

# Do minorities like nudges? The role of group norms in attitudes towards behavioral policy

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## Abstract

Attitudes of public groups towards behavioral policy interventions (or nudges) can be important for both the policy makers who design and deploy nudges, and to researchers who try to understand when and why some nudges are supported while others are not. Until now, research on public attitudes towards nudges has focused on either state- or country-level comparisons, or on correlations with individual-level traits, and has neglected to study how different social groups (such as minorities) might view nudges. Using a large and representative sample, we tested the attitudes of two distinct minority groups in Israel (Israeli Arabs and Ultra-Orthodox Jews), and discovered that nudges that operated against a minority group's held social norms, promoting a more general societal goal not aligned with the group's norms, were often less supported by minorities. Contrary to expectations, these differences could not be explained by differences in trust in the government applying these nudges. We discuss implications for public policy and for the research and applications of behavioral interventions.

Keywords: nudge, group norm, minorities, behavioral policy

## 1 Introduction

Nudges – “soft” behavioral interventions that attempt to influence social behavior by subtly altering the choice architecture in which decisions are made (Thaler & Sunstein, 2008) – have been increasingly used by governments and public institutes across a variety of countries and global organizations in recent years (e.g., Halpern, 2016). Some nudges have been shown to be highly cost-effective in comparison to other, more traditional, policy tools (Benartzi et al., 2017). Such nudges are based on the premise that they do not restrict freedom of choice in any significant manner (Sunstein, 2015), which might make them less objectionable than other “hard” attempts of government interventions (such as taxes, laws, and regulations). Because many of nudges' effectiveness strongly relies on voluntary compliance, public attitudes towards specific nudges can play an important role in the evaluation and implementation of such policies. Several

studies conducted worldwide have shown that many nudges enjoy positive public support, to find some differences between countries and regions (Jung & Mellers, 2016; Reisch & Sunstein, 2016; Sunstein, Reisch & Rauber, 2017).

However, attitudes towards the same nudge may differ significantly between distinct societal groups within a given country. This potential heterogeneity in attitudes towards nudges has been largely overlooked, even though it can have a significant impact on how nudges should and could be implemented. Specifically, minority groups (i.e., underrepresented groups, or groups that significantly differ from the public based on ethnical or religious background) might hold distinctly different attitudes to those of the general population; but unless these attitudes are studied directly, general surveys such as the ones mentioned above will not detect these differences due to the inherent smaller (or non-existent) weight minority groups receive inside those samples. For example, it is likely that many people of a given country would be in favor of setting the default of organ donation programs to “opt-out”, such that most citizens would be automatically enrolled into such programs (Johnson & Goldstein, 2003). However, it is also possible that a small but distinct minority group within the same country would hold an opposing view, based on ideological or religious reasons (e.g., Rumsey, Hurford & Cole, 2003). Even if the minority group's attitude is completely opposite to that of the general public, a public attitudes survey would, in most circumstances, return a weighted mean result indicating overall support for the default program. Previous studies on attitudes in general have indeed raised this issue indirectly, stating, for exam-

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ple, that the concept of “one nudge fits all” is not tenable (Jung & Mellers, 2016), due to the myriad individual differences between people. Additionally, the framing of a given nudge (e.g., according to its political source) can also dramatically impact the support it will receive (Tannenbaum, Fox & Rogers, 2017), suggesting that the point-estimate of the attitude toward a nudge is malleable and unstable.

Studies on public attitudes toward nudges have, up until now, focused on the state or country level, typically treating a country as an essentially homogenous unit that can be accurately compared against other countries. The first study to do so showed that Swedes supported nudges more than U.S. citizens (Hagman, Andersson, Västfjäll & Tinghög, 2015). Jung and Mellers (2016) surveyed a large number of U.S. residents, exploring a myriad of individual differences; but their samples were not, of their own accord, representative of the U.S. population, and thus no differences between states or between societal groups were examined. Reisch and Sunstein (2016) compared support for various nudges in Denmark, France, Germany, Hungary, Italy, and the United Kingdom, and found a substantial (and favorable) consensus among those nations regarding most of the nudges.<sup>1</sup> In their surveys, some sociodemographic variables were collected, but only age and gender were formally analyzed across countries (as well as political preference within country), leaving the question of minority-majority attitudinal differences unanswered.

Many of the above studies did, however, include various measures of individual differences, intended to identify the types of people that may show variance in their support (or objection) to various nudges. Among these, it has been found that communitarians and people with analytical mindsets supported nudges more than individualists and people with intuitive mindsets (Hagman et al., 2015). Similarly, empathetic people tended to support more nudges, individualists as well as conservatives tended to object to more nudges; people with a strong desire for control, or that scored higher on a reactance scale disliked some nudges (Jung & Mellers, 2016). The importance of these findings notwithstanding, none of these individual differences measures could be used to identify a clear and distinct minority group whose attitudes may be hidden within the general sample. In fact, most studies used such traits to create a “high” vs “low” group of similar sizes, and did not identify any special minority group per se. In the next sections, we expand on why we believe it is important to study the attitude of minority groups towards various specific nudges, and then elaborate on the theoretical background that can be used to hypothesize when and why minority groups would perceive and react differently to specific nudges.

<sup>1</sup>It should be noted that the policies that received low support were actually those that were not actually nudges (e.g., subliminal advertising or educational campaigns).

