

The People's Perspective on Libertarian-Paternalistic Policies

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Abstract

Online experiment is carried out in three countries to examine the non-material welfare implications of libertarian-paternalistic (soft) government interventions. We investigate people's attitudes towards such interventions and their choices in several hypothetical scenarios of government involvement. We identify a significant proportion of people who (1) think negatively of soft government interventions, (2) forgo the encouraged action presumably in protest against such government interventions even though they would have chosen it otherwise, or (3) prefer the government to only provide information to the public in order to influence their choices rather than an intervention with a more effective choice architecture. The above findings illuminate the potential welfare loss of a non-negligible portion of the population caused by soft government interventions.

Keywords: Asymmetric paternalism, choice architecture, libertarian paternalism, nudge, soft interventions

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1. Introduction

The goal of the paper is to illuminate possible negative welfare implications of some soft government interventions advocated by supporters of libertarian paternalism. We perform an online experiment using a novel measure of attitude towards interventions. The results suggest that soft government interventions in personal areas are often perceived negatively even among people who think that there is a room for some kind of intervention in these contexts. Furthermore, among a significant portion of the population such soft interventions reduce non-material welfare without improving material welfare. We believe that even if there is a high rate of approval for a particular policy, the potential welfare loss of this significant segment of the population should be taken into account.

Libertarian paternalism argues for soft interventions by the government and other institutions in the personal decisions of individuals in an attempt to improve public welfare (see, for example, Camerer et al., (2003), Sunstein (2014) and Thaler and Sunstein (2003)). This approach seeks to avoid forcing the public to adopt some specific behavior and supports their right to make free choices. At the same time, it is in favor of steering them to make particular decisions using insights from psychology and behavioral economics. Thus, a choice architect is recruited to influence individuals' choices in the "right" direction by changing mainly the presentation of the available options, while allegedly preserving the principle of freedom of choice.

Frequently discussed examples of such policies include: (i) placing healthy foods in a cafeteria on eye-level shelves and unhealthy foods on the less accessible top and bottom shelves. Such an arrangement does not prevent Individuals from selecting unhealthy food, but is likely to decrease its consumption (e.g., Rozin et al., 2011 and Thaler and Sunstein, 2009); (ii) setting a "default option", i.e. a path that will be implemented unless the individual actively chooses a different option. A default option could be, for example, a particular rate of retirement saving. Given the finding that individuals tend to stick to default options, such a policy may increase the rate of saving (e.g., Choi et al., 2004 and Madrian and Shea, 2001).

The libertarian-paternalistic approach has attracted intense criticism and has stimulated its discussion along philosophical lines (see, in particular, Fumagalli (2015), Glaeser (2006), Grüne-Yanoff (2012), Hausman and Welch (2010), Loewenstein and Haisley (2008), Rebonato (2012), Rizzo and Whitman (2009), Selinger and Whyte (2011), Vallgård (2012) and White (2013)). The main points of criticism, which may be relevant for other types of interventions as well, are as follows:

(1) Welfare is subjective: The designers of libertarian-paternalistic policies attempt to increase public welfare or at least what they perceive it to be. However, one person cannot know the best option

for another, even in seemingly obvious cases, and hence should not push him into acting in a particular manner.

(2) Heterogeneity of the population: Even if the intervention design can be modified to fit the parameters of classes of individuals, there is no way to avoid the possibility that some of them will not choose the materialistically best actions for themselves due to the intervention.

(3) Lack of transparency: It is argued that in some soft interventions, the planner manipulates the individual without his knowledge and certainly without his consent. Even if people are told about the technical details of the intervention (e.g. that it involves setting a default option), they are not necessarily aware of the research on the relevant psychological bias and might not internalize the potential effect of the nudge on their decision.

(4) The principle of autonomy: Even if only the presentation of the choice set is changed without altering the available options, the nudge affects the individual's deliberation process and thus violates his autonomy.

(5) The long-term effect of reducing personal responsibility: The interventions both free individuals from taking personal responsibility for their choices and encourage the development of "fragmented selves" who become dependent on the authorities for guidance.

(6) Alternatives: There are more liberal ways to help people make better decisions, such as providing them with objective information.

(7) Limits of the planner's rationality: The policy makers are human beings and the possibility that they will fail to make the right decision for an individual is no less likely than the individual himself failing to make the right decision.

(8) Slippery slope: The simplicity of implementing nudge interventions and their legitimacy due to their liberal appearance may pave the way for public authority to eventually use such interventions for non-legitimate purposes.

An extensive response to those critics is provided by Sunstein (2015a). For example, he argues that choice architecture cannot be avoided and it is best that a benevolent architect design it. In addition, even if there is room for some ethical criticism of "nudges", one should also consider the ethical obligation to nudge in order to improve people's welfare.

Our paper does not seek to provide any philosophical arguments for or against the libertarian paternalistic approach but rather attempts to provide empirical evidence for the existence of a significant number of individuals for whom such interventions decrease welfare. We adopt the view that an individual's welfare is not determined solely by the material consequences of an action but also by

other, non-material aspects. In particular, people often care about the method used to achieve the material outcome. This point has received some experimental support in works such as Chlaß et al. (2013), Eliaz and Rubinstein (2014) and Wailoo and Anand (2005). Because soft interventions often involve exploiting the individuals' psychological biases in order to influence their choices, people who are aware of the manipulation may view it negatively and thus their welfare is reduced by the intervention.

Some soft interventions are based on concealing the method being used to alter individuals' choices. However, the public is likely to eventually become aware of the libertarian paternalistic approach and the specific intervention methods it uses, whether due to the literature on this methodology, media coverage or the existence of legal obligations to publicize the methods. Furthermore, some argue that the exposure of the method used in a nudge intervention is necessary in order to justify it ethically. Nudge advocates also support transparency whenever possible (e.g. Thaler and Sunstein, 2009). Thus, we will explore people's attitudes when they are aware of the soft intervention's method.

We report the findings of an online experiment conducted among students at six universities in three countries: Germany, Israel and the US. We will present the results from the three countries side by side, which allows for some comparison (with reservations - the samples are not representatives). However, our focus is not on the differences but rather on demonstrating that resistance to soft government interventions exists in all three countries.

The experiment elicited individuals' choices in hypothetical scenarios that involve government interventions in the areas of saving and the consumption of healthy food and their attitudes toward those interventions. The preference of one intervention method over another was measured by the tradeoff between the effectiveness of the intervention and the subjective desirability of the intervention's method. That is, if a participant prefers method A to method B we elicit the degree of effectiveness that the participant is willing to sacrifice in order that A be used rather than B. We find this method to be more appropriate for elicitation of attitudes towards public policies than other methods such as approval/disapproval or rating of the support on some scale, since in real-life the evaluation of a policy is almost always done in comparison to other possible policies and is sensitive to the estimation of the policy's effectiveness.

The interventions considered can be classified into three types: (i) hard interventions - which change the choice set of the individuals (such as taxes or the prohibition of particular choices); (ii) soft interventions - which preserve the set of choices but manipulate its presentation in order to nudge the

individuals to make a particular decision (such as setting a default option); and (iii) informational interventions - which simply provide an individual with the tools to deliberate prior to making his decision (such as handy smartphone applications).

