Journal of Behavioral Economics for Policy, Vol. 8, Special Issue 1, 9-24, 2024

Norm misperceptions in social dilemmas: the role of preferences, heuristics and experiences

Guglielmo Briscese[1]*, Maddalena Grignani[2], Nicola Lacetera[3], Mario Macis[4] and Mirco Tonin[5]

Abstract

When facing a trade-off between prioritizing individual gains or societal benefits, individuals often rely on what they perceive to be the prevailing social norm. Promoting shifts towards beneficial social norms of behavior, or the abandonment of harmful ones, can therefore be crucial to enhance cooperation. This study investigates how individuals form and adjust misperceptions about norms in the absence of observable behaviors and corrective interventions. We focus on the post-lockdown COVID-19 context in Italy, surveying a representative sample of 2,020 respondents in a two-wave longitudinal fashion and eliciting their preferences for attending in-person activities as well as their perceptions of injunctive and descriptive norms about re-opening and attending those activities. Our findings suggest that people infer social norms primarily from their own preferences and a 'better-than-average' heuristic. As they gain more knowledge about the situation, personal preferences exert less influence on norm perceptions. Direct life experiences, such as a COVID-related health event, also correct norm misperceptions. These findings offer insights into how individual behaviors driven by misperceived norms can be recalibrated through personal experience, especially in a context of high uncertainty, health externalities, and limited information.

JEL Classification: D83, D90, H41

Keywords

social dilemmas — norm misperceptions — evolution of social norms

[1] *University of Chicago, United States of America*
[2] *Universitat Pompeu Fabra, Spain*
[3] *Università di Bologna, Italy*
[4] *Johns Hopkins University, United States of America*
[5] *Free University of Bozen-Bolzano and FBK-IRVAPP, Italy*
***Corresponding author**: gubri@uchicago.edu

Introduction

Social norms define the expectations, sanctions and rewards that, in a community, influence people's behavior Benabou and Tirole [2011]; Eriksson et al. [2021]. These norms can serve as heuristics to make faster decisions Griskevicius et al. [2008] that benefit society as a whole by inducing individuals to cooperate and contribute to the public good, especially in situations where people might otherwise prioritize their short-term, private benefits Cardenas and Ostrom [2006]. During the COVID-19 pandemic, especially at its onset but also in later phases, societies had to make important decisions and balance different needs and interests, for example, concerning the deployment of emergency measures and closures of many activities and the proper pace of the return to normality Deiana et al. [2022]. These choices were particularly challenging due to the novelty and high uncertainty of the situation and the necessity to make decisions swiftly. On the one hand, the reliance on informal norms and expectations might contribute to spreading new, socially beneficial behaviors when defining legal provisions takes time or enforcing them is too costly. On the other hand, people's tendency to follow certain norms can be detrimental if those norms perpetuate harmful behaviors.[1]

Individuals have a preference for following social norms Bicchieri [2005], but they do so if they both *believe* that a sufficient number of other individuals will conform and, in turn, *expect* others to conform as well because it is the proper thing to do. Achieving change spontaneously by a sufficient "mass" of the population is difficult Andreoni et al. [2021], and policy interventions may be needed to convey the benefits from either adopting or abandoning norms. Indeed, social norms are strongly linked to beliefs and culture, and these can be highly persistent Giuliano [2007]; Voigtländer and Voth [2015]. Some of the hesitancy that people show in changing their behavior may also come from the misperception of a social norm rather than the norm itself. That is, individuals might behave according to what they believe others do, but not what they actually do. Misperceptions may also be

[1] Bursztyn et al. 2017 show how gender norms can influence women's willingness to signal their career ambitions; Bertrand and Pan 2013 find that deeply rooted cultural norms on gender roles can curtail female labor force participation.

responsible for the hesitancy that people show in changing their own behavior, and interventions that provide factual information about social norms can recalibrate these beliefs, thereby improving social outcomes Bursztyn et al. [2020]; Bursztyn and Yang [2022]. However, we know much less about how norm perceptions emerge in the first place and how they evolve, especially when information about what others believe or do is scant. In this study, we address two questions: (1) How do people form their perceptions about social norms when they cannot observe or have limited information on the behavior of others? And (2) How do perceptions adjust in the absence of correcting interventions? We investigate these issues by assessing how individuals' preferences for attending in-person activities affected their perception of what others did and what they believed the socially appropriate behavior was in the context of post-lockdown COVID-19 in Italy. In this new, unfamiliar situation, accurate information about other people's behavior and what proper behaviors would be, was lacking. We conducted a longitudinal survey on a representative sample of 2,020 Italian citizens. In the first wave of the survey, in the Spring of 2020, we collected respondents' own willingness to attend a set of activities, their perceived readiness of their region of residence to resume these activities in person after social-distancing measures were lifted, and their beliefs about other people's willingness to attend. In the follow-up survey in December 2020, we asked the same respondents whether they had attended those activities since the previous survey, their beliefs about whether other people attended them, and whether, in hindsight, they thought the activities reopened too early. We also asked participants about their experience with the pandemic, such as whether they experienced an economic shock (i.e., an income loss) or a health event related to the pandemic (i.e., whether they were hospitalized or knew someone who was hospitalized or died due to COVID-19).