## 1.1 Minority norms and attitudes toward nudges

In addition to understanding important groups’ attitudes towards different nudges, knowing which groups of people would favor a given nudge could help policymakers devise clever, personalized interventions that could be more persuasive (Jung & Mellers, 2016), more effective, and at the same time more ethical. Sunstein (2016) has suggested that the problem of heterogeneity in attitudes towards nudges can be overcome by using personalized nudges tailored to different groups. For example, a thirty-year-old person would benefit from, and favor more, a different default savings plan to that of a sixty-year-old person. While research on personalized nudges is still sparse, related work from fields such as marketing and information systems (e.g., Chellappa & Sin, 2005) suggest that this approach could be very effective. If this would indeed be the case, it would be most important to identify the situations in which minorities differ significantly from the general population in their attitudes and preferences for different nudges, and to implement measures that would enable customizing the nudge (or replacing it with a different tool) for that specific group’s needs.

Even when nudges are not personalized, not knowing whether distinct minority groups are in favor of it or not can jeopardize an intervention’s potential success. Moreover, in some situations it is actually the minority group, and not the general public, that is the main focus of the intervention. Consider, for example, nudges designed to fight obesity or unhealthy eating. Although obesity is a widespread and critical phenomenon in the U.S., it only rarely exceeds 35% of a state’s population (The State of Obesity, 2016.<sup>2</sup>) If behavioral interventions to reduce obesity are planned based on general public’s attitudes toward them, without considering the specific attitudes of the identified group of (obese) people being targeted, they might not produce the desired consequences or, worse still, generate reactance from this minority group that would undermine the success of the intervention.

But why and when would minorities hold different views toward a given nudge compared to the attitude of the public? First, minorities often differ in their preferences relative to the general population (Finseraas, 2012). Moreover, some minorities might believe that, while the government may be working for the best interest of the general society, it cares less about the welfare of the societal group to which they belong. Indeed, policies that involve nudges and behavioral insights often target public good resources (such as water, energy, the environment, etc.); minority groups have been found to treat such resources differently than majority groups. For example, a large-scale analysis revealed that minority groups in Israel (including Israeli Arabs and Ultra-Orthodox

<sup>2</sup><https://stateofobesity.org/adult-obesity/>

Jews), who have a lower national attachment, were less affected by a campaign aimed at reducing water consumption than the general population (Grinstein & Nisan, 2009). In this sense, minorities might oppose to a given nudge not (just) because of its method of influence (e.g., setting a default option) but also, or even more so, because of the goal it tries to promote (i.e., what the default option dictates). In other words, minorities might react differently to a nudge because it promotes a goal that, while desirable among the majority of people, is incongruent with their group's norms and beliefs.

Our study focused on two minority groups in Israel as a selected test case: Israeli Arabs and Ultra-Orthodox Jews. We chose to focus on these two minority groups because they a) are large enough to be considered separately, and b) hold distinct views from the general public on many societal and state issues including education, the role of religion, public service (e.g., military duty), and the sovereignty of the Israeli government across a range of economic and social issues. Moreover, specific evidence suggests that these groups hold different norms concerning some of the nudges we explore in our study (see full list of nudges in Table 1).

Starting with the Israeli Arabs, the literature suggests lower attitudes towards several nudges based on group-specific norms. Regarding setting pre-appointments for medical tests, there is a documented lower tendency among the Israeli Arabs towards utilization of preventive medicines and supplemental insurance (Gross, Rosen & Shirom, 2001). For lurid graphic warnings on cigarette packages, Arab minority men in Israel often exhibit higher rates of involvement in unhealthy smoking, and cessation policies appear to be less effective among Arabs (Daoud et al., 2015). Regarding setting default privacy options on social network sites, Israeli Arabs have been found to have more negative attitudes towards the Internet relative to the Jewish majority population, and this gap remains unexplained after statistically controlling for human capital and occupation (Mesch & Talmud, 2011). Regarding credit card limits, Israeli Arabs have less trust in credit cards, and Islamic religious law (Shariah) imposes strict rules on giving and receiving loans. As credit cards constitute a type of loan, practicing Muslims tend to prefer the usage of "Muslim credit cards" over conventional credit cards (Amin, 2013). Regarding a "no-cheating" pledge (Shu, Mazar, Gino, Ariely & Bazerman, 2012) asked to be signed before exams, there are findings showing that exam cheating is more prevalent among Israeli Arabs, which is attributed to, along with financial factors, an adoption of norms of academic dishonesty (Peled & Khaldy, 2013), suggesting Israeli Arabs might even feel they are being specifically targeted by such a nudge and thus react negatively to it. In addition to all of these specific nudges, Israeli Arabs might show an overall lower support for any pro-social nudge, because they subscribe less to goals of the "greater good" (Grinstein & Nisan, 2009).

For the Ultra-Orthodox Jews, one could expect to find lower support for nudges that do not conform to their specific norms and beliefs surrounding religious or cultural topics. Specifically, Ultra-Orthodox Jews have strong reservations about the practice of donating organs post-mortem, suggesting any policy promoting that practice would not be favored. Ultra-Orthodox Jews were also found to drive less, and less carefully (Rosenbloom, Nemrodov & Barkan, 2004), suggesting they might not see the need for a nudge blocking phone notifications while driving. Regarding the "no-cheating" pledge before exams, one study found that religious students judged lying as harsher and showed less lying in experimental settings compared to secular students (Shalvi & Leiser, 2013), suggesting Ultra-Orthodox Jews might favor such a nudge more.