While soft interventions do not force a particular behavior on an individual, psychological reactance (Brehm, 1966; Wortman and Brehm, 1975) might occur when individuals are pressured to behave in a particular manner. We find that a significant proportion of the participants do not support soft interventions, although they favor the intervention's encouraged behavior, and some of them would even attempt to resist the choices that the policy encourages. Furthermore, they prefer that the government only provide information to the public to a more effective soft intervention that involves choice architecture.

Note that in the experiment we carried out participants are asked not only to make judgments but also to make hypothetical decisions. These decisions should not necessarily be viewed as a prediction of what people would do in real-life situations but rather as an expression of their attitudes. Thus, if a participant states that he would not choose the action being encouraged by the government this should mainly be viewed as his expression of dismay over the government manipulation. We hold that his dissatisfaction should be viewed as a welfare loss, in the same manner that we view his regrets in the future if he makes the wrong choice.

One might, of course, take a participant's declared intention more literally. If the hypothetical choices are correlated with real behavior (and are not just an expression of attitudes), then the results hint at a possibly significant material welfare loss for those people who forgo the encouraged action just because they are aware of the government intervention and protest against it.

It should be emphasized that our sample is not claimed to be representative of any particular population. In the spirit of methods used by researchers such as Kahneman and Tversky, we focus on demonstrating the existence of an effect and its non-marginal intensity.

Note that: (i) Our findings relate to interventions that attempt to influence taste-based decisions that have no direct externalities rather than interventions meant to maintain norms such as not littering. When the intervention is aimed at preserving a well-accepted social norm (like marking step signs that lead to trash cans), it is not likely to be perceived negatively. (ii) We only study the attitudes towards government interventions, which may differ from attitudes towards other institutions' interventions (e.g. an employer who implements a soft intervention in order to encourage his employees to exercise more). (iii) Some nudges are less manipulative than those explored in our experiments and we speculate that the public will be more positive towards such interventions. For example, requiring a

driver to choose whether to become a potential organ donor when renewing the driving license will raise less objections than setting a default of being a donor.

Some of the questions raised in this paper have been investigated using different methods by Felsen et al. (2013), Hagman et al. (2015), Hedlin and Sunstein (2015), Loewenstein et al. (2015), Sunstein (2015b) and Tannenbaum et al. (2015). Overall, our results are not inconsistent with their results. One of the novelties of our paper is that we elicit attitudes towards interventions' methods by requesting individuals to compare two intervention methods given various assumptions on the effectiveness of the interventions. We provide a detailed comparison of these studies to our own in Section 4, after describing our method and results.

The experiment that we carried out consisted of two studies: the first explored the participants' reaction to automatic opt-in to a particular saving program and the second elicited the participants' subjective tradeoffs between attractiveness and effectiveness when comparing interventions that affect nutrition decisions. In what follows we report each study separately.

2. Study 1: Reaction to automatic opt-in intervention

2.1 Method

The experiment was carried out online among undergraduate students in six universities in Germany (University of Hamburg and University of Mannheim), Israel (Ben Gurion University and Tel Aviv University) and the US (New York University and Ohio State University). In order to encourage participation, one out of every 20 participants was randomly selected to receive a fixed amount of money (independent of their answers): 30 euro, 100 shekels and 30 dollars, respectively. Participants were invited by email and those who agreed to participate were randomly assigned to one of the experiment's treatments described below. In each treatment, participants responded to a sequence of questions about their attitude towards hypothetical government interventions. At the final screen, the participants were asked whether they studied Economics, Management or Public Policy (we refer to these three as "policy" fields) and to provide their gender and age (although participants in the US were not asked to state their gender or age).

Participants were presented with a hypothetical scenario in which they work in a firm, where employees had the opportunity to deposit between 0% and 8% of their salary in a special saving account which offered an attractive interest rate, with the limitation that money would be available only after 10

years. The employees were to choose their preferred rate of saving every month. A new arrangement offers a default savings deduction from employees' salaries with the aim of increasing the employees' rate of saving. (We chose to use the context of depositing into a long-term saving account rather than the more commonly discussed decision of saving for retirement since we felt the former would be easier to understand.)

The study consists of three treatments: In Treatment 1 (T1), participants choose between determining the saving rate each month and joining (opting-in to) the *default saving arrangement* in which 8% is automatically deducted from one's salary and deposited in the saving account, unless the individual provides a one-time instruction to cancel the arrangement (and then can re-choose the rate every month). In Treatment 3 (T3), the government requires employers to set 8% as a default saving rate for their employees and the participants need to decide whether or not to opt-out of the arrangement. In both T1 and T3, the second question attempts to determine how the participants feel (on a scale of four from very positive to very negative) about the government imposing a default rate of saving. Treatment 2 (T2) is similar to T3 but with a reversed order of questions. In all screens, the possible answers appeared in a randomly determined order (the answers "very positive", "positive", "negative" and "very negative" were either in descending or ascending order).

Table 1 summarizes the structure of Study 1. The actual screens appear in the appendix so that the reader can note that we strived to use neutral language.

	Treatment 1	Treatment 2	Treatment 3
First screen	Will you opt-in independently?	Attitude towards gov. soft intervention	Would you opt-out after gov. soft intervention?
Second screen	Attitude towards gov. soft intervention	Would you opt-out after gov. soft intervention?	Attitude towards gov. soft intervention

Table 1: Description of the treatments in Study 1. The soft government intervention is requiring employers to set 8% as a default saving rate for their employees.

In libertarian paternalistic interventions, the individuals are not necessarily aware that the choice architect exploits their psychological tendencies to influence their behavior in a particular

direction. The design of the current survey seeks to explore how individuals react when they are made aware of the strategy behind the government soft intervention.

The design of the experiment makes it possible to demonstrate two points:

(1) Imposing a default (T2 and T3) is less likely to affect an individual's choices in the intended direction relative to the no-intervention context (T1). This may be because psychological reactance (Brehm, 1966) causes a significant number of participants to opt-out of the arrangement even though they would have joined the arrangement had they simply been offered it.

(2) The welfare of individuals who intended to choose the option imposed as a default in any case might be reduced, since they are cognizant of the attempt to influence their behavior and hence will be less content. This will be reflected in a negative attitude towards the intervention among individuals who opt-in to the arrangement (when it is offered to them explicitly).

We will also examine whether various characteristics such as gender, age, country and studying a policy-related field affect the participants' attitude towards the government's soft intervention. When looking at these effects, we will be able to control for whether or not the individual indicated that he is interested in saving 8% of his salary (a question that appeared at the end of all sequences of questions).

2.2 Results

The basic information about the participants and their random allocation among the three treatments is presented in Table 2.

	N	T1	T2	T3	Females	Age (median)	"Policy" field
Germany	345	96	117	132	51%	25.0 (24)	54%
Israel	462	159	150	153	54%	24.5 (24)	43%
USA	310	111	102	97	-	-	30%

Table 2: Basic Statistics of participants in Study 1

The results presented below exclude 5% of the participants who spent the least time in reading the first screen in the experiment. These participants spent only a few seconds reading the first screen, which

included the background, and thus did not treat the questionnaire seriously. The qualitative results are not affected by this elimination but we feel that the statistics reported are now more reliable.

