

The People's Perspective on Libertarian-Paternalistic Policies

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Abstract

The views toward libertarian-paternalistic (soft) government interventions are examined in a series of online experiments carried out in three countries. Both standard and new methods are used to elicit attitudes towards soft interventions in various hypothetical scenarios. The majority of the participants accept this type of intervention by the government. However, a substantial proportion oppose them and would prefer that the government simply provide information to help the public make the right choice rather than using a more effective choice architecture intervention. Some even refuse to make the choice that the government is promoting, although they would have done so in the absence of the intervention. The opposition to soft interventions appears to be driven by concerns about manipulation and the fear of a “slippery slope” to non-consensual interventions. Opposition to soft interventions is reduced when they are carried out by employers rather than the government.

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

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1. Introduction

1.1 Background

The paper seeks to provide a deeper understanding of the public's attitude towards the soft government interventions advocated by supporters of libertarian paternalism. We report the results of a series of online experiments designed to explore the existence of a negative attitude towards soft interventions and examine the aspects of an intervention that are most likely to lead to this negative attitude.

Government interventions in personal decision making can be classified into three types: (i) hard interventions - which change the choice set of the individuals (such as taxes or prohibition of particular choices); (ii) informational interventions - which provide an individual with the information needed to make an informed decision (such as by means of accessible smartphone apps); and (iii) soft interventions - which preserve the set of options but affect the way that the set is perceived in order to nudge the individual in a particular direction. Frequently discussed examples of soft interventions include setting a particular rate of retirement saving as a “default option” (Choi et al., 2004 and Madrian and Shea, 2001) and placing healthy foods at the most noticeable locations in cafeterias (Rozin et al., 2011 and Thaler and Sunstein, 2009).

Libertarian paternalism argues for the use of soft interventions by the government (or some other institution) in an individual's decision making process in an attempt to improve public welfare (Camerer et al., 2003, Sunstein, 2014 and Thaler and Sunstein, 2003). The approach makes use of insights from psychology, marketing and behavioral economics. Much of its attractiveness lies in the fact that it seeks to steer individuals toward the “right” decisions while preserving the principle of freedom of choice.

1.2 Critiques of libertarian paternalism

The libertarian-paternalistic approach has been enthusiastically adopted by the public and some governments but has also ignited an intense debate. In this paper, we do not analyze the arguments for and against the “nudge approach” and do not present our own opinion on the issue. Rather, we seek to (i) experimentally determine whether a significant portion of the population who agree with the goals of a soft intervention nevertheless resist it, and (ii)

determine which of the aspects of such interventions bother the public the most.

In order to pursue the second goal, we classify the arguments discussed in the literature against libertarian paternalism into five categories. We also briefly summarize the main counter-arguments, often utilizing Sunstein (2015a), a recent and comprehensive defense of the libertarian-paternalistic approach.

1. *Disagreement with the goal.* The designers of libertarian-paternalistic policies attempt to increase public welfare, or at least what they perceive it to be. However, even in cases where one would expect unanimous support for the intervention's goal, there still may be some who oppose it (see Vallgård, 2012). For example, not all people agree that they should save more and, even among those who do, there is no agreement on the desirable rate of saving.

Advocates of the approach agree that nudges should be used to steer behavior only when it is clear that a vast majority of the population will benefit. In order to minimize the potential mismatch between the individual and the intervention's goals, Johnson et al. (2012) propose finding reliable ways to tailor a nudge to personal characteristics.

2. *Private decisions are not the government's business.* People should have autonomy in any private decision that does not involve externalities¹ and libertarian paternalism interferes with this autonomy (Feinberg, 1986, Rebonato, 2012, and Sugden, 2008a). Issues such as nutrition are none of the government's business. It is doubtful that governments can prove that the interventions indeed enhance agents' well-being (Fumagalli, 2016). Policy makers are in the end only human and the possibility that they will fail to make the correct decision on behalf of an individual is not less likely than the individual failing to do so on his own (Glaeser, 2006). Some argue that the market is a viable alternative to paternalism (Sugden, 2008b).

The proponents of soft interventions argue that individuals are always influenced by the decision making context in any case, and therefore it is better that the government be the choice architect striving to adjust it to their benefit. Sunstein (2015a) argues that a nudge which corrects decision makers' biases actually increases the individuals' autonomy since it frees them to focus on what they feel are the most important decisions.

3. *Concerns about manipulation.* In many soft interventions, the planner manipulates the

¹ Note that our experiments involve interventions that influence decisions that have no direct externalities.

individuals without them being aware. Even if people are informed of the technical details of the intervention, they may not be aware of the relevant psychological phenomena and might not internalize the potential effect of the intervention on their decision making. It is inappropriate for the government to influence the decision making of individuals without their knowledge and consent (see, for example, Grüne-Yanoff, 2012, Hansen and Jespersen, 2013, Rebonato, 2014 and White, 2013).

Thaler and Sunstein (2003) dismiss the criticism by claiming that choices are always influenced by the architecture of the choice problem and thus the criticism is “a literal non-starter”. Sunstein (2015a) discusses the concept of manipulation and argues that most nudges are not manipulative. He further argues that requiring full transparency of the government’s activity of this type would limit the degree of potential manipulation. When concern remains, one should weigh the benefits against the harm of a light manipulation.

4. *Concerns about neglect of personal responsibility.* Government interventions in personal domains free individuals from taking personal responsibility for their choices and encourage the development of “fragmented selves” who become dependent on the authorities for guidance (Selinger and Whyte, 2011 and White, 2011).

Sunstein (2015a) argues that in many contexts decision makers ought to acquire a stock of knowledge for making a proper decision. Nudging may free individuals from such unnecessary tasks, allowing them to focus on decisions that no one else can be responsible for.

5. *Concerns about a slippery slope.* The success of soft interventions and their legitimacy due to their liberal appearance may pave the way for the use of such interventions for non-legitimate purposes or to achieve goals that lack a consensus (Rizzo and Whitman, 2009, Hausman and Welch, 2010 and Rebonato, 2012).

The proponents of libertarian paternalism are aware of the risk and argue that the government should not hide its nudge activities and should inform people of efforts to influence their choices, even at the risk of reducing their effectiveness. Sunstein (2015a) states that generalized distrust of the government may lead to restraints on nudging in a way that “will likely produce serious losses in terms of both welfare and freedom.”