To summarize and put more generally, we would hypothesize that minority groups would show less support for specific nudges (as mentioned above) that are in contrast with their social norms or beliefs. We focused on Ultra-Orthodox and Israeli Arabs because of the reasons mentioned above and also because, traditionally, public opinion surveys in Israel tend to neglect those groups, producing a biased image of public views and opinions. While our results are obviously confined to these special circumstances, we believe they should serve also as evidence for how and why minority groups' attitudes toward nudges should be examined in even greater depth in future research.

## 1.2 Method

**Sampling and participants.** Using a large research institute panel, we collected a representative and random sample of the Israeli population, matching the sample composition to the Israeli population on key demographic variables such as age, gender, income, education, religiosity, political leaning and geographical location. In total, we obtained a representative sample of 618 adults, which included 102 Israeli Arabs, and an oversampling of 100 participants from the Ultra-Orthodox community (the oversampling was done in order to enable statistical comparisons between the groups). The distributions of demographic variables between the groups are given in Appendix A.

**Procedure and materials.** Participants were approached by phone, and were asked to take part in a questionnaire and express their opinions about public issues. Sampling was conducted over five consecutive days. The sample's composition was evaluated on an ongoing basis and the sampling procedure was adjusted accordingly.

After obtaining consent, participants were given a short introduction explaining that the survey to follow would explore public attitudes towards several suggestions for changes in different areas of everyday life, in order to get a sense of the public support or opposition to each one of them. Participants were then told that they would hear a list of suggested

TABLE 1: List of nudges and their wording in the survey.

Nudge	Wording
1. Calories on menus	Restaurants will display caloric information for each item on their menus.
2. Health signals	Food marketers and distributors will put a label on their products showing the health value of their products: unhealthy products will be labeled in red, and healthy products in green labels.
3. Organ donation registration	When issuing, or renewing, their driver’s license, drivers will be asked whether they would be willing to join the organ donation program or not.
4. Distancing candy	Food chains will not place candy products next to check-out cashiers.
5. Privacy settings	When uploading new content (posts or pictures) to social network sites, the default setting will be that the content would be visible to friends only, unless the user chooses otherwise.
6. Lurid anti-smoking warnings	Cigarette companies will add a graphic illustration of smoking hazards (such as dark lungs) on packs of cigarettes.
7. Credit limit alert	Credit companies will send warning (by email or text messages) to customers as they approach their credit limit.
8. Voting reminders	A day before the election, reminders will be sent (via email or text messages) to voters, with instructions on how to get to the poll.
9. Two-sided printing	Manufacturers would set printers to print on both sides of the page by default unless the user changes that setting.
10. Mute while driving	When using navigation apps (such as Waze), notifications for messages would be automatically muted, unless the driver changes that setting.
11. Pre-appointments	Health care providers will automatically schedule patients to appointments for age-recommended health tests (e.g., colonoscopy or mammography)
12. Self-breathalyzer	Pubs and clubs will offer guests the opportunity to deposit their car keys at the front desk, and to receive them only after passing a breathalyzer test confirming that their alcohol blood level is normal.
13. No-cheating pledge	At the beginning of every exam, pupils will be asked to sign a form pledging that they will not cheat during the exam.
14. Reuse of towels	In every hotel, a policy will be presented to guests, explaining that only towels left on the floor of the bathroom will be changed.
15. Donation clause	In the standard form of a will, a clause will be added specifying the desired proportion of the will allocated to charity.
16. Positive non-nudge	Inside supermarkets, a basket of fresh fruits will be placed at the entrance, so that every child entering the supermarket who wishes to do so can take one for free.
17. Negative non-nudge	Children below the age of 16 will not be allowed to use cellular phones.

changes, and that they should express their personal opinion toward each one of them from 1 (completely against) to 5 (completely in favor). Then, the list of 15 nudges given in Table 1 was read to participants, in an order randomized for each participant, and responses were recorded after each one.

The list of nudges was comprised by first surveying the existing literature, then collating all the nudges that had been used in published surveys of public attitudes (Jung & Mellers, 2015; Reisch & Sunstein, 2016; Sunstein et al., 2017). We removed nudges that were not applicable to Israeli society (for example, changing the default energy provider is not an option in Israel), and also omitted items that were not

nudges in the original form of the definition (e.g., presenting subliminal anti-smoking messages in movies). Then, we added a few more nudges that we thought would be relevant to the Israeli population by addressing more areas of everyday life in Israel. The wording of the nudges did not include any reference to the government or the public institute that would implement it, following Tannenbaum et al.’s, (2017) finding that this attenuates partisan nudge bias. We piloted the wording of the nudges with a group of 41 university students. The wording of the nudges were read to the students, and they were asked to rate the clarity of the wording in each case, and to express any comments about unclear issues. We used these comments to improve the wording of the nudges