Result 1: Negative attitude towards the soft government intervention

The proportion of participants who expressed a negative attitude towards the government intervention of forcing “opting-in” to the default saving arrangement is presented in Table 3. The data for T2 and T3 were merged since the results do not reveal any order effect. We also pooled the participants who expressed “negative” and “very negative” attitudes as well as those who expressed “positive” and “very positive” attitudes since less than 20% of the participants expressed the two extreme positions.

The results indicate that a significant proportion of the population thinks negatively of such an intervention. Overall, German participants were significantly more negative than American participants (53% vs. 42%, $\chi^2(1)=6.8$, $p<0.01$) and Americans were significantly more negative than Israeli participants (42% vs. 28%, $\chi^2(1)=15.9$, $p<0.01$). (The differences between the countries remained significant when we compared the full distribution of attitudes on the 4-points scale.)

	USA	Israel	Germany
Negative attitude in T1	50%	34%	66%
Negative attitude in T2&T3	38%	25%	48%
Overall negative attitude	42%	28%	53%

Table 3: Percentage of participants with a negative attitude towards the gov. intervention in Study 1

The attitudes in T1 are somewhat more negative than in T2 and T3, probably because in T1 participants were more aware that instead of the government liberal-paternalistic intervention the individuals could have simply been asked whether they are interested in the default arrangement (as they were in q1 of T1), which may be perceived as a less coercive nudge. This finding is supported by a logistic regression performed on the data from all three treatments, where the dependent variable is positive/negative (attitude towards the intervention) and the independent variables are country, field of study (whether it is policy-related), interest in saving (whether they would be interested in saving 8% of

their salary in a saving account with an attractive interest rate) and the treatment (T1 or T2&T3). We also added gender and age to the regression when we omitted the US. The results indicate that T1 has a negative effect on the attitude. (Throughout we report on significant effects at the 5% level.)

Result 2: Making a choice as a protest

The results indicate the existence of individuals who are presumably using their choice as a protest, namely, they opt-out of the arrangement although they would have joined it had they been asked to without government involvement. This is suggested by the finding that the percentage of participants who choose the designated action when they are aware of the government intervention is smaller than the percentage who choose to opt-in to the arrangement in the case that information is provided to encourage the participant to take the action (Table 4). The gap in Israel is small (9-11%) but statistically significant ($\chi^2(1)= 4.37$, $p<0.05$) while the gap in the US is larger (13%-18%) and that in Germany is the largest (19%-32%), and in both cases highly statistically significant ($\chi^2(1)= 7.74$, $p<0.01$ and $\chi^2(1)= 16.52$, $p<0.01$, respectively).

	USA	Israel	Germany
Opting-in (T1)	78%	79%	74%
Not opting-out (T3)	65%	68%	55%
Not opting-out (T2)	60%	70%	42%

Table 4: Opting-in with no gov. involvement vs. not opting-out with gov. involvement in Study 1

The differences between T2 and T3 are significant only in Germany ($\chi^2(1)= 3.95$, $p<0.05$). The fact that not-opting-out is chosen more in T3 might be the outcome of the fact that in T2 participants are first asked their opinion of the government intervention, which may trigger more of them to cancel the arrangement.

In order to further investigate the effect of the different treatments on the tendency to prefer the default arrangement, we ran a logistic regression using the data of all three treatments, where the dependent variable is in/out (“In” reflects “opting-in” to the arrangement in T1 and “not opting-out” in

T2&T3) and the independent variables are T1 (compared to T2&T3), field of study, country, interest in saving and also age and gender when excluding the US. The results suggest that in T1 participants are significantly more likely to choose the default arrangement than in T2&T3, when controlling for all or some of the variables described above.

It is important to note that the default arrangement is perceived as attractive when the government is not involved, which is reflected in the high percentage of those choosing that option in T1. Nevertheless, it becomes undesirable when the government requires opting-in as a default.

Result 3: Negative attitude as a function of choice

Table 5 shows that, as expected, a negative attitude is more common among participants who have stated in T1 that they would not opt-in to the arrangement, if offered to do it independently (without government involvement), than among those who would. However, even among participants who say they would opt-in to the arrangement independently, a large proportion feels negatively about the soft government intervention that implements automatic opt-in. This group tends to be small in Israel (26%) and very large in Germany (59%). Note that the participants in the experiment were informed, before making a choice, that a default opt-in had been imposed in order to encourage them to save more. The negative attitude towards this intervention might be even more common if people realize **only ex-post** that the government has attempted to steer public behavior by imposing a default opt-in.

Let us emphasize again that the experiment elicits only attitudes towards government soft interventions which may differ from attitudes towards soft interventions that are initiated by non-governmental institutions.

	USA	Israel	Germany
Negativity among those who opt-in independently in T1	42%	26%	59%
Negativity among those who do not opt-in independently in T1	74%	64%	85%

Table 5: Percentage of participants with a negative attitude among those who chose to opt-in and those who chose not to in T1 of Study 1

Result 4: Effect of country on attitude and choice

Within each country, the results for the two universities were very similar and were thus pooled. The only within-country difference was observed in Israel for q1 in T3: Tel Aviv University students tended to opt-out of the arrangement with government involvement more than Ben Gurion University students. However, there was no such difference in T2, where this question appears as q2.

The effect of country on the attitude towards the government intervention was also examined using a logistic regression with the dependent variable being positive/negative attitude and the independent variables of country, field of study, interest in saving and treatment. The independent variables of age and gender were added to the regression when excluding the US. We found that the attitudes of participants from Germany and the US are not significantly different although they were significantly more likely to be negative than those of Israeli participants. When the control variable “interest in saving” was replaced by “in/out”, German participants were significantly more likely to have a negative attitude than participants in the US.

In order to further investigate the between-country differences in the tendency to choose the default arrangement, we ran separate logistic regressions for T1 and T2&T3, where the dependent variable is in/out and the independent variables are country, field of study and interest in saving. Here again, the independent variables of age and gender were added to the regression when excluding the US. Germany and the US positively affected the probability of opting-out in T2 and T3 (compared to Israel), but did not affect the probability of opting-in in T1 when government is not involved. That is, although the German and American participants were similar to the Israelis in their preferences when government was not involved, it appears that they had a greater tendency to forgo the designated action when the government nudged them.

Comments

The regression results (conducted separately for each country) suggest the following:

- (1) Age does not affect the attitudes or choices of participants in Israel and Germany.
- (2) There are no gender effects, except in T1, in which German women tended to opt-in more than men (84% vs. 63%). Because the decisions of German women in the other treatments were not significantly different from those of German men, the “protest” when government is involved appears to be stronger for women.

(3) Only in the US (where we do not control for gender and age) does studying a policy-related field increase the chances that the participant will opt-out in T2 and T3. In those treatments, 51% of those who are studying a policy-related field choose to opt-out as compared to only 32% of other participants who choose to opt-out. In other countries, field of study had no effect, whether or not gender and age were controlled for.

(4) The interest in saving had a large and significant positive effect on the attitude and the choice “in”.

3. Study 2: Trading-off attractiveness and effectiveness of interventions

3.1 Method

Participants in this study were undergraduate students in the same six universities in Germany, Israel and the US as in Study 1. The participants in this study were recruited and paid as in Study 1. The study consisted of five randomly assigned treatments.

Participants were presented with a hypothetical scenario in which the government considers various interventions in order to improve the public’s eating habits and in particular to decrease the consumption of fatty foods. We considered five government actions (interventions) in this study:

(1) **Prohibiting** the serving of extremely fatty food in restaurants on Wednesdays.