Responses to the first survey indicate that people inferred injunctive and descriptive norms mainly in two ways: (a) from their own preferences, whereby if respondents had a preference for a specific activity to reopen soon, they were more likely to believe that reopening that activity was the right thing to do and that others would attend that activity, and (b) via a "better-than-average" heuristic, that is, respondents relied on their own preference as a benchmark, and believed that others were more willing to attend those activities in person than they were. The responses to the follow-up survey show that, as participants plausibly acquired more knowledge about both the virus and the prevailing social norms, their own preferences had a weaker effect on their norm perceptions; the fact that they attended an activity in between survey waves was also less important in determining whether such activity should have reopened or if they believed others attended it.

We also find that perceived norms are affected by direct life experiences. Although most respondents in December 2020 believed that others attended even more activities in person than they originally expected in Spring, those who experienced a COVID-19-related health shock were less likely to do so. Similarly, those who did not live through such an experience were more likely to state in December that they attended even fewer activities than they said they would in the Spring, whereas this difference is close to zero among respondents who incurred a health shock. Those who lived through a negative COVID-19-related life experience were, therefore, more likely to revise their perceptions about others and more likely to be accurate in recalling their own intentions and in their perception of the prevailing social norm. In contrast, those who did not have negative experiences had an even more inflated "better than average" bias over time.

This study provides insights into how norm perceptions in social dilemmas arise by studying them in a context where individuals could not have formed beliefs through previous direct experiences. In the COVID-19 context, Allen et al. 2021 demonstrate that correcting for norm misperception increased compliance with social distancing measures during the pandemic. Our results show that life experiences can significantly correct norm misperceptions too. We also see qualitatively that, over time, individuals recalibrate their norm perceptions by updating not their own preferences but rather their beliefs about others' preferences. These findings suggest that individual behavior that can be harmful to society may be driven by misperceived norms that simply reflect a person's own preferences, but a personal experience can update one's beliefs in a similar fashion to the provision of information. The study also contributes to the literature on the importance of social norms by providing new evidence from a context of health externalities, specifically where the novelty of the situation (i.e., a new infectious disease) and, consequently, the limited information might lead individuals to act in a selfish, socially harmful way. In such cases, understanding how norms arise and evolve is particularly relevant for policy.

In the next section, we discuss the data and the methodology. In the third Section, we report the main findings and additional analyses showing that our findings are robust to controlling for respondents' observable and unobservable time-invariant characteristics, question ordering effects, social preferences, and alternative model specifications. We conclude in our final Section by discussing the contribution of our work and directions for further research.

Methods

To study how norm perceptions evolved during the first year of the COVID-19 pandemic, we collaborated with a well-established survey firm to administer a questionnaire in two waves on the same longitudinal, representative sample of the Italian population.[2] The first wave was administered in three batches in the Spring of 2020, in the weeks commencing on

[2] SWG is an established market research firm in Italy and a member of the European Society for Opinion and Marketing Research. The company manages a panel of over 60,000 individuals in the country. Respondents fill out the surveys online or via an online computer-assisted telephone interview (CATI) software.

April 28th, May 18th, and June 8th (with samples being of 699, 755, and 566 respondents, respectively). During this period, the average number of COVID-19 cases and deaths began to decrease after the peak in late March. Just before the launch of our first survey, on April 26th, the Italian government announced that, on May 4th, most business activities would resume and the national lockdown, which began on March 22nd, would be lifted (see Table A1 in Appendix for the timeline of government deliberations). The second wave of the survey was in the week beginning on December 14th, with the same 2,020 respondents. In Table A2 in the Appendix, we provide a summary of the participants' characteristics.

In the Spring survey, we first informed respondents about the government's assessment of what factors would determine the readiness of a region to reopen - i.e., a low transmission rate of the virus, a manageable demand for healthcare assistance, the capacity to test potential patients promptly, and the ability to trace contagious people. We then showed everyone a list of eleven activities and asked them whether they thought reopening them was the appropriate thing to do (perceived injunctive norm), whether they felt safe to go (own preference), and whether they believed others would feel safe to go (perceived descriptive norm).[3] We presented the three questions in random order. The activities were: (1) bars and restaurants, (2) hotels, (3) shopping malls, (4) hairdressers and beauty salons, (5) cinemas, theaters, museums, and libraries, (6) gyms and pools, (7) beaches, natural parks, alpine refuges, (8) urban public transport such as tram, bus, metro, (9) trains and planes, (10) schools, (11) churches and religious places. The possible answers were "yes" or "no" for the questions on perceived injunctive and descriptive norms, and "yes", "no" or "not applicable" in the case of the question referring to their own preferences, to control for how citizens form norm beliefs on activities that do not regard them directly or for which they may not have a strong personal preference (for instance, respondents who are not religious could indicate "not applicable" when asked about the reopening of churches). The Winter wave of the survey asked the same questions, but in the past tense, prompting respondents to consider whether, since the previous survey wave, they thought reopening was the right thing to do, if they attended each of the activities, and if they believed other people did. The purpose of tracking preferences and norms across multiple activities was to account for heterogeneity in preferences as well as controlling for possible activity-specific risks associated with the spread of the virus (e.g., crowded and closed spaces vs. open spaces). Finally, in