1.3 Summary of our results

What does the public think about libertarian-paternalistic interventions? We report the findings of three online experiments conducted among students at six universities in Germany, Israel and the US. The experiments elicited individuals' choices and attitudes in hypothetical scenarios that involve soft and informational government interventions.

Following is a summary of the main insights:

(1) The extent of negative attitude towards soft interventions. We asked participants to express their attitude towards two soft government interventions: setting a default saving rate with the goal of increasing personal saving and using background music in workplace cafeterias to encourage the consumption of healthy food. In almost all cases, a majority of participants regarded the soft interventions positively. However, a significant proportion (varying from 28% to 53%, depending on the country and the specific intervention) expressed a negative attitude towards such soft interventions.

(2) Relative preference for informational interventions. The preference of one intervention method over another was measured using a methodological approach that is novel to the literature on behavior change and public policy. Participants were asked to compare sequentially between a pair of interventions with a shared goal, where one is soft and the other is informational. Each comparison specified the effectiveness of the interventions: the effectiveness of the informational intervention was fixed while the effectiveness of the soft intervention varied. This allowed us to elicit the degree of effectiveness that the participant is willing to sacrifice in order that his preferred method be adopted rather than an alternative.

We found that a significant proportion of the participants prefer that the government only provide information to the public rather than implementing a more effective soft intervention: 21%-37% strictly prefer that the government introduce an app that provides information on healthy nutrition over requiring that the items on restaurant menus be ordered from healthy to less healthy; and 55%-68% strictly prefer labeling healthy food over the use of background music in cafeterias to encourage the consumption of healthy food. The preferences of almost all other participants are essentially based on the effectiveness of the interventions.

(3) Psychological reactance. We compare two treatments in which participants were asked to consider a hypothetical arrangement where instead of having to decide on one's saving rate every

month, there would be a default rate. In one treatment, the arrangement is imposed by the government and participants can opt-out; in another, participants choose whether or not to join the arrangement without the government being involved. The proportion of participants who chose to adopt the arrangement without government involvement is larger than the proportion of participants who did not opt-out when the government automatically enrolled them in the arrangement. The difference between these proportions may reflect psychological reactance to the pressure to behave in a particular manner (see Brehm, 1966; Wortman and Brehm, 1975). This finding differs from that of Loewenstein et al. (2015) who found that alerting individuals to the existence of a default option did not change their behavior.

(4) Determinants of a negative attitude towards soft interventions. In order to investigate the motives behind the negative attitude of many of the participants towards soft interventions, we examined the extent to which their agreement with each of the five critiques listed above explain their overall attitude towards a particular soft intervention. We suggest that concerns about manipulation² and about a slippery slope are largely responsible for opposition to the intervention. These concerns are also present among many of the participants who supported the intervention.

(5) Relative preferences for employer intervention. We examined a soft intervention carried out by employers, rather than the government, to encourage their employees to eat healthier food. We found that both in Israel and the US, the resistance to such a soft intervention is reduced if it is carried out by employers rather than the government, whereas in Germany it made no difference.

Several studies have investigated public attitudes towards soft and informational interventions. Of particular interest are Hagman et al. (2015), Sunstein (2015b), Tannenbaum et al. (2017), and Jung and Mellers (2016).³ Overall, our results are not inconsistent with theirs though they differ in several key ways:

² Concerns about manipulation were also found in Felsen et al. (2013) who considered interventions carried out by employers. They find that participants were more favorable to an intervention which activates a conscious process than one which activates an unconscious process.

³ Hagman et al. (2015) carried out surveys in Sweden and the US and reported general acceptance of nudges; however, a majority of respondents also found the nudges to be intrusive. Sunstein (2015b) surveyed a representative sample in the US and elicited their views on informational and soft interventions. He found that a class of popular nudges was supported by a majority of the subjects when asked whether they approve or disapprove

(i) We find that a small but significant proportion of participants behave as if they are protesting against the intervention by contrarily not making the choice which is being encouraged by the government.

(ii) In previous studies, participants were asked to state whether, or to what extent, they support an intervention. The answers might reflect the extent of agreement with the intervention's goal and an estimation of its effectiveness rather than the attitude towards its method. Our approach of comparing between two interventions with the same goal and different degrees of effectiveness, makes it possible to elicit participants' attitude towards the intervention's method independently of their support for its goal and their belief about its effectiveness.

(iii) We investigate the motives behind negative attitudes towards soft interventions and the presence of these sentiments even among supporters of the interventions.

(iv) We examine whether opposition to an intervention is reduced if it is carried out by an employer rather than the government.

The structure of the paper is as follows: In Section 2, we present the methodology. In Section 3, we present the results on the extent of opposition towards soft interventions. In Section 4, we investigate which arguments against soft interventions are dominant among those who oppose such interventions. In Section 5, we compare the opposition to soft interventions in the case they are carried out by the government and the case they are carried out by an employer. Section 6 concludes with some brief comments on potential applications of the results.

2. Method

We carried out three studies, each of which concerns a different soft intervention to encourage either increased saving or a healthier diet. The experiments were carried out online among

of the intervention. The proportion of subjects that opposed nudges in his survey is somewhat smaller than in our sample. Tannenbaum et al. (2017) found that in the US 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 largely determines whether an individual supports it. Jung and Mellers (2016) studied attitudes in the US toward a variety of interventions, some of which utilized System I (such as setting defaults) and others which utilized System II (such as providing information). The results indicated that people tend to view most System II nudges as being more effective and also more acceptable.

undergraduate students at six universities: two in Germany (University of Hamburg and University of Mannheim), two in Israel (Ben Gurion University and Tel Aviv University) and two in the US (New York University and Ohio State University).⁴

2.1 Study 1: Automatic enrollment intervention to encourage saving

Participants were randomly assigned to one of the treatments T_1 , T_2 or T_3 .⁵ Participants responded to a sequence of questions about their attitude towards hypothetical government interventions. Specifically, they were asked to imagine that they work for a firm in which employees had the opportunity to deposit between 0% and 8% of their salary in a special saving account that offers an attractive interest rate, with the restriction that the money would only be available after 10 years. Initially, the employees had to choose their rate of saving every month. A new arrangement was then offered which involves a default rate of savings from one's salary, with the goal of increasing the employees' rate of saving.