(2) Imposing a **Tax** on extremely fatty food served in restaurants, which will be added to the price of a meal and transferred to the government.

(3) Requiring restaurants to **Order** the items on a menu from healthiest to unhealthiest.

(4) Launching an extensive **Information** campaign in the media that would explain which foods are high in fat and how harmful they are to our health.

(5) Providing Information through a smartphone **Application** to be created by the government, which will include information on the nutritional value of items on every restaurant’s menu.

Actions 1 and 2 are considered hard interventions because they change the choice set that individuals face. Action 3 is a soft intervention since it does not change the choice set but rather its presentation (and is based on the understanding that people tend to choose items that appear at the beginning of a list) in order to influence behavior (see Dayan and Bar-Hillel, 2011). Actions 4 and 5 are

educational interventions which enable individuals to easily obtain relevant information without changing the set of choices and without manipulating the presentation of the choice set.

The mechanism that is expected to make action 3 effective is not as straightforward as in the case of the other actions. To enhance transparency, the text included an explanation that this method is based on psychological research indicating that people tend to choose items at the beginning of a list.

Improvement after Action X	Improvement after Action Y	I would choose -	
8%	20%	Action X	Action Y
12%	20%	Action X	Action Y
16%	20%	Action X	Action Y
20%	20%	Action X	Action Y
24%	20%	Action X	Action Y
28%	20%	Action X	Action Y
32%	20%	Action X	Action Y

Table 6: The screen used to elicit preferences between action X and action Y in Study 2

In each of the treatments, a participant was asked to compare between different pairs of government actions. Each comparison between actions X and Y consists of two questions: The first asks the participant to compare the two government actions, given that they are equally effective in improving the public's eating habits, using a scale of five points: "greatly prefer X", "slightly prefer X", "no preference", "slightly prefer Y" and "greatly prefer Y" (see Screen 3 of Study 2 in the appendix). The second question is designed to elicit a participant's subjective trade-off between the effectiveness and desirability of the intervention method. Effectiveness was defined in the following manner: *"Suppose that the World Health Organization has determined that consumption of unhealthy food above a certain level is significantly harmful to human health. ... The improvement in public nutrition resulting from any government action is measured according to the percentage of the population that moves below this*

level as a result of the action.” Participants were asked to indicate their preferences between the two government actions X and Y in each row of a table structured like Table 6 (i.e. given various data on the effectiveness of X and Y).

Participants revealed strong preferences for the action X by choosing it even in cases in which the action Y is expected to be more effective, and vice versa. This type of preferences elicitation provides more information than an abstract question such as “How much do you support the new policy?” since it forces the participants to confront the real-world potential tradeoff between the effectiveness of an intervention and its method’s desirability.

In Treatment 1 (T1) and Treatment 2 (T2), participants compared the soft intervention (Order) to App and also compared one of the hard interventions (Tax or Prohibition) to App. This makes it possible not only to assess the resistance of participants to soft interventions but also to put their feelings into context by comparing their attitudes towards soft and hard interventions, where the latter are obviously less favored by the public.

In Treatment 3-5, participants were asked to make only one comparison: In Treatment 3 (T3) participants compared Tax to Information; in Treatment 5 (T5) they compared Order to Information; and in Treatment 4 (T4) they compared Information to App. These participants were assigned to T3-T5 immediately after participating in Study 1 which elicited their attitude towards soft government interventions in individuals’ saving decision.

In two of the three treatments that included Order (T1 and T2), we added to the description of the intervention a short summary of the typical arguments for and against soft interventions in general. On the other hand, in T5, which also investigates attitudes towards Order, only the description of the mechanism involved in that specific intervention was presented. The qualitative results seem to be unaffected by the inclusion of the arguments in favor and against soft interventions.

In order to determine the extent to which participants do not support any intervention of the sort discussed in this paper, we preceded T1 and T2 with background information on the unhealthy food consumption problem etc. and asked participants whether they think the government should intervene in any manner in order to improve the public’s eating habits (Screen 2 of Study 2 in the appendix). Those who answered “No” were not asked to compare between pairs of government actions and instead were asked to explain their response (See Screen 3 after “No” in the appendix). Those who answered “Yes” continued on and were asked to compare between pairs of policies, as described above.

A summary of the five treatments appears in Table 7.

	Question	Treatment 1	Treatment 2
1	Should the government intervene?	Continue if “Yes” (otherwise, explain why)	
2	Comparison when equally effective	Tax vs. App	Order vs. App
3	Tradeoff comparison	Tax vs. App	Order vs. App
4	Comparison when equally effective	Order vs. App	Prohibition vs. App
5	Tradeoff comparison	Order vs. App	Prohibition vs. App

	Question	Treatment 3	Treatment 4	Treatment 5
1	Comparison when equally effective	Tax vs. Information	Information vs. App	Order vs. Information
2	Tradeoff comparison	Tax vs. Information	Information vs. App	Order vs. Information

Table 7: Description of the treatments in Study 2

We tackle several questions: whether a significant proportion of the participants object to the soft intervention in which the government determines the order of menu items and instead would prefer a less effective information intervention; whether the participants’ attitudes towards the soft and hard interventions are related; and finally, whether characteristics such as gender, age, country and field of study affect the participant’s attitude towards soft interventions. When trying to answer these questions, we will be able to control for whether the individual is interested in reducing his own consumption of unhealthy food (a question that appeared at the end of all the sequences of questions).

3.2 Results of Study 2

The basic information on the participants and their random allocation among the five treatments is presented in Table 8.

	N	T1	T2	T3	T4	T5	Females	Age (median)	"Policy" field
Germany	600	120	135	96	117	132	49%	25.3 (24)	52%
Israel	740	136	142	159	150	153	51%	24.5 (24)	47%
USA	549	121	118	111	102	97	unknown	unknown	30%

Table 8: Basic statistics of participants in Study 2

In the presentation of the results we eliminated the fastest 5% of the participants (as in Study 1) and those whose answers to questions with the structure of Table 6 were not monotonic.

Result 1: Objection to any type of government intervention

In T1 and T2, 14%-25% stated in question 1 that the government should not intervene at all. Most of them (76%-80%) provided the explanation that it is not the government's business to intervene in the private domain (Table 9). Students in the US object to government intervention significantly more than the Israeli students ($\chi^2(1)=8.82$, $p<0.01$), though not significantly more than the German students ($\chi^2(1)=1.85$, $p=0.17$). The proportion of German students that objected to any intervention does not differ significantly from that of the Israeli students ($\chi^2(1)=2.23$, $p=0.14$). The results of T1 and T2 presented in the rest of the section relate only to participants who think that some form of government action is justified in this context.

	USA	Israel	Germany
Government should not intervene at all	25%	14%	19%
No place for interventions in a private domain	80%	79%	76%

Table 9: Percentage of participants in T1 and T2 who believe that government should not intervene at all in this context, and the proportion among them whose reason is that it is a personal area

Result 2: Negative attitude to the soft intervention (relative to the provision of information)

This study comprises a collection of tests and in each test the participant was asked two questions about his preference between two interventions. In the first question he compared the interventions given that their effectiveness is similar and in the second he compared them given a scale of differences in their effectiveness. In the following, only the results of the second question are reported for the following reasons: (i) with very few exceptions, the participants' two answers were consistent and (ii) the second question provides finer information. In designing the survey, this is the outcome we expected. The first question was included only in order to facilitate the participant's understanding of the second question.