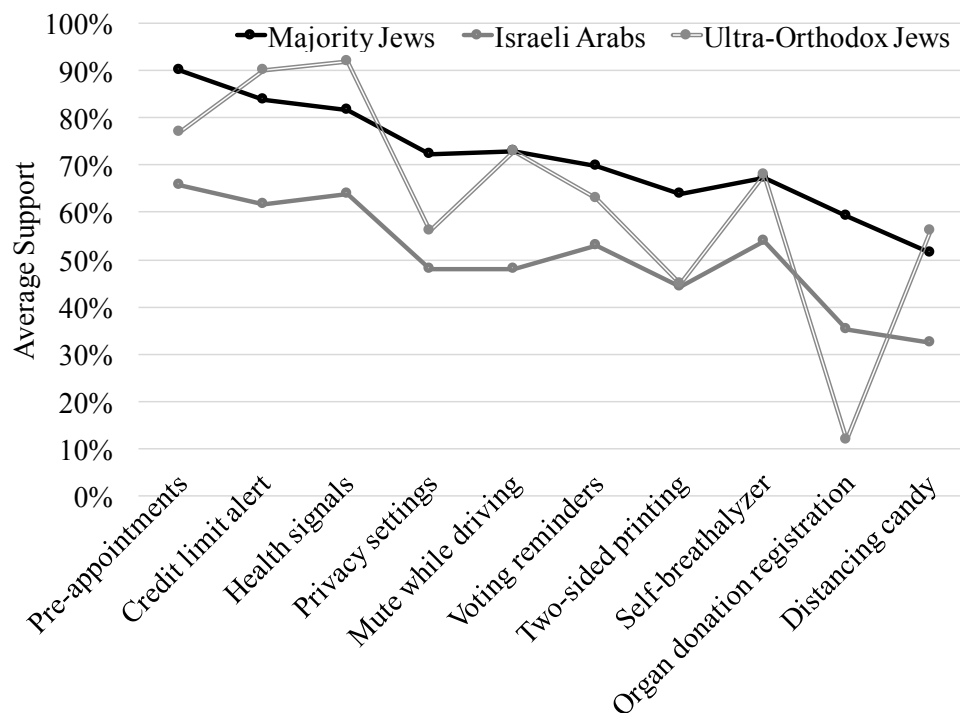


FIGURE 1: Percentage support for nudges that showed significant differences between groups.

until they were approved by the entire research team. The final wording of all nudges appears in Table 1, translated from Hebrew. Items no. 14 and 15 showed a low item-total correlation ( $r = .14$ ) and feedback from the phone interviewers was that these items were difficult to understand, so we removed them from further analyses.

Following the 15 nudges, participants were also asked to respond similarly to two “non-nudges,” also detailed in Table 1. The purpose of these items was to enable points of comparison for suggestions that are (presumably) clearly positive or clearly negative. Then, to measure participants’ trust in the government, they were asked two questions: a) “To what extent do you believe that the government is willing to act in your favor as a citizen of the state?”; and b) “To what extent do you believe that the government is capable of acting in your favor as a citizen of the state?” Responses to these two items were given on a five-point scale from 1 (“totally disagree”) to 5 (“totally agree”). Lastly, participants were asked for demographic information (see Appendix A) and were thanked for their responses. The complete data file can be found at <https://osf.io/h62xp>.

### 1.3 Results

Table 2 shows the mean support for each nudge, as well as for the two non-nudges, alongside the support percentage (proportion of respondents who gave a response of 4 or 5 in support of the item). As can be seen, three nudges stand out as receiving the highest support in the general sample:

pre-appointments, credit limit alerts, and health signals. In contrast, the three least supported nudges included honesty pledges, distancing candy, and asking for organ-donor registration. A MANOVA on all nudges revealed a statistically significant effect for the group (Wilk’s Lambda = 0.638,  $F(26,1206) = 11.67, p < .001$ ). Follow-up ANOVA tests, which are shown in Table 3, showed statistically significant differences in 10 out of the 13 nudges (and in the negative non-nudge).

Figure 1 shows the differences in approval ratings between the groups for the 10 nudges in which we found significant differences, arranged by the ranking given by the majority group. As expected, Ultra-Orthodox Jews were strongly against the organ-donation registration nudge (only 12% in favor), compared to fair support among Majority Jews (59.13%) and low support among Israeli Arabs (35.29%). Looking at the other nudges, Israeli Arabs consistently expressed the lowest support (turning to opposition in some cases) among the groups. Between the other two groups, Majority Jews expressed more positive attitudes towards setting pre-appointments for medical examinations, setting default privacy settings, and for setting a default for two-sided printing; Ultra-Orthodox Jews were slightly more supportive of adding health signals to food products and for getting warnings when reaching credit cards limits.

**Pro-social vs. pro-self nudges.** Following Grinstein and Nisan (2009), we tested whether the groups with lower national attachment (Israeli Arabs and Ultra-Orthodox Jews) would be more in favor of nudges that promote goals that

TABLE 2: Descriptive statistics of nudges and differences between minority and majority groups. (R is rank.)