In T_1 , which did not involve any government intervention, participants chose between determining the saving rate each month and joining (opting-in to) the *default saving arrangement* in which 8% of one's salary is automatically deducted and deposited in the saving account, unless the employee provides a one-time instruction to cancel the arrangement (and then goes back to determining the rate again every month). In T_3 , 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 default saving arrangement. In both T_1 and T_3 , the second question examines how the participant feels (on a scale of 1 - very positive to 4 - very negative) about the government imposing an automatic enrollment into the default saving arrangement. T_2 is similar to T_3 except that the order of the questions is reversed. In all screens presented to the participants, the order of the possible answers was determined randomly (see Appendix A for the appearance of the screens). Table 1 summarizes the structure of the experiment.

⁴ Invitations to participate were sent by email. In order to encourage participation, one out of every 20 participants was randomly selected to receive a fixed amount of money (independent of their responses) that was roughly equivalent to \$30. The proportions of men and women were similar.

⁵ The number of participants in Germany was 345 (96, 117, and 132 in T_1 , T_2 and T_3 , respectively), in Israel 462 (159, 150 and 153) and in the US 310 (111, 102 and 97). The above numbers do not include 5% of the participants who spent the least time reading the first screen in the experiment.

	T ₁	T ₂	T ₃
<i>Screen 1</i>	Would you opt-in independently? (without the intervention)	Attitude towards the soft government intervention	Would you opt-out after the soft government intervention?
<i>Screen 2</i>	Attitude towards the soft government intervention	Would you opt-out after the soft government intervention?	Attitude towards the soft government intervention

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

Goal

The objective of this study was to understand how individuals react when they are made aware of a soft intervention. We measure (a) the proportion of participants who express a negative attitude towards the government soft intervention and (b) the extent of opposition to the government intervention in T₁ among individuals who intended to opt-in to the default saving arrangement in any case (without the government automatic enrollment intervention). We also test whether psychological reactance (Brehm, 1966) led some participants to opt-out of the arrangement in T₂ and T₃ even though they probably would have joined it had there been no intervention (T₁).

2.2 Study 2: Ordering restaurant menus to increase the selection of healthy dishes

The study consisted of five randomly assigned treatments T₁, T₂, T₃, T₄ and T₅.⁶ (T₃, T₄ and T₅ are used to check the robustness of the results and are presented in Appendix B.) In each treatment, participants were presented with a hypothetical scenario in which the government is considering various interventions intended to improve the public's eating habits and in particular decrease the consumption of fatty foods. We considered four government actions (interventions) in T₁ and T₂:

- (1) **Prohibiting** the serving of extremely fatty food in restaurants on Wednesdays – a hard intervention.
- (2) Imposing a **Tax** on extremely fatty food served in restaurants, which will be added to the price of a meal – a hard intervention

⁶ The number of participants in Germany was 600 (120, 135, 96, 117 and 132 in the five treatments, respectively), in Israel 740 (136, 142, 159, 150 and 153) and in the US 549 (121, 118, 111, 102 and 97). The above numbers do not include 5% of the participants who spent the least time reading the first screen in the experiment.

(3) Requiring restaurants to **Order** the items on a menu from healthiest to unhealthiest⁷ – a soft intervention.

(4) Providing information through a smartphone **App** to be created by the government, which will make available information on the nutritional value of the items on every restaurant’s menu – an informational intervention.

In each of the treatments, a participant was asked to compare between different pairs of government actions. Each comparison between actions X and Y consisted of two questions: The first asked the participant to compare the actions, given that they are equally effective in improving the public’s eating habits, on 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 Appendix A). This question was included only in order to facilitate the participant’s understanding of the second question, which asks for finer information and is the core question of this study. The results for the two questions are largely consistent and therefore we report only the results of the second.

The second question was designed to elicit a participant’s subjective tradeoff 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 proportion of the population that drops to below this level as a result of the action.”* Participants were asked to indicate their preference between the two government actions X and Y in each row of a table structured like Table 2 (i.e. given various relative levels of effectiveness of X and Y). Participants revealed a strong preference for the action X by choosing it even in cases where the action Y is expected to be more effective, and vice versa.

We find the above tool to be more suitable for eliciting attitudes towards public policies than commonly used measures such as approval/disapproval or rating of support according to some scale. It provides more information than an abstract question such as “How much do you support the new policy?” since it forces the participants to express their subjective tradeoff between the effectiveness of an intervention and the desirability of its method. Furthermore, the

⁷ 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.

evaluation of a policy is sensitive to the policy's estimated effectiveness and in real life is almost always done in comparison to alternatives.

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 2. The table used to elicit preferences between action X and action Y in Study 2.

In T₁ and T₂, participants were asked to compare Order (a soft intervention) to App and also either Tax or Prohibition (both of which are hard interventions) to App. This makes it possible not only to assess the resistance of participants to soft and hard interventions but also to examine the correlations between their attitudes towards the two types of interventions (presented in Appendix B).

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 issue of consumption of unhealthy food and asked participants whether they think the government should intervene in order to improve the public's eating habits (see Screen 2 of Study 2 in Appendix A). 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 Appendix A). Those who answered "Yes" continued on and were asked to compare between pairs of policies, as described above. A summary of the two treatments appears in Table 3.

	T ₁	T ₂
<i>Screen 1: Should the government intervene?</i>	Continue if “Yes” (otherwise, explain why)	
<i>Screen 2: Comparison when equally effective</i>	Tax vs. App	Order vs. App
<i>Screen 3: Tradeoff comparison</i>	Tax vs. App	Order vs. App
<i>Screen 4: Comparison when equally effective</i>	Order vs. App	Prohibition vs. App
<i>Screen 5: Tradeoff comparison</i>	Order vs. App	Prohibition vs. App

Table 3. Description of T₁ and T₂ in Study 2.

Goal

The objective of this study was to measure (a) the proportion of participants who object to *any* government intervention in the public's eating habits (Screen 1) and (b) the proportion of participants in T₁ and T₂ who have strong preferences for informational interventions and are ready to sacrifice effectiveness so that App (rather than Order) will be adopted.

2.3 Study 3: Background music to encourage a healthier diet and reasons for objection to it

Participants were randomly assigned to one of two treatments, T_G or T_E.⁸ In T_G, participants responded to a sequence of questions about their attitude towards hypothetical government interventions that seek to encourage healthy eating habits in the workplace. T_E is identical except that the government intervention was replaced by an intervention by employers. We describe below only the main treatment, namely T_G.