If a participant prefers action X to action Y even in cases where action Y is more effective (as in rows 1-3 in Table 2), we label him as *strictly prefers action X* and vice versa. If he always chooses the more effective intervention, we label him as exhibiting *no tradeoff* (between subjective desirability of the intervention method and the effectiveness of the intervention). Tables 10 and 11 present a summary of the preferences of participants in T1, T2 and T5 in the comparison between the soft intervention Order and either App or Information.

N	Country	Strictly prefer Order	No tradeoff	Strictly prefer App
180	USA	13% (15%, 9%)	66% (56%, 78%)	21% (28%, 13%)
239	Israel	9% (13%, 7%)	55% (48%, 62%)	35% (39%, 30%)
206	Germany	13% (12%, 14%)	50% (43%, 58%)	37% (45%, 27%)

Table 10: Comparison between the soft intervention of Order and App in T1 and T2 of Study 2

Notes: The percentage outside the parentheses is the proportion of the participants in the two treatments combined. Inside the parentheses are the proportions when the question appears first and when it appears second, respectively.

N	Country	Strictly prefer Order	No tradeoff	Strictly prefer Information
97	USA	12%	68%	19%
153	Israel	11%	60%	30%
132	Germany	8%	38%	54%

Table 11: Comparison between the soft intervention of Order and Information in T5 of Study 2

According to the results, 21-37% of the participants strictly prefer App to Order and are willing to sacrifice some effectiveness and 19-54% strictly prefer Information to Order even at the price of reduced effectiveness. Note that the category *strictly prefers App* includes individuals who are willing to sacrifice 4%, 8% or “12% or more” in effectiveness in order for their preferred intervention method to be used. In fact, almost half of the individuals in this group were willing to sacrifice 12% or more.

Note that in T5, the two paragraphs explaining the advantages and disadvantages of libertarian-paternalistic methods, which appeared in T1 and T2, were omitted (see Screen 5 of Study 2 in the appendix). This did not qualitatively affect the result that a significant proportion of the participants strictly prefer the provision of information to the soft intervention of Order.

Result 3: Attitude towards hard Interventions

Tables 12 and 13 present the preferences of participants in T1 and T2 respectively in the comparison between the hard interventions of Tax and Prohibition on the one hand and App on the other. Table 14 presents the preferences of participants in T3 in the comparison between the hard interventions of Tax and Information.

N	Country	Strictly prefer Tax	No tradeoff	Strictly prefer App
89	USA	8%	49%	41%
108	Israel	1%	36%	63%
90	Germany	9%	41%	51%

Table 12: Comparison between the hard intervention of Tax and App in T1 of Study 2

N	Country	Strictly prefer Prohibition	No tradeoff	Strictly prefer App
91	USA	3%	31%	66%
131	Israel	4%	23%	73%
116	Germany	4%	13%	84%

Table 13: Comparison between the hard intervention of Prohibition and App in T2 of Study 2

N	Country	Strictly prefer Tax	No tradeoff	Strictly prefer Information
111	USA	4%	49%	48%
166	Israel	6%	28%	65%
96	Germany	4%	37%	59%

Table 14: Comparison between the hard intervention of Tax and Information in T3 of Study 2

We elicit the aggregate preferences of the participants in each country between the interventions of Prohibition, Tax and Order by comparing the proportions of participants that **strictly prefer** App to each of them. The results exhibit an aggregate preference order on the interventions, which follows the intervention's degree of coercion, i.e. Prohibition<Tax<Order (although some may feel that this particular prohibition is practically less restricting because it applies for only one day a week). Thus, in the US, 66% strictly prefer App to Prohibition, 41% prefer App to Tax and 21% prefer App to Order (also, 48% strictly prefer Information to Tax and 30% prefer Information to Order); in Israel, 73% strictly prefer App to Prohibition, 63% prefer App to Tax and 35% prefer app to Order (also, 65% strictly prefer Information to Tax and 30% prefer Information to Order). This preference order is exhibited in Germany as well, but there the preferences for Tax and Order are closer than in the other countries: 84% strictly prefer App to Prohibition, 51% prefer App to Tax and 37% prefer App to Order (also, 59% strictly prefer Information to Tax and 54% prefer Information to Order).

Table 15 presents the preferences of participants in T4 when comparing between the two educational interventions of App and Information. In all countries, App was somewhat preferred.

N	Country	Strictly prefer Information	No tradeoff	Strictly prefer App
102	USA	7%	69%	24%
159	Israel	8%	75%	17%
117	Germany	15%	61%	23%

Table 15: Comparison between Information and App in T4 of Study 2

Result 4: Correlation between support for soft interventions and support for hard interventions

We also examined the relation between a participant's attitude towards policies that use coercion to encourage a particular behavior and his attitude towards the soft policy discussed above (i.e., a within-subject analysis). We only use the data from T1 and T2 since only in those did the participant state his attitude towards both a soft intervention and a hard intervention. We find that individuals who are not against the soft intervention of ordering the menu items from healthiest to unhealthiest are substantially more likely (three times more) not to oppose the Tax intervention to improve people's eating habits, a finding that applies to all three countries. Table 16 presents the aggregate data which shows that the differences in attitude towards Tax between those who object to Order and those who do not is statistically significant ($n=287$, $\chi^2(1)=28.9$, $p<0.01$).

	Against Tax	Not against Tax
Against Soft	81%	19%
Not against Soft	43%	57%

Table 16: The attitude of participants towards Tax as a function of their attitude towards Order in T1 of Study 2

We find a similar association between not objecting to Prohibition (of serving fatty food in restaurants on Wednesdays) and not opposing the soft intervention of Order (Table 17). Individuals who are not against the soft intervention of Order are substantially more likely (almost eight times) not to be

against Prohibition. The difference in attitude towards Prohibition between those who object to Order and those who do not is statistically significant ($n=338$, $\chi^2(1)=44.82$, $p<0.01$).

	Against Prohibition	Not against Prohibition
Against Soft	95%	5%
Not against Soft	62%	38%

Table 17: The attitude of participants to Prohibition as a function of their position regarding Order in T2 of Study 2

Result 5: Effects of country on attitude

Recall that the comparison between any two interventions X and Y as described in Table 2 allows participants to express their intensity of preference for an intervention method X on an 8-point scale. The effect of country on the preferences for government interventions was examined using a linear regression, in which the dependent variable is “liking of X” (which receives a value of between 1 and 8) and the independent variables are country, field of study and interest in healthy food (i.e. whether the participant is interested in reducing his own consumption of unhealthy food). The independent variables of age and gender were added to the regression that includes only the German and Israeli populations.

We find that in T1&T2 (while controlling for the treatment) and in T5, in which participants compared the soft intervention of Order to the provision of information (App or Information), Germany negatively affects the liking of the soft intervention compared to the US, and also compared to Israel in T5. Israel has a negative effect on the liking of the intervention in T1&T2 compared to the US.

In T1 and T3, in which participants compared the hard intervention of Tax to the provision of information (App or Information), Israel negatively affects the liking of the hard intervention compared to the US, and also compared to Germany in T1.