Nudge	Majority Jews				Israeli Arabs				Ultra-Orthodox Jews				Differences		
	M	SD	% Favor	R	M	SD	% Favor	R	M	SD	% Favor	R	F	p	$\eta^2$
Pre-appointments	4.59	0.85	90.14	1	3.85	1.47	65.69	2	4.27	1.16	77.00	3	23.80	<.001	0.07
Credit limit alert	4.38	1.01	83.89	2	3.75	1.45	61.76	5	4.55	0.87	90.00	2	20.31	<.001	0.05
Health signals	4.36	1.10	81.73	3	3.92	1.32	63.73	1	4.70	0.80	92.00	1	15.48	<.001	0.04
Privacy settings	4.18	1.17	72.36	4	3.46	1.47	48.04	9	3.76	1.39	56.00	10	24.27	<.001	0.05
Mute while driving	4.09	1.33	72.84	5	3.20	1.68	48.04	13	4.14	1.38	73.00	5	34.81	<.001	0.05
Voting reminders	3.96	1.32	69.71	6	3.56	1.51	52.94	7	4.03	1.25	63.00	7	7.50	<.001	0.01
Two-sided printing	3.90	1.33	63.94	7	3.33	1.40	44.12	11	3.47	1.38	45.00	12	17.17	<.001	0.03
<i>Positive non-nudge</i>	3.89	1.44	65.87	8	3.57	1.64	58.82	6	3.91	1.44	67.00	8	4.46	0.128	0.01
Cigarette warnings	3.88	1.50	65.38	9	3.78	1.50	65.69	4	4.21	1.29	72.00	4	5.48	0.080	0.01
Self-breathalyzer	3.85	1.37	67.31	10	3.33	1.70	53.92	11	4.08	1.33	68.00	6	15.57	0.001	0.02
Calories on menus	3.71	1.35	57.93	11	3.47	1.53	51.96	8	3.79	1.37	56.00	9	3.07	0.203	0.01
Organ donat. registration	3.70	1.42	59.13	12	2.75	1.61	35.29	15	1.78	1.28	12.00	15	162.50	<.001	0.21
Distancing candy	3.51	1.45	51.44	13	2.79	1.54	32.35	14	3.65	1.47	56.00	11	24.38	<.001	0.04
No-cheating pledge	3.32	1.60	49.04	14	3.37	1.67	51.96	10	3.30	1.64	47.00	14	0.15	0.945	0.00
<i>Negative non-nudge</i>	2.69	1.54	32.21	15	3.80	1.41	63.73	3	3.40	1.58	49.00	13	60.33	<.001	0.08

are related to the self (e.g., alerts on credit card limit), compared to nudges that promote societal goals (e.g., voting reminders). In the current study, the nudges that were regarded as pro-social included organ donor registration, voting reminders, two-sided printing and the no-cheating pledge, while all the others (except for the self-breathalyzer, on which we could not reach a consensus) were regarded as pro-self. We acknowledge that many of these pro-self nudges also contain a social element (e.g., distancing candy can reduce the societal costs of obesity), and many pro-social nudges can include benefits to the self (e.g., two-sided printing reduces printing costs), but we nevertheless categorized nudges according to what we agreed upon to be the nudges' main orientation, and consistent with classifications of previous studies (e.g., Jung & Mellers, 2016).

To examine the hypothesis that minority groups would show a larger difference between pro-self and pro-social nudges compared to the majority group, we first computed a mean support score using the original, 5-point ratings for the pro-self and the pro-social nudges separately, and then calculated the difference between those mean ratings for each participant, to compare those between the groups. ANOVA showed a statistically significant effect for the group,  $F(2, 623) = 22.96, p < .01$ . Consistent with the above findings, Ultra-Orthodox Jews showed the largest difference ( $M=0.99, SD=0.98$ ), which was significantly higher ( $p < .01$ ) than the mean differences among Israeli Arabs and Majority Jews ( $M=0.28, 0.37, SD = 0.9, 0.84$ , respectively), which were not statistically different ( $p = 0.98$ ). The difference between

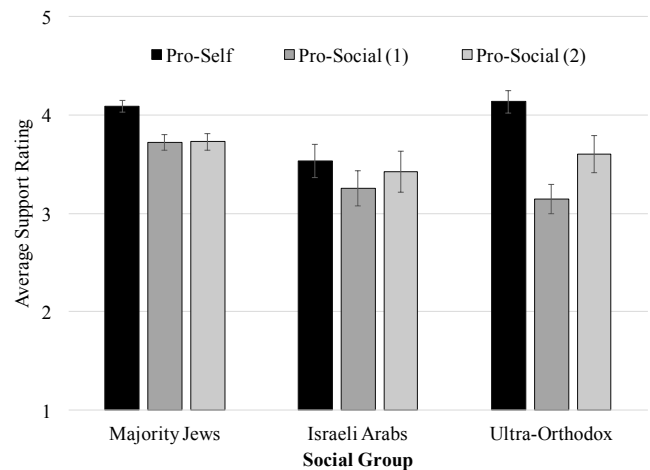


FIGURE 2: Mean of support for pro-self vs. pro-social groups of nudges between majority and minority groups.

Error bars show 95% confidence intervals; Pro-Social (1) shows the mean of all four pro-social nudges (organ donor registration, voting reminders, two-sided printing and the no-cheating pledge) while Pro-Social (2) shows the mean excluding the ratings for organ donor registration.

the Ultra-Orthodox and the other groups remained significant after excluding the organ donations nudge,  $F(2, 623) = 5.34, p < 0.01$ , as the mean difference in support of the pro-self nudges was still much higher among the Ultra-Orthodox ( $M=0.84, SD = 1.03$ ) compared to the Israeli Arabs and the Majority Jews ( $M=0.30, 0.39, SD = 1.11, 0.93$ , respectively).

These findings are illustrated in Figure 2, which shows the mean support (with 95% CIs) for the different types of nudges (pro-self vs. pro-social with or without organ donor registration) between the groups. As can be seen in Figure 3, the difference between pro-self and pro-social nudges was most pronounced among the Ultra-Orthodox, consistent with our hypothesis, but – contrary to our hypothesis – not among Israeli Arabs.