The treatment consisted of four screens (see Appendix A):

First screen - Attitude towards green labeling intervention: Participants were told that there is growing awareness that most of the population consumes too much unhealthy food. They were presented with a scenario in which the government has decided to take action to reduce the consumption of unhealthy food by requiring workplace cafeterias to mark healthy foods with a

⁸ The study was carried out in the same way as studies 2 and 3 except that here only three universities took part: University of Hamburg, Tel Aviv University and Ohio State University. The number of participants in Germany was 219 (114 in T_G), in Israel 155 (73 in T_G) and in the US 213 (112 in T_G). The above numbers do not include 5% of the participants who spent the least time reading the first screen in the experiment.

green label. The participants rated their attitude to such an intervention on a scale of 1 (very positive) to 5 (very negative).

Second screen - Attitude towards a background music intervention: Participants were told that psychological studies have shown that background music unconsciously affects people's consumption habits (see, for example, Hansen and Melzner, 2014). They were then asked to assume that background music of a certain type induces people to refrain from eating unhealthy food and that the government has decided to reduce the population's consumption of unhealthy food by requiring workplace cafeterias to play this type of background music. Again, the participants rated their attitude to such an intervention on a scale of 1 (very positive) to 5 (very negative). Note that this type of intervention is not all that farfetched given that background music is a commonly used marketing tool (see Bruner, 1990 and North and Hangreaves, 2009).

Third screen – Reaction to five statements about the background music intervention: This screen constitutes the core of Study 3. We composed the following five statements that correspond to the five critiques discussed in the introduction. Participants were asked to what extent they agree with each of the statements on a scale of 1 to 5 (1 - strongly agree, 2 - tend to agree, 3 - neutral, 4 - tend to disagree, 5 - strongly disagree).

3.1 People should significantly reduce their consumption of unhealthy food.

3.2 People's nutrition is not the government's business.

3.3 It is inappropriate for the government to influence personal decisions without people's knowledge.

3.4 There is a concern that this sort of intervention may lead individuals to absolve themselves of responsibility for their own health.

3.5 Successful intervention is likely to lead the government to try to similarly influence personal decisions in domains where there is no consensus on what is the appropriate choice.

Fourth screen - Tradeoff between the desirability and effectiveness of the background music and green labeling interventions: We used the same type of question as in Study 2 (see Table 2): a participant was asked to compare between the green labeling and background music interventions, assuming various differences in their effectiveness.

Goal

This study's main goal was to investigate the reasons for negative attitudes towards some soft interventions. This is accomplished by examining the participants' reactions to statements 3.1-3.5 and the connection between participants' extent of agreement with the statements and their general attitude towards the background music soft intervention. Statement 3.1 is intended to screen out the participants who did not agree with the goal of the intervention. The other four statements correspond to the other four main reasons for opposing soft interventions that were discussed in the introduction.

3. Evidence for the extent of opposition to soft interventions

In what follows, we separately discuss each of the three soft interventions: (1) automatic enrollment to encourage saving; (2) ordering of menu items to increase the selection of healthy food; and (3) background music in a cafeteria to encourage healthier choices. We present the results from the three countries side by side and focus on the common patterns rather than the differences.

3.1 Opposition to automatic enrollment to encourage saving (Study 1)

Negative attitude towards the soft government intervention

The results indicate that although a majority of the participants (except in Germany) have a positive attitude towards the soft intervention, a sizable proportion (53% in Germany, 28% in Israel, and 42% in the US) have a negative attitude.⁹

The proportions of participants with a negative attitude towards the automatic enrollment intervention in the three treatments are presented in Table 4. The data for T₂ and T₃ was merged since we did not find 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.

⁹ The 95% confidence intervals are (48%, 58%) in Germany, (24%, 32%) in Israel, and (36%, 48%) in the US.

Negative attitude	Germany	Israel	USA
<i>Among those who would opt-in independently in T₁</i>	59% (n=71)	26% (n=126)	42% (n=87)
<i>Among those who would not opt-in independently in T₁</i>	85% (n=25)	64% (n=33)	74% (n=24)
<i>Among all participants in T₁</i>	66% (n=96)	34% (n=159)	50% (n=111)
<i>Among all participants in T₂ and T₃</i>	48% (n=249)	25% (n=303)	38% (n=199)

Table 4. Proportions of participants with a negative attitude towards the government automatic enrollment 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 soft intervention the individuals could have simply been asked whether they are interested in the default arrangement (as was done in the first screen of T₁).

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 so independently (without government involvement) than among those who stated they would. However, even among participants who said they would opt-in to the arrangement independently, a considerable proportion – 59% in Germany, 26% in Israel and 42% in the US – felt negatively about the soft government intervention of imposing automatic enrollment.

Reactance to the government intervention

The percentage of participants who chose not to opt-out when they became aware of the government intervention is smaller than the percentage of those who chose to opt-in in the case that the government is not involved (Table 5). The gap in Israel is small (9%-11%) but statistically significant ($\chi^2(1)=4.37$, $p<0.05$). 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).

Thus, the default arrangement is perceived as attractive when the government is not involved, which is reflected in the high percentage of those choosing to opt-in in T₁. Nevertheless, for a not insignificant proportion of participants the arrangement becomes

undesirable when the government makes it the default. This may be a reflection of a psychological reaction to the government intervention.

	Germany	Israel	USA
<i>Opting-in (T₁)</i>	74% (n=96)	79% (n=159)	78% (n=111)
<i>Not opting-out (T₂)</i>	42% (n=117)	70% (n=150)	60% (n=102)
<i>Not opting-out (T₃)</i>	55% (n=132)	68% (n=153)	65% (n=97)

Table 5. Opting-in with no government involvement vs. not opting-out with government involvement in Study 1.

3.2 Opposition to the ordering of menu items to encourage a healthier diet (Study 2)

Objection to any type of government intervention to encourage a healthier diet

In total, 19% of the participants in Germany, 14% in Israel and 25% in the US stated in Screen 1 that the government should not intervene in any way.¹⁰ Most of them (76%-80%) provided the explanation that it is not the government's business to intervene in the private domain. The results of T₁ and T₂ presented in the rest of this section relate only to those participants who think that some form of government action is justified in this context.

Preference for the provision of information over the menu ordering intervention

We now turn to the comparison between interventions under different assumptions about their effectiveness (Table 2). 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* (i.e. between the subjective desirability of the intervention's method and its effectiveness).