In T2, in which participants compared the hard intervention of Prohibition to App, Germany has a negative effect on the liking of the soft intervention compared to the US.

Comments

The regression results (conducted separately for each country) suggest the following:

- (1) Age and gender do not affect the attitude towards the various interventions.
- (2) A participant that is studying a policy-related field is more likely to prefer Tax only in T3 in Germany and in T1 in Israel; however, there is no such effect in other treatments.
- (3) The interest in reducing one's own consumption of unhealthy food positively affects the liking of Tax and Order in T5 in all countries (and in the US also in T1&2).

4. Bibliographic comments

Felsen et al. (2013) conducted an experiment in the US and Canada, in which each participant was hypothetically asked to choose between two companies. One (neutral) company offers no intervention to enhance some desirable behavior (like exercising) among its employees. The second company tries to enhance the positive behavior of the workers by employing either a conscious process, such as directing the workers to the exercise room (in one version), or an unconscious process, such as planning the building so that the exercise room is located on their way to the cafeteria (in the other version). Participants were asked to state the numerical likelihood of them joining the non-neutral company given that it uses a conscious/unconscious policy. The number was treated as reflecting the desirability of the policy. The average desirability of the conscious policy was found to be higher than that of the unconscious policy.

The current study differs from Felsen et al. (2013) in several key ways: (1) We specify the relative effectiveness of a policy while in Felsen et al. (2013) participants' responses may be driven by their belief regarding the policy's effectiveness. (2) We demonstrate that a significant group of participants "protest" against the intervention, whereas such an option does not exist in Felsen et al. (2013). (3) We measure the attitude towards a policy by the tradeoff between the subjective desirability of the intervention method and its effectiveness, an intuitive measure of the individual's welfare gain or loss. (4) We study government interventions which trigger different emotions than interventions by a private company, which a participant voluntarily chooses to work for.

Hagman et al. (2015) carried out surveys in Sweden and the US of attitudes toward eight interventions, which include both what we have called manipulative soft interventions and non-manipulative informational interventions. Four of the interventions focused on social welfare and the rest had to do with personal welfare. For each intervention, the respondent indicated whether he found it acceptable and whether he judged it to be intrusive. The results indicate that there is more support

for nudges with a personal target. The authors report general acceptance of the nudges and understate the existence of objectors. Furthermore, they admit that the results are somewhat paradoxical since a majority of respondents also found the nudges to be intrusive.

Overall, the results are not inconsistent with ours. As emphasized earlier, we elicited the welfare of the participants in a more meaningful way by asking about the tradeoff between effectiveness and method of intervention and found that a significant proportion of the population object choice architecture interventions, even to the extent of preferring less effective informational interventions.

Tannenbaum et al. (2015) found that among American subjects the political affiliation of the initiator of an intervention (i.e. Republican or Democratic) and whether its goal is part of a liberal or conservative agenda affects the level of intervention endorsement along the expected partisan lines.

Our study is orthogonal to this study, as we don't have information about the political views of the participants.

Loewenstein et al. (2015) conduct an experiment in the US in which they ask subjects what medical treatment they would wish to receive if they became unable to communicate their wishes. The subjects were informed that they were being "defaulted" - one answer out of three is marked and in order to choose a different answer one must sign next to the answer, whereas for other subjects different answers were marked as defaults. Neither pre-informing nor post-informing significantly diminished the impact of the default on the subjects' choices.

Their research question is very different from ours since we are looking at what subjects choose once they become aware that the designer (in our case – the government) is attempting **to exploit their psychological biases** in order to influence their behavior and we are also interested in their attitude towards such an intervention.

Sunstein (2015b) conducted a survey among a representative sample in the US which was meant to elicit their views on various nudge interventions, including both informational interventions and choice architecture interventions. He found that the class of nudges that have been adopted or promoted by the federal government in recent years is supported by a majority of the subjects when asked whether they approve or disapprove of the intervention, though obviously people tend to disapprove of nudges that push toward subjectively undesirable outcomes.

Whereas Sunstein focuses on the positive attitude of a majority of subjects to certain interventions, we emphasize the negative attitude expressed by many of the subjects in our experiment. The proportion of subjects in the US with a negative attitude is overall qualitatively consistent with the

results reported by Sunstein, though we find significantly higher rates of objection. Moreover, we demonstrate that a negative attitude is not just a declaration of disapproval but is also manifested in a willingness to sacrifice some of the intervention's effectiveness (Study 2) and in extreme cases this might even have material consequences (Study 1).

As Sunstein emphasizes, elicited attitudes are particularly sensitive to the framing of the questionnaire. Indeed, we feel that Sunstein's frame encourages people to express their attitude towards the goal of the intervention rather than its method. Furthermore, a method of intervention that encourages positive behavior is perceived more positively if presented on its own rather than in comparison to another possible method of intervention. Our measure is based on comparisons between two methods of intervention with the same goal and hence elicits the attitude towards the method. Recall that it is the attitude towards the method which is the focus in the evaluation of liberal paternalism. We find that our frame is more relevant in any public debate of these issues.

Finally, in a very recent paper Hedlin and Sunstein (2015) explore American participants' responses to hypothetical soft interventions designed to influence individuals' choice of an energy provider. Their main finding is that *"forcing participants to make a choice between a green energy provider and a standard energy provider led to higher enrollment in the green program than did either green energy defaults or standard energy defaults"*. The authors suggest the following explanation for the result: the need to make an active choice enhances people's feelings of guilt if they don't choose the green energy while the existence of a default triggers feelings of reactance. This is in line with our results of Study 1 suggesting that the default opt-in intervention may be less effective than simply suggesting to people to join such an arrangement

5. Discussion

We carried out a short experiment that makes it possible to test the attitudes towards the intervention methods proposed by advocates of libertarian paternalism. The novelty of this endeavor is in its use of experimental methods to demonstrate the existence of a significant group in the population for whom the mere fact that government intervenes reduces welfare, even if the intervention applies soft methods that leave individuals with all the options that were available prior to the intervention.

Like many others, we believe that the calculation of the welfare effects of an intervention should take into account the preferences for the mechanism used and not just the material

consequence. We obtain several indications of an intervention's negative effect: (a) In Study 1, we observe fairly significant negativity towards the soft intervention. Of particular interest is the significant number of participants who declare they would choose the intended action in the no-intervention context and nevertheless have a negative attitude towards the intervention. (b) The "default arrangement" in Study 1 is quite attractive on its own, in that the vast majority of participants choose to opt-in when the government is not involved. However, when they are told that the government uses choice architecture to increase savings, more participants do not choose the arrangement, possibly as a protest against the government. This is consistent with the phenomenon known as psychological reactance. (c) In Study 2, we measure the preferences among government actions by means of tradeoffs between effectiveness and the method's desirability. We find that a significant group strictly prefers educational intervention to a soft intervention that alters the presentation of the choice set. The method used in the intervention is important to them when the effectiveness of the two types of interventions is identical and they are also willing to pay a price in effectiveness.

The above indications for negative attitude are on top of the existence of the group (14-25%) who feel that governments should not intervene at all in the private domain (Study 2). For them, any intervention makes a negative contribution to their non-materialistic welfare.