**Trust.** One possible explanation, described earlier, for the differences in the support of nudges (or, more generally, government interventions) between majority and minority groups could stem from consistent differences in the degree to which minorities trust the government in its capability and desire to work for their benefit. For this to occur, one prerequisite is there should exist differences in trust levels between the groups in our study. Indeed, regarding the trust in the *ability* of the government to act for their benefit, we found that Israeli Arabs expressed the lowest trust ( $M=3.3$ ,  $SD = 1.49$ ) compared to Majority Jews and Ultra-Orthodox Jews ( $M=3.67$ ,  $3.73$ ,  $SD = 1.28$ ,  $1.35$ , respectively), and that this difference was statistically significant,  $F(2, 615) = 3.47$ ,  $p = 0.03$ . However, Israeli Arabs also expressed higher trust in the *desire* of the government to act for their benefit ( $M = 3.19$ ,  $SD = 1.38$ ) compared to the Majority Jews and Ultra-Orthodox Jews ( $M = 2.83$ ,  $2.93$ ,  $SD = 1.4$ ,  $1.44$ , respectively). However, this was not statistically significant,  $F(2, 615) = 2.64$ ,  $p = 0.07$ .

To examine whether trust levels affected the differences in the support of nudges between the groups, we ran a MANOVA with all 13 nudges as dependent variables, and with group and both trust questions as independent factors. We again found an overall statistically significant effect for the group, Wilk’s Lambda = 0.76,  $p < .01$ , but no main effects for the trust in the ability or desire of the government,  $p > .09$ , and no interaction between the group and the trust in government’s desire ( $p = 0.1$ ), and essentially no interaction between group and government’s ability.<sup>3</sup> Thus, we found no interaction between group and trust levels on the support for nudges.<sup>4</sup>

**Domain of nudges.** As an additional exploratory analysis, we tried to identify the domains to which nudges of different types could be classified, using Principal Component Analysis (PCA). The PCA revealed four components with eigenvalues above 1, that together predicted 48.27% of the total variance in ratings of nudges. A Varimax rotation classified the nudges to four factors which we identified as pertaining to domains of a) *Health* (calories on menus, health signals, anti-smoking warnings, and distancing candy), b) *Self-control*

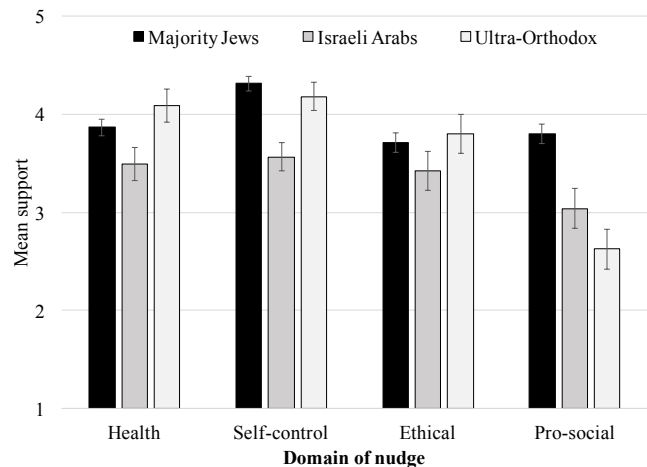


FIGURE 3: Mean support (and 95% CIs) for nudges according to the domain and between groups.

(default privacy settings, credit limit alerts, muted notifications while driving, and pre-appointments for medical tests), c) *Ethical behavior* (voting reminders, no-cheating pledge, and self-breathalyzer), and d) *Pro-social behavior* (organ donation registration and two-sided printing). Appendix B shows the loadings for each component and the PCA scree plot. A MANOVA showed statistically significant differences between the groups across all factors, Wilk’s Lambda = 0.73,  $F(8, 1224) = 26.47$ ,  $p < .01$ . Subsequent ANOVA tests showed significant differences between the groups in each of the above four factors,  $F(2, 615) = 12.09$ ,  $41.53$ ,  $4.29$ ,  $61.71$ , respectively;  $p = 0.04$  for ethical behavior nudges,  $p < .01$  for the rest. Figure 3 shows the mean support for nudges according to the domain and between the groups. As can be seen, in the first, health-related domain, Ultra-Orthodox showed the highest support, followed by Majority Jews and Israeli Arabs; in the self-control and ethical behavior domains, Majority Jews and Ultra-Orthodox showed similar support that was higher than that of Israeli Arabs; and for the two pro-social nudges, support was highest among Majority Jews, followed by Israeli Arabs and the Ultra-Orthodox, who showed the lowest support for nudges in that domain (we expand more on pro-social nudges later on). Two main conclusions can be identified here: a) Israeli Arabs consistently show lower support compared to the others in almost all domains, b) Ultra-Orthodox support is context specific – they support some nudges (health-related) more than Majority Jews, but support other nudges (pro-social ones) less than the other groups.

We tested whether any differences in demographic variables could account for these findings using a MANOVA with the four mean factor ratings as dependent variables and group and demographic variables as independent variables. We found that none of gender, age group, education or income showed any significant main effects (Wilk’s Lambda

<sup>3</sup>We did, however, find a barely significant interaction between the group and the trust in government’s ability, Wilk’s Lambda = 0.79,  $p = .04$  (not corrected for multiple testing). Exploring that possible interaction in subsequent ANOVAs, we found that it was actually significant only for one nudge, that offered pre-appointments for medical tests.

<sup>4</sup>No interaction was found between the two trust items,  $p = 0.46$ , or for the three-way interaction,  $p = 0.45$ .

= 0.99, 0.96, 0.98, 0.96,  $p = .24, .14, .10, .06$ ) or any interaction effects with the group (Wilks's Lambda = 0.98, 0.93, 0.96, 0.93,  $p = .46, .45, .20, .06$ ).