Table 6 presents a summary of the preferences in T₁ and T₂ for the comparison between Order and App.¹¹ A majority of the participants consistently prefer the intervention which is more effective. However, 21%-37% of the participants *strictly prefer* App to Order even at the

¹⁰ The 95% confidence intervals are (14%, 24%) in Germany, (10%, 18%) in Israel and (20%, 30%) in the US.

¹¹ In the presentation of the results, we have eliminated participants whose answers to questions structured like those in Table 2 were not monotonic.

price of reduced effectiveness.¹² Similarly, 19%-54% of the participants strictly prefer a government information campaign over Order (T₅; see Appendix B).¹³ 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 to be adopted. In fact, almost half of the individuals in this group were willing to sacrifice 12% or more in effectiveness.

	Germany (n=206)	Israel (n=239)	USA (n=180)
<i>Strictly prefer Order</i>	13%	9%	13%
<i>No tradeoff</i>	50%	55%	66%
<i>Strictly prefer App</i>	37%	35%	21%

Table 6. Comparison between Order and App in T₁ and T₂ of Study 2.

3.3 Opposition to background music intervention to encourage a healthier diet (Study 3)

The results reported here are for T_G, in which the government intervenes in an attempt to reduce the consumption of unhealthy food. The results of Treatment T_E, in which the employer initiates the intervention, are reported in Section 5.

Negative attitude towards the government background music intervention

A majority of the participants positively viewed this soft government intervention; nonetheless, a considerable proportion of the participants – 35% in Germany, 45% in Israel and 31% in the US¹⁴ – viewed it negatively (response 4 or 5 to Question 2).

Preference for information provision over the background music intervention

In contrast to the attitude towards the background music intervention, a negligible proportion of the sample (6% in Germany, 4% in the US and none in Israel) viewed the green labeling

¹² The 95% confidence intervals are (33%, 44%) in Germany, (29%, 41%) in Israel and (15%, 27%) in the US.

¹³ In the main treatments that included Order, i.e. 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. In T₅, this summary was omitted. This did not qualitatively affect the results.

¹⁴ The 95% confidence intervals are (26%, 44%) in Germany, (34%, 56%) in Israel and (22%, 40%) in the US.

informational intervention (Question 1) negatively. The preference for the green labeling informational intervention over the background music intervention is also reflected in the results of Question 4, i.e. the tradeoff question: a majority of participants (55%–67%) are willing to sacrifice effectiveness in order for the green labeling intervention to be adopted rather than the background music intervention (see Table 7).¹⁵

	Germany (n=106)	Israel (n=72)	USA (n=107)
<i>Strictly prefer Music</i>	5%	0%	1%
<i>No tradeoff</i>	34%	33%	44%
<i>Strictly prefer Labels</i>	61%	67%	55%

Table 7. The proportion of participants who strictly prefer each of the interventions in T_G of Study 3.

3.4 Summary of the measured opposition

We summarize the extent of opposition according to two of the measures used in the studies. First, the standard method of eliciting participants' attitudes using some scale showed that 28%–53% of the participants hold a negative attitude towards the automatic enrollment intervention and 31%–45% have a negative attitude towards the background music intervention. Although the scale used in the two studies was not identical, the degree of the negative attitude towards the two interventions appears to be similar.

Second, the elicitation of participants' tradeoff between effectiveness and the desirability of the intervention method showed that 21%–37% strictly prefer an app (an informational intervention) over the menu ordering intervention and 55%–67% strictly prefer the green labeling informational intervention over the background music intervention. (Although these two soft interventions share the same goal of encouraging a healthier diet, we do not use the results to compare the opposition towards the intervention method because the alternative informational intervention differs between the two studies.¹⁶) The results suggest that a large proportion of the participants prefer an intervention that provides information on the nutritional value of the dishes

¹⁵ As in Study 2, we have eliminated the participants whose answers were not monotonic.

¹⁶ Moreover, in Study 2, the group of participants who were asked about the menu ordering intervention does not include the 14%–25% of the participants who believe that there is no justification for *any* intervention.

over an intervention that manipulates them to eat healthier food, even if the latter is more effective.

4. Evidence on the reasons for opposition to soft interventions

In this section, we use the results for T_G in Study 3 to investigate the potential determinants of a negative attitude towards soft government interventions. Recall that Question 2 elicited the attitude towards the government background music intervention on a scale of 1-5 while Question 3 elicited the level of agreement with various statements regarding this intervention, each of which correspond to a potential reason for opposition to the intervention and to soft interventions in general, i.e. (1) disagreement with the intervention's goal; (2) a belief that what people eat is not the government's business; (3) concerns about being manipulated; (4) personal responsibility concerns; and (5) slippery slope concerns. Here we explore the link between agreeing with each of these statements and the attitude towards the intervention.

While there was considerable opposition to the background music intervention method, according to the responses to Question 3.1, there was almost no objection to the goal of the intervention, i.e. reducing the consumption of unhealthy food (3% in Germany, 4% in the US and none in Israel).

In order to gain further insight into the reasons for opposition to the background music soft intervention, despite agreeing with its goal, we eliminated the (very few) individuals who did not support the goal and test the other potential reasons among the remainder of the participants. In particular, we examine the link between the attitude towards the intervention and various views reflected in the responses to questions 3.2-3.5 regarding the intervention's method and potential consequences. Table 8 compares these views between two groups, namely those who hold a negative attitude towards the intervention (answered 4 or 5 to Question 2) and the rest.

	Germany		Israel		USA	
	Negative (n=37)	The rest (n=74)	Negative (n=33)	The rest (n=40)	Negative (n=34)	The rest (n=74)
<i>3.2 It is not the government's business</i>	3.03 (1.26)	3.61 (1.04)	3.27 (1.1)	3.80 (0.85)	3.00 (1.28)	3.11 (0.95)
<i>3.3 Concerns about manipulation</i>	1.65 (0.92)	2.74 (1.09)	1.64 (0.93)	2.53 (0.78)	1.91 (1.08)	2.42 (1.05)
<i>3.4 Personal responsibility concerns</i>	2.68 (1.00)	3.07 (1.01)	2.91 (1.26)	3.43 (1.06)	2.35 (1.13)	2.99 (1.01)
<i>3.5 Slippery slope concerns</i>	2.08 (0.95)	2.58 (0.92)	1.58 (0.75)	2.55 (1.13)	1.91 (0.87)	2.43 (0.94)

Table 8. Average level of agreement (1 is strongly agree and 5 is strongly disagree) with statements about the background music intervention in T_G of Study 3 (standard deviations in parentheses).