The result described in (b) above also implies that the intervention involving a default opt-in may be less effective than simply suggesting to people to join such an arrangement. Again, it is possible that real-life choices will differ substantially from these hypothetical choices and we mainly treat a choice in the experiment as an expression of attitude.

Another interesting finding is that a majority of those supporting the soft intervention also support the hard intervention that involves imposing a tax. Since hard interventions are usually more effective than soft ones, this suggests that the welfare gain from adhering to the liberal principle that the government should not change the set of options available to individuals is smaller than one might have thought.

Our results provide almost no indication that the field of study, gender and age are related to attitudes towards libertarian paternalism. On the other hand, the results do indicate that German participants tend to have a more negative attitude towards soft interventions than American and Israeli participants. Let us emphasize again that the sample is in no way representative and these findings should be treated as suggestive.

In this paper, we have not taken a position as to which government intervention, if any, is to be preferred in a certain context. However, the results raise doubts as to the claim that soft interventions

are obviously welfare-improving. The results also indicate that in some contexts information provision might be socially preferable, especially when its effectiveness is not much less than that of a choice architecture intervention.

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Appendix

The screens shown to participants in Study 1 and Study 2 in the US are presented below. In Germany, the text was in German and the hypothetical scenarios took place in Germany. In Israel, the text was in Hebrew and the hypothetical scenarios took place in Israel.

Study 1

Following are the two screens presented to participants in **Treatment 1**:



Screen 1 out of 6

Economists believe that most people should be saving more than they do today in order to prepare for "rainy days" and for retirement.

Imagine that you are working in a steady job. In order to receive your monthly salary, you need to fill in a short form on the Internet each month. One of the questions on the form asks you to choose a percentage, between 0% and 8%, to deduct from your salary that month for deposit in a special personal savings account. This savings is in addition to the pension plan at your place of employment. The account will earn an attractive return, but you will only be able to withdraw the money after 10 years (from opening the savings account). You may choose a different percentage to save each month.

Now, your employer is offering a new arrangement that may encourage you to save more:

You can set 8% as the **default** rate of savings. If you do this, the question of how much you wish to save will be removed from the monthly form and 8% of your salary will be automatically deposited in the special account each month. You will still be entitled to cancel this default arrangement via an email message or telephone call to the manager at your place of work. If you cancel the arrangement, the savings question will reappear on your monthly form and each month you will need to specify the percentage to deduct from your salary.

The arrangement is based on research that found that people tend to stay with the default. Thus, the arrangement seeks to encourage a worker to save more each month, even if he does not notice this.

Would you choose to use the default arrangement offered you?

☐ I would probably **choose** the arrangement

☐ I would probably **not choose** the arrangement

Send

Alternatively, imagine that the default arrangement offered to the employees in the previous scenario does not exist.

Assume now that the government in USA has decided to try to increase the public's rate of saving and is proposing a new law:

Employers will be required to remove the question about the percentage of saving from the form and set as a **default** that 8% of each employee's salary will be deducted and deposited in the special personal account. That is, by government order 8% of your salary will now be automatically deposited in the savings account each month. However, as in the previous scenario, you will still be able to cancel this default arrangement via an email message or telephone call to the manager at your place of work, and return to choosing the percentage to save each month.

How do you feel about the government decision?

☐ Very positive

☐ Positive

☐ Negative

☐ Very negative

Send

In the first screen of **Treatment 2 and 3**, the beginning of the third paragraph was replaced by the following: "Assume now that the government in USA has decided to try to increase the public's rate of saving and is proposing a new law:

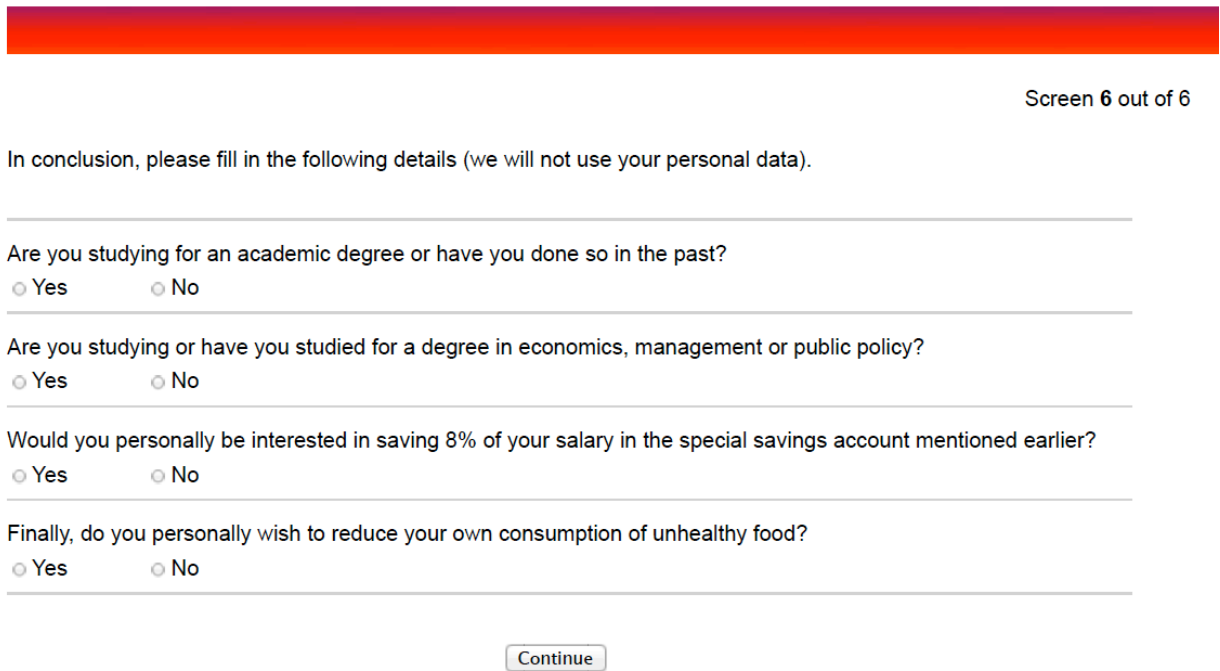
Employers will be required to remove the question about the percentage of saving from the form and set as a **default** that 8% of each employee's salary will be deducted and deposited in the special personal account."

The rest of the text remained the same as in Treatment 1, except for the question that appeared at the end:

- In Treatment 3, participants were asked the following at the end of the first screen: "Would you cancel the default arrangement, so that the question about savings would reappear in your monthly form?" (The possible answers were: I would probably **cancel/not cancel** the arrangement.) In the second screen they were asked "How do you feel about the government decision?", as in Treatment 1.
- In Treatment 2, the order of the two questions was reversed.

After answering these two questions, the participants in all three treatments continued on to answer the questions in Treatments 3-5 of Study 2.

The following is the last screen that these participants were presented with:

The screenshot shows a survey screen with a red header bar at the top. The text "Screen 6 out of 6" is in the top right corner. Below the header, a message states: "In conclusion, please fill in the following details (we will not use your personal data)." There are four questions, each followed by "Yes" and "No" radio button options. The questions are: 1. "Are you studying for an academic degree or have you done so in the past?" 2. "Are you studying or have you studied for a degree in economics, management or public policy?" 3. "Would you personally be interested in saving 8% of your salary in the special savings account mentioned earlier?" 4. "Finally, do you personally wish to reduce your own consumption of unhealthy food?" At the bottom center is a "Continue" button.