**Non-nudges.** To test whether the differences in the support for nudges between the groups are specific to nudges, and not to other types of government interventions, we also examined differences in the groups' support for the two "non-nudge" items that were included in the questionnaire: a positive intervention (placing a basket of fresh fruits in supermarkets as snacks for children) and a negative intervention (banning the use of cellular phones under the age of 16). We found significant differences for the negative item,  $F(2, 615) = 25.83, p < .01$ , but not for the positive item,  $F(2, 615) = 2.06, p = .13$ . For the negative item, Majority Jews showed the lowest support ( $M = 2.69, SD = 1.54$ ) which differed significantly to support from Israeli Arabs and Ultra-Orthodox ( $M = 3.8, 3.4, SD = 1.41, 1.58$ , respectively). For the positive nudge, we found a relatively high level of support for all groups (see Table 1). The fact that the difference in the negative non-nudge operated in the opposite direction to the differences we found between the groups in the other nudges could suggest that Majority Jews' higher level of support for nudges is not necessarily due to a higher level of support for any kind of government intervention.

## 1.4 Discussion

Our study focused on differences between minority and majority groups in their attitudes towards various and specific nudges, revealing some critical differences that could shed light on when and why minorities might hold different and less favorable attitudes towards those specific nudges. Our findings suggest that it is mostly nudges that stand in contradiction, at least to a degree, to a group's social norms that are less favorable. This emerges from the findings among both minority groups. Israeli Arabs objected most to nudges that were aimed at changing behaviors that could be considered as more typical of their group's held norms and habits (such as pre-appointments and credit card limit alerts). Even more strongly, Ultra-Orthodox Jews most objected to nudges that relate to issues in which they hold distinctly different beliefs than the majority, including organ donations and online privacy. However, regarding the latter group, it is worth noting that it might be that Ultra-Orthodox Jews most objected to the *issues* to which the nudges related (donating organs and using the Internet) and less to the nudges themselves, and in that may have failed to notice that the nudges actually were not intended to enforce norms opposite to their own: the nudge about organ donations was not about changing the default for organ donation, but about employing active choice (e.g., Keller, Harlam, Loewenstein & Volpp, 2011) by adding a question offering the option to register. Similarly, the nudge about online privacy promoted the reduction of online exposure by using a more restrictive default privacy

setting. Despite these nuances, the Ultra-Orthodox minority group strongly objected to these nudges; we suggest that a possible explanation for this finding is that these nudges go against the social norms of that group. This finding, however, should be revisited in future research, focusing more rigorously on this specific hypothesis to check whether indeed the fact that a nudge directed towards a goal that is not aligned with a group's social norm could be detrimental to its favorability, and perhaps also its effectiveness.

The finding that minorities mostly objected to nudges that were against their specific groups' social norms is consistent with other research that has shown a partisan nudge bias among U.S. citizens (Tannenbaum et al., 2017). Although they did not treat liberals or conservatives as minority or majority groups, Tannenbaum et al. (2017) did find that the same nudge would be favored more when framed as a policy of one's own party vs. the opposing party. Insofar as people affiliated with the same party or of the same political leaning share similar social norms, it could be argued that one explanation for the partisan nudge bias, which is suggested by our finding, is that it might stem from people's reluctance to follow policies they suspect are against their group's ideals. If this is true, it also suggests that a possible way to improve the favorability of a nudge is to accompany it with a supporting nudge stating how many members of one's social or political group support it. If one hears that most of their own social group supports, say, distancing candy from checkout cashiers, there is good cause to assume that they might be more inclined to support it too. This also implies that personalization, at least on a social group level, can be used to support efforts to implement nudges and behavioral policy interventions.

Another distinct difference we found in our study was regarding pro-self vs. pro-social nudges. Ultra-Orthodox Jews were much more in favor of pro-self nudges (compared to pro-social ones) than the majority group. We did not find support for that account among the Israeli Arabs when considering the overall difference between pro-self and pro-social nudges. However, closer examination of the ratings suggests that the small difference between pro-self and pro-social nudges among Israeli Arabs, compared to a much higher difference among Ultra-Orthodox Jews, could actually be attributed more to the lower support most pro-self nudges received among Israeli Arabs. This suggests that, consistent with Grinstein and Nisan's (2009) research, minorities indeed sometimes object to policies aimed at improving public resources: both minority groups were less favorable toward a default for two-sided printing, as well as for organ donation registration, compared to the majority. Among the other two pro-social nudges, voting reminders were supported less only by Israeli Arabs, and there were no differences between the groups for the no-cheating pledge. Taken together, these findings suggest that nudges that are



more targeted towards a public goods goal could receive less support from social minority groups.

It appears that for Israeli Arabs the response to all nudges we surveyed was somewhat more suspicious, which could suggest that it was due to an overall lower trust in the government. Indeed, we did find that Israeli Arabs had lower levels of trust in the government. However, we did not find a significant correlation between Israeli Arabs' level of trust and their overall support (or lack thereof) for any of the nudges.