In all three countries, people who hold a negative attitude towards the intervention tend to agree more with all four statements, although in some cases this tendency is not very pronounced. The correlation between a negative attitude to the intervention and the level of agreement with each of the statements suggests the following relationships: a negative attitude is related to agreement with all the statements except for personal responsibility concerns in Germany and “it is not the government’s business” in the US. In Germany, the strongest correlation is with concerns about manipulation (Pearson’s $r=0.45$, $p<0.001$); in Israel, the strongest correlation is with manipulation concerns (Pearson’s $r=0.47$, $p<0.001$) and slippery slope concerns (Pearson’s $r=0.45$, $p<0.001$); and in the US, the strength of the correlation is roughly the same for manipulation concerns (Pearson’s $r=0.22$, $p<0.05$), personal responsibility concerns (Pearson’s $r=0.27$, $p<0.01$) and slippery slope concerns (Pearson’s $r=0.26$, $p<0.01$).

In order to understand the relative importance of each factor in explaining the attitude towards the intervention, a linear regression was run with attitude (1-5) as the dependent variable and agreement with the four statements (3.2-3.5) as explanatory variables.¹⁷ The results appear in Table 9.

¹⁷ Adding the level of agreement with the intervention's goal (statement 3.1) does not qualitatively change the results.

Dependent variable: Attitude towards the background music intervention	Germany	Israel	USA
<i>Not the government's business</i>	-0.07 (0.09)	0.02 (0.15)	0.03 (0.11)
<i>Manipulation concerns</i>	-.48*** (0.09)	-0.44** (0.17)	-0.10 (0.11)
<i>Personal responsibility concerns</i>	0.04 (0.10)	-0.08 (0.12)	-0.21** (0.11)
<i>Slippery slope concerns</i>	-0.11 (0.11)	-.27* (0.14)	-0.20* (0.12)
R^2	0.28	0.24	0.11
N	111	73	108

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 9. Coefficients in a linear regression where the dependent variable is attitude towards the government background music intervention in Study 3.

In Germany, only manipulation concerns affect attitudes both strongly and negatively ($\beta = -0.48$, $p < 0.001$). In Israel, concerns about manipulation negatively affect attitudes ($\beta = -0.44$, $p < 0.05$) more than concerns about a slippery slope ($\beta = -0.27$, $p < 0.10$). In the US, concerns about personal responsibility negatively affect attitude ($\beta = -0.21$, $p < 0.05$) as do slippery slope concerns ($\beta = -0.20$, $p < 0.1$). Thus, the regression analysis suggests that manipulation concerns and slippery slope concerns are the most prominent reasons for opposition; each is a major factor in explaining the negative attitude in two of the three countries included in the study and it appears that the effect of manipulation concerns is somewhat larger.

Interestingly, about half of the participants who **do not** oppose the background music intervention have concerns about manipulation (43%, 50% and 58% in Germany, Israel and the US, respectively) and the slippery slope (43%, 63% and 60%, respectively). The agreement among this group with the statement that “it is not the government's business” was much lower (18%, 8% and 31%) and personal responsibility concerns were not particularly common either (35%, 25% and 35%).

To conclude, all four reasons seem to be relevant in explaining opposition but two of them appear to dominate, namely manipulation concerns and slippery slope concerns.

5. Attitude towards interventions carried out by employers

In this section we compare the results of Treatment T_E of Study 3, in which the employer carries out the background music intervention, to those of T_G in which the government implements it.

When asked to express their attitude towards a background music intervention by an employer, the proportions of participants that expressed a negative attitude was 25% in Germany, 18% in Israel and 14% in the US.¹⁸ In all three countries, the proportion is lower than in the case that the government carries out the same intervention, though this pattern is weak in Germany ($\chi^2(1)=2.77$, $p<0.1$ in Germany, $\chi^2(1)=13.09$, $p<0.001$ in Israel and $\chi^2(1)=9.07$, $p<0.01$ in the US).¹⁹ Regarding the green labeling intervention, however, in all three countries there are no significant differences in attitude whether it is the employer who carries it out or the government ($p=0.23$ in Germany, $p=0.27$ in Israel and $p=0.51$ in the US).

There are only small differences between the two treatments in the results concerning the tradeoff between the desirability of the intervention's method and its effectiveness. As in the results for T_G, a majority of the participants in T_E (58%–59%) prefer the informational intervention even at the cost of effectiveness, except in the US where the proportion is only 36% (see Table 10).

	Germany		Israel		USA	
	T _E (n=101)	T _G (n=106)	T _E (n=81)	T _G (n=72)	T _E (n=95)	T _G (n=108)
<i>Strictly prefer Music</i>	7%	5%	0%	0%	8%	1%
<i>No tradeoff</i>	35%	34%	41%	33%	56%	44%
<i>Strictly prefer Labels</i>	58%	61%	59%	67%	36%	55%

Table 10. The proportion of participants who strictly prefer each of the interventions in T_E and T_G in Study 3.

Table 11 presents the average extent of agreement with each of the four statements 3.2-3.5 among participants in T_E and T_G (after eliminating those who do not agree with the goal of the intervention). Most noticeable is that in Israel and Germany there is more agreement with the

¹⁸ The 95% confidence intervals are (16%, 34%) in Germany, (10%, 26%) in Israel and (7%, 21%) in the US.

¹⁹ Similarly, in both Israel and the US, the distribution of attitudes (between 1 and 5) is significantly more positive ($p<0.001$ and $p<0.01$, respectively) according to a Mann Whitney U test, though in Germany there is no significant difference ($p=0.32$).

statement that it is not the employer's business than with the statement that it is not the government's business ($p<0.001$) according to a Mann-Whitney U test, while in the US there is no significant difference between the treatments ($p=0.53$). In the US, there is also less agreement with the other three statements in the employer scenario than in the government scenario ($p<0.01$), indicating that the participants are more positive towards interventions by an employer. In Germany and Israel, there is a smaller difference in agreement with these three statements between the treatments.