Screen 6 out of 6

In conclusion, please fill in the following details (we will not use your personal data).

Are you studying for an academic degree or have you done so in the past?

☐ Yes ☐ No

Are you studying or have you studied for a degree in economics, management or public policy?

☐ Yes ☐ No

Would you personally be interested in saving 8% of your salary in the special savings account mentioned earlier?

☐ Yes ☐ No

Finally, do you personally wish to reduce your own consumption of unhealthy food?

☐ Yes ☐ No

Continue

* In Germany and Israel, Screen 6 included two additional questions requesting the participant's age and gender.

Study 2

The following two screens were presented to participants in **Treatment 1**:



Screen 1 out of 7

There is growing awareness that most of the population consumes too much food that is rich in fat, and that these habits cause many health problems.

The government is considering a tax on fat-rich meals served in restaurants in USA. The tax would be added to the price of the meal and passed on to the government. The idea is that this would reduce the consumption of unhealthy food and thus improve public health.

The government is also considering an alternative action: to develop and market a free application for smart phones that would provide the public with accessible information about the nutritional value of various food products, including all meals served in every restaurant in USA.

Continue



Screen 2 out of 7

In principle, are you in favor of the government acting in some way to influence the public to eat healthier food?

☐ Yes

☐ No

Continue

Those who answered “No” to the last question were presented with the following screen (and then Screen 7):

Screen 3 out of 4

What is the main reason why you are opposed to taking some action to improve the public's eating habits?

☐ I actually think it's okay to eat unhealthy food.

☐ There is no place for government intervention in such a personal area.

☐ I believe that food does not significantly affect the level of health.

☐ I believe that the public's health is not bad.

☐ Other reason.

Continue

Those who answered “Yes” were presented with the following screens:

Screen 3 out of 7

Assume that the government must choose one (and only one) of two actions:

1. Imposing a tax on fat-rich meals, to be added to the price and passed on to the government.
2. Developing an application with accessible information on nutritional values.

Assume that the public cost of imposing a tax is identical to the cost of developing the application **and that both of the actions are equally effective.**

Indicate below how strongly you prefer one of the actions to the other:

Greatly prefer the tax	Slightly prefer the tax	No preference	Slightly prefer the application	Greatly prefer the application
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Continue

The World Health Organization has determined that consumption of unhealthy food above a certain level is significantly harmful to human health. Today, most of the public is above this level. The improvement in public nutrition resulting from any government action is measured according to the percentage of the population that moves below this level as a result of the action.

Your preferences between the two actions from the previous page (imposing a tax and developing an application) may change when the effectiveness of these actions is not identical.

Thus, we ask you to indicate in each row of the following table whether and how various data on the effectiveness of the two actions would affect your preferences:

Improvement after imposing the tax	Improvement after developing the application	I would choose the -	
8%	20%	<input type="radio"/> tax	<input type="radio"/> application
12%	20%	<input type="radio"/> tax	<input type="radio"/> application
16%	20%	<input type="radio"/> tax	<input type="radio"/> application
20%	20%	<input type="radio"/> tax	<input type="radio"/> application
24%	20%	<input type="radio"/> tax	<input type="radio"/> application
28%	20%	<input type="radio"/> tax	<input type="radio"/> application
32%	20%	<input type="radio"/> tax	<input type="radio"/> application

Continue

Alternatively, assume that the government is considering requiring all restaurants in USA to list their menu items by how healthy they are - from low-fat items to those rich in fat. Today, restaurants usually list the items on their menus by price, from the least expensive to the most expensive in each category.

The government is relying on psychological studies showing that people tend to choose options displayed at the top of a list (even if they would not have chosen them if they had appeared lower down in the list). The idea is to exploit this tendency in order to make people choose healthier food, without them even realizing that they are being influenced by the order of the items on the menu.

The government's proposal is part of a general approach that advocates "soft" intervention. Such intervention uses the psychological inclinations of people to induce them to make choices that will be better for most of them (although not for everyone). They do not force the citizens to act in a particular way and do not prevent them from choosing anything they could have chosen prior to the intervention.

Critics of the proposal say that every person should be responsible for his personal choices and that it is not appropriate for the government to get involved in what a person puts on his plate. They also argue that this is manipulation in the sense that it exploits a person's psychological inclinations to lead him to particular choices without him being aware of this.

Assume now that the government must choose one (and only one) of the following two actions:

1. Requiring the listing of items on restaurant menus by their healthiness.
2. Developing a free application with accessible information about nutritional values.

Assume that the cost of enforcing the requirement to list menu items by their healthiness is identical to the cost of developing the application and that both of the actions are equally effective.

Indicate below how strongly you prefer one of the actions to the other:

Greatly prefer the menu requirement	Slightly prefer the menu requirement	No preference	Slightly prefer the application	Greatly prefer the application
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Continue

Your preferences between the two actions from the previous page (requiring the listing of menu items by healthiness and developing an application) may change when the effectiveness of these actions is not identical.

Thus, we ask you to indicate in each row of the following table whether and how various data on the effectiveness of the two actions would affect your preferences:

Improvement after requiring the listing of menu items by healthiness	Improvement after developing the application	I would choose the -	
8%	20%	<input type="radio"/> menu requirement	<input type="radio"/> application
12%	20%	<input type="radio"/> menu requirement	<input type="radio"/> application
16%	20%	<input type="radio"/> menu requirement	<input type="radio"/> application
20%	20%	<input type="radio"/> menu requirement	<input type="radio"/> application
24%	20%	<input type="radio"/> menu requirement	<input type="radio"/> application
28%	20%	<input type="radio"/> menu requirement	<input type="radio"/> application
32%	20%	<input type="radio"/> menu requirement	<input type="radio"/> application

Continue

In conclusion, please fill in the following details (we will not use your personal data):

Are you studying for an academic degree or have you done so in the past?

☐ Yes ☐ No

Are you studying or have you studied for a degree in economics, management or public policy?

☐ Yes ☐ No

Finally, do you personally wish to reduce your own consumption of unhealthy food?

☐ Yes ☐ No

Continue

* In Germany and Israel, Screen 7 included two additional questions that requested the participant's age and gender.

- **In Treatment 2**, which had the same structure as Treatment 1, the first comparison was between ordering menu items according to healthiness and development of an application. The second comparison was between development of an application and a government prohibition against serving fatty foods in restaurants on Wednesdays.
- **In Treatment 3-5**, participants were not presented with Screen 2 (which contained the following question: “In principal, are you in favor of the government taking measures to influence the public to eat healthier?”)

In those treatments, each participant made only one comparison between a pair of policies:

In Treatment 3 - between a tax on high-fat meals and an information campaign.*

In Treatment 4 – between an information campaign and development of an application.

In Treatment 5 - between ordering menu items according to healthiness and an information campaign. **In this treatment, we eliminated the two paragraphs on the advantages and disadvantages of soft interventions that appear in Screen 5 of Treatment 1** (which starts with: “The government's proposal is part of a general approach...”)

* Following is the description of the *information campaign* intervention that appeared in Treatment 3 (and similarly in Treatments 4 and 5): “The government is also considering an alternative action: launching an extensive information campaign in the media that would explain which foods are rich in fat and how they are harmful to our health. “