherwise, the respondent goes directly to the next screen.

Fifth screen: WTP question

In order for you to choose a veggie burger instead of a beef burger, how much cheaper would it need to be?

For me to choose a veggie burger instead of a beef-based burger, the veggie burger may not cost more than:

- 14.5 euro (0.50 euro less expensive than a beef burger)
- 14 euro (1 euro less expensive than a beef burger)
- 13.5 euro (1.50 euro less expensive than a beef burger)
- 13 euro (2 euro less expensive than a beef burger)
- 12.5 euro (2.50 euro less expensive than a beef burger)
- 12 euro (3 euro less expensive than a beef burger)

⋮

- 2.5 euro (12.50 euro less expensive than a beef burger)
- 2 euro (13 euro less expensive than a beef burger)
- 1.5 euro (13.50 euro less expensive than a beef burger)
- 1 euro (14 euro less expensive than a beef burger)
- 0.5 euro (14.50 euro less expensive than a beef burger)
- 0 euro (15 euro less expensive than a beef burger)
- I will never choose a veggie burger

B New Environmental Paradigm questionnaire

This questionnaire is adapted from Dunlap et al. (2000).

Can you indicate your level of support for each of the following statements, between "Strongly agree" and "Strongly disagree".

1) We are approaching the limit of the number of people the earth can support.
2) Humans have the right to modify the natural environment to suit their needs.
3) When humans interfere with nature it often produces disastrous consequences.
4) Human ingenuity will insure that we do NOT make the earth unlivable.
5) Humans are severely abusing the environment.
6) The earth has plenty of natural resources if we just learn how to develop them.
7) Plants and animals have as much right as humans to exist.
8) The balance of nature is strong enough to cope with the impacts of modern industrial nations.
9) Despite our special abilities humans are still subject to the laws of nature.
10) The so–called “ecological crisis” facing humankind has been greatly exaggerated.
11) The earth is like a spaceship with very limited room and resources.
12) Humans were meant to rule over the rest of nature.
13) The balance of nature is very delicate and easily upset.
14) Humans will eventually learn enough about how nature works to be able to control it.
15) If things continue on their present course, we will soon experience a major ecological catastrophe.

C Additional tests

Table C.1: Tests to compare the WTP for meat substitutes between treatments

WTP for veggie meat when beef burger is the alternative	T-test
Control vs Negative mental accounting	$p - value = 0.833$
Control vs Positive mental accounting	$p - value = 0.369$
Negative mental accounting vs Positive mental accounting	$p - value = 0.275$
WTP for meat-like meat when beef burger is the alternative	
Control vs Negative mental accounting	$p - value = 0.789$
Control vs Positive mental accounting	$p - value = 0.722$
Negative mental accounting vs Positive mental accounting	$p - value = 0.936$
WTP for cultured meat when beef burger is the alternative	
Control vs Negative mental accounting	$p - value = 0.641$
Control vs Positive mental accounting	$p - value = 0.808$
Negative mental accounting vs Positive mental accounting	$p - value = 0.479$