	Germany		Israel		USA	
	T _E	T _G	T _E	T _G	T _E	T _G
	(n=91)	(n=111)	(n=79)	(n=73)	(n=94)	(n=108)
3.2 <i>It is not the employer's (government's) business</i>	2.80 (1.06)	3.41 (1.15)	2.97 (0.92)	3.56 (1.00)	2.97 (1.02)	3.07 (1.06)
3.3 <i>Concerns about manipulation</i>	2.55 (1.23)	2.38 (1.15)	2.39 (1.04)	2.12 (0.96)	2.68 (1.09)	2.26 (1.08)
3.4 <i>Personal responsibility concerns</i>	3.18 (1.08)	2.94 (1.02)	3.67 (1.10)	3.19 (1.17)	3.34 (0.90)	2.79 (1.09)
3.5 <i>Slippery slope concerns</i>	2.34 (1.00)	2.41 (0.96)	2.49 (1.04)	2.11 (1.09)	2.74 (1.03)	2.27 (0.94)

Table 11. Average level of agreement (1 is strongly agree and 5 is strongly disagree) with statements concerning the background music intervention in T_E and T_G in Study 3 (standard deviations in parentheses).

With regard to the link between a negative attitude towards the background music intervention by an employer and statements 3.2-3.5 concerning the employer's intervention, we find that in Germany and Israel a negative attitude is correlated with all statements except for concerns about personal responsibility, whereas in the US it is correlated with all the statements except that it is not the employer's business. Furthermore, a linear regression analysis (like the one conducted for T_G) suggests that in Germany and Israel the concern about manipulation is the main factor affecting the attitude towards the intervention ($\beta=-0.29$ and $\beta=-0.63$, respectively, $p<0.001$), whereas in the US, manipulation concerns and personal responsibility concerns are the main factors ($\beta=-0.28$ and $\beta=-0.36$, respectively, $p<0.01$).

To conclude, the results indicate that the attitude towards the background music intervention is somewhat more positive when it is carried out by one's employer than by the government. Manipulation concerns (though not the slippery slope concerns) are found to be the most common reason for a negative attitude towards soft interventions by an employer.

6. Discussion

We carried out a series of experiments to shed light on the public attitude towards the intervention methods advocated by libertarian paternalism. The responses provide several indications of a negative attitude towards soft interventions: First, there was a fairly high level of negativity towards the automatic enrollment into the saving arrangement and the background music intervention. Second, the choices of a significant number of participants in the automatic enrollment study are consistent with “psychological reactance”. Third, a significant number of participants prefer an informational intervention over the ordering of menu items and the background music interventions which attempt to influence a participant's choice without him being aware. The method used in the intervention is important to this group and they are willing to pay a price in effectiveness in order to avoid an undesirable method of intervention. Fourth, the aforementioned indications of opposition to soft interventions are in addition to the existence of a group (14%-25% of the participants) who feel that governments should not intervene at all in the private domain.

We also confirmed that a large number of people have concerns about the manipulative nature of soft interventions. In addition, they fear that acquiescence to the approach will lead to further interventions, carried out by a government that “knows what's good for its citizens” and justifies its intervention by arguing that freedom of choice is not being violated.

The findings provide some practical insights for the implementation of soft interventions:

(i) The findings on reactance to manipulation suggest that an intervention involving an automatic opt-in might be less effective than simply suggesting to people that they opt-in. The latter option might improve the material outcome, as well as diminish the negative emotional reaction to soft interventions.

(ii) Although the provision of information may be less effective than some types of soft interventions, many people are willing to sacrifice effectiveness in order to avoid a less desirable

method and therefore informational interventions may be socially preferable in cases where the loss in effectiveness is small.

(iii) Public decision makers should reduce the concerns of the public regarding soft interventions by explicitly informing and reminding people that their choices are being manipulated and by constraining themselves not to intervene in issues that lack a broad consensus among the public.

To conclude, our findings raise doubts as to the claim that soft interventions are unambiguously welfare-improving. An individual's welfare is not determined solely by the material consequences of an action but by non-material aspects as well. In particular, people often care about the method used to achieve the material outcome.²⁰ Thus, when considering the welfare effects of an intervention, account should be taken of the reaction to the method used, rather than just the direct consequences of the intervention. Policy makers should consider the support for an intervention's goal along with the opposition to its method.

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²⁰ This point has received some experimental support from Chlaß et al. (2013), Eliaz and Rubinstein (2014) and Wailoo and Anand (2005), among others.

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Appendix A: The experiments

The screens shown to participants in the US are presented below. In Germany, the text was in German and the hypothetical scenarios were set in Germany. In Israel, the text was in Hebrew and the hypothetical scenarios were set 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

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 text: “Assume now that the US government 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 was the same as in Treatment 1, except for the question that appeared at the end. Thus, 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 final screen that these participants were presented with:



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.”

Study 3

The following screens were presented to participants in T_G (the questions are identical to those in T_E except the government is replaced by their employer). In Israel, the text was in Hebrew.

Page 1 of 5

Recently, there is growing awareness that most of the population consumes too much unhealthy food and that this habit causes many health problems.

Assume that the government has decided to take action to reduce the population's consumption of unhealthy food. A number of alternative programs, expected to be of similar effectiveness, were considered.

Of these programs, the government chose to require cafeterias at workplaces to mark healthy products with a green label.

What do you think of the **course of action** the government chose?

Very positive	Positive	Neutral	Negative	Very negative
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Continue

Page 2 of 5

Psychological studies have shown that background music unconsciously affects people's consumption habits.

Assume that it was found that background music of a certain type induces people to refrain from eating unhealthy food.

The government has decided to take action to reduce the population's consumption of unhealthy food. A number of alternative programs, expected to be of similar effectiveness, were considered.

Of these programs, the government chose to require cafeterias at workplaces to play the type of background music that induces people to unconsciously consume less unhealthy food.

What do you think of the **course of action** the government chose

Very positive	Positive	Neutral	Negative	Very negative
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Continue

On this screen, you are asked to address the previous scenario in which the government chose to require the cafeteria at the workplace to play the type of background music that induces people to unconsciously consume less unhealthy food.

Indicate your view regarding each of the following statements:

	Strongly agree	Tend to agree	Neutral	Tend to disagree	Strongly disagree
Citizens should significantly reduce the consumption of unhealthy food.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The nutrition of the citizens is not the government's business.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is inappropriate for the government to influence the personal decision of citizens without their knowledge.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
There is a concern that this sort of intervention may lead citizens to absolve themselves from their personal responsibility for their health.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Successful intervention is likely to lead the government to try to similarly influence citizens' decisions in areas where there is no consensus on the appropriate choice.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Continue

Now assume that the use of background music and the marking of health products with a green label are not necessarily of equal effectiveness in reducing unhealthy nutrition among the citizenry.