As we categorized the nudges in different domains, we observed, albeit post-hoc, distinct and consistent differences between the groups that warrant closer examination. Aside from the differences pertaining to pro-social nudges, Ultra-Orthodox Jews showed their biggest positive difference from the majority when health-related nudges were assessed. This might be explained by a kind of partisan nudge bias (Tannenbaum et al., 2017) as at the time of the study, the Israeli Ministry of Health was headed by an Ultra-Orthodox party leader. Perhaps more interestingly, Israeli Arabs' overall lower support for nudges was most pronounced for nudges relating to health or self-control (see Figure 3), but not so much for nudges about ethical behavior; for pro-social nudges, their support was higher than that of the Ultra-Orthodox. It is possible that health and self-control nudges evoked more reactance among that group because nudges in both domains implicitly assume a lower degree of autonomy in decision-making, and may serve to actually highlight one's shortcomings: adding calorie values and health signals could be seen as assuming bad eating habits, muting alerts while driving assumes recklessness, the self-breathalyzer assumes lack of self-control, etc. It is possible that Israeli Arabs, who may already feel marginalized and badly treated by Israel society, view such policies as derogatory and humiliating to their sense of self-efficacy, and thus object or feel less favorable to these policies specifically.

Our results suggest that the two minorities we focused on, the Ultra-Orthodox and the Israeli Arab population, while representing the two main cultural and ethnic minorities in Israel, nevertheless differ in some of their attitudes towards nudges, as suggested above. The differences in responses between the two main minorities could be attributed in part to their different sociological makeup. Ultra-Orthodox Jews are commonly perceived as a distinct and insular minority, characterized by strict adherence to conservative interpretation of the Jewish religious texts. In a similar manner to the Arab population, they are socially distinguishable and identifiable. The majority of both minority groups tend to live in segregated communities, and mostly prefer speaking a different language (i.e., Yiddish or Arabic; see Rubin, 2012). The Israeli Arab and the Ultra-Orthodox both form, separately, a "politically relevant group," defined as a group that serves as a source of identification and impacts political outcomes (Posner, 2004). The tension between the Ultra-Orthodox and

the majority group is concentrated mainly around the clash between religion and modernity (Hasson & Gonen, 1997). In this regard, their reluctance to support a nudge related to changing the default rule regarding organ donation is an example of such tension, as there are differences between the religion and modern science regarding the important questions in the organ donation process.

Relative to the paucity of research on the Ultra-Orthodox, Israeli Arabs are probably the most studied minority in Israel (Smooha, 1987, 1992, 2002, 2004). Generally speaking, the Arab minority in Israel experience strong resentment from the Jewish majority (Pedahzur & Yishai, 1999). Various studies support the Israeli Arab presupposition that they are discriminated against, both by the state in terms of resource allocation (Peleg & Waxman, 2011) and the labor market (Khattab & Miaari, 2013). In light of these perceptions by the Arab minority, it is quite surprising that we didn't see any gap in support for pro-social nudges relative to pro-self nudges among this minority. It might be the case that the Arab minority has a greater desire to be an integral part of the Israeli society, but are mainly prohibited from doing so because many people see them as a security threat and are thus afraid of their ethnic and ideological affiliation with the Palestinian population of the Occupied Territories (Smooha, 2004). Hence, future studies that attempt to examine the likelihood of different minorities to support the usage of nudges should also consider their sociological makeup and their historical relationship with the majority group.

Diverse views are important for a public discussion, and in a democratic society opposing views should always be heard. When a public policy does not consider the views of the minorities in the society, it effectively creates a situation where a decision is made without considering diverse views; this can have a marked influence on the outcome of the decision, and on the ultimate welfare of the society. If nudges are defined as a means with which to improve decision-making and society welfare (Thaler & Sunstein, 2008), then for this to be achieved, the views of minority groups should be further explored and incorporated in any discussion about the design and implementation of nudges in particular, and behavioral public policy in general.

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Appendix A. Sample demographics.

	Majority Jews	Israeli Arabs	Ultra-Orthodox
Percent males	50.4%	51.0%	48.1%
Age group 18–24	15.4%	22.8%	7.7%
25–34	21.3%	24.8%	28.8%
35–44	16.9%	22.8%	36.5%
45–54	16.3%	15.8%	11.5%
55–64	14.1%	7.9%	3.8%
65+	16.0%	5.9%	11.5%
Education: High School	29.3%	48.5%	31.4%
Professional diploma	18.2%	12.9%	11.8%
Academic	52.4%	38.6%	56.9%
Monthly income (NIS) <6,000	12.5%	29.4%	27.5%
6,001–9,000	13.3%	21.2%	30.0%
9,0001–11,000	10.3%	25.9%	7.5%
11,001–13,000	13.1%	9.4%	12.5%
>13,000	50.8%	14.1%	22.5%
Percent Married	69.4%	66.7%	78.8%

Appendix B: Items’ factor loading and classification to factors (denoted in bold).

	1. Health	2. Self-Control	3. Ethical	4. Pro-social
Calories on menus	<b>.759</b>		.100	
Health signals	<b>.707</b>	.296		
Lurid anti-smoking warnings	<b>.497</b>	.128	.314	–.175
Distancing candy	<b>.460</b>	.211		.227
Privacy settings	.198	<b>.693</b>	–.125	
Credit limit alert		<b>.598</b>	.398	
Mute while driving	.121	<b>.574</b>	.219	.102
Pre-appointments	.138	<b>.432</b>		.311
Voting reminders		.232	<b>.738</b>	
No-cheating pledge	.255	–.239	<b>.637</b>	.278
Self-breathalyzer	.278	.157	<b>.484</b>	.145
Organ donation registration				<b>.803</b>
Two-sided printing		.177	.159	<b>.581</b>