Which of the two methods would you support according to the different assumptions of effectiveness of the two methods? Indicate your choice in each row of the table:

% of citizens who will reduce their consumption of unhealthy food as a result of		I would choose:	
playing background music:	labeling healthy products:		
8%	20%	<input type="radio"/> Background music	<input type="radio"/> Green label
12%	20%	<input type="radio"/> Background music	<input type="radio"/> Green label
16%	20%	<input type="radio"/> Background music	<input type="radio"/> Green label
20%	20%	<input type="radio"/> Background music	<input type="radio"/> Green label
24%	20%	<input type="radio"/> Background music	<input type="radio"/> Green label
28%	20%	<input type="radio"/> Background music	<input type="radio"/> Green label
32%	20%	<input type="radio"/> Background music	<input type="radio"/> Green label

Continue

In conclusion, please fill in the following details (no use will be made of your personal information):

☐ Male ☐ Female

Age

Are you studying/have you studied for an academic degree?

☐ Yes ☐ No

What are your fields of study?

Lastly, do you wish to reduce your personal consumption of unhealthy food?

☐ Yes ☐ No

Continue

Appendix B: Additional comparisons between interventions (Study 2)

In this appendix, we provide some additional results that are not directly related to the focus of the paper. The results are for comparisons made by the participants between two interventions, in which the participants were asked to express their subjective tradeoff between effectiveness and the desirability of the intervention method, in the same manner as described in Table 2. The interventions are taken from the list below:

- (1) **Prohibiting** the serving of extremely fatty food in restaurants on Wednesdays (hard intervention).
- (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 (hard intervention).
- (3) Requiring restaurants to **Order** the items on a menu from healthiest to unhealthiest (soft intervention).
- (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 (informational intervention).
- (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 (informational intervention).

B1. Robustness check: Order vs. Information (T₅)

The comparison between Order, a soft intervention, and Information, an informational intervention, is used as a check of robustness. In addition to replacing App with Information in T₅, we omitted the summary of the advantages and disadvantages of libertarian-paternalistic methods that appeared in T₁ and T₂. As shown in Table 12, this did not qualitatively affect the result, such that a significant proportion of the participants still strictly prefer the informational intervention to the soft intervention.

	Germany (n=132)	Israel (n=153)	USA (n=97)
<i>Strictly prefer Order</i>	8%	11%	12%
<i>No tradeoff</i>	38%	60%	68%
<i>Strictly prefer Information</i>	54%	30%	19%

Table 12. Comparison of Order to Information in T₅ of Study 2.

B2. Comparing two informational interventions: Information vs. App (T₄)

In T₄, we asked participants to compare the two informational interventions: Information and App. Table 13 summarizes the results. In all three countries, App was somewhat preferred but a vast majority of the participants chose solely according to the intervention's effectiveness.

	Germany (n=117)	Israel (n=159)	USA (n=102)
<i>Strictly prefer Information</i>	15%	8%	7%
<i>No tradeoff</i>	61%	75%	69%
<i>Strictly prefer App</i>	23%	17%	24%

Table 13. Comparison between Information and App in T₄ of Study 2.

B3. Hard vs. informational interventions (T₁, T₂, T₃)

Table 14 presents the participants' preferences between a hard intervention (Tax or Prohibition) and an informational intervention (App or Information).

	Germany	Israel	USA
Tax vs. App (T₁)	N=90	N=108	N=89
<i>Strictly prefer Tax</i>	9%	1%	8%
<i>No tradeoff</i>	41%	36%	49%
<i>Strictly prefer App</i>	51%	63%	41%
Prohibition vs. App (T₂)	N=116	N=131	N=91
<i>Strictly prefer Prohibition</i>	4%	4%	3%
<i>No tradeoff</i>	13%	23%	31%
<i>Strictly prefer App</i>	84%	73%	66%
Tax vs. Information (T₃)	N=96	N=166	N=111
<i>Strictly prefer Tax</i>	4%	6%	4%
<i>No tradeoff</i>	37%	28%	49%
<i>Strictly prefer Information</i>	59%	65%	48%

Table 14. Comparisons between hard and informational interventions in Study 2.

The negativity towards hard interventions is higher than towards soft interventions. Thus, the greatest opposition is to Prohibition and only a negligible proportion of the participants prefer the hard intervention to the informational intervention. These findings are as expected and provide support for the reliability of the method. An interesting finding is that a considerable proportion of the participants always choose the more effective intervention, and therefore the method does not appear to be very important to this group.

B4. Correlation in the support for soft and hard interventions

We examined the relation between a participant's attitudes towards hard and soft interventions with the same goal (i.e., within-subject analysis). To do so, we were able to use data from T₁ (Tax and Order) and T₂ (Prohibition and Order) where the same participants were asked about their attitude towards both a hard and a soft intervention.

An interesting result is that in all three countries individuals who don't mind the soft intervention when it is more effective than App are substantially more likely than the rest to accept the hard intervention (see Table 15 and 16). Of those who don't oppose Order, 57% accept Tax, as compared to only 19% of those who oppose Order (the difference is statistically significant, $n=287$, $\chi^2(1)=28.9$, $p<0.01$). Similarly, from among those who did not object to Order, 38% accept even Prohibition, the hardest of the interventions, as opposed to only 5% of those who oppose Order (this difference is also statistically significant, $n=338$, $\chi^2(1)=44.82$, $p<0.01$). We interpret these results as an indication of the reasons for supporting soft interventions. About half of those who don't oppose Order also don't oppose the hard intervention Tax. Thus, it appears that many of the supporters of soft interventions are focusing on the effectiveness of interventions and attribute less importance to the means used.

	“Oppose” Tax	Do not “oppose” Tax
<i>“Oppose” Order (n=69)</i>	81%	19%
<i>Do not “Oppose” Order (n=218)</i>	43%	57%

Table 15. Attitude towards Tax as a function of the participant's attitude towards Order in T₁ of Study 2.

	“Oppose” Prohibition	Do not “oppose” Prohibition
<i>“Oppose” Order (n=129)</i>	95%	5%
<i>Do not “oppose” Order (n=209)</i>	62%	38%

Table 16. Attitude towards Prohibition as a function of the participant's attitude towards Order in T₂ of Study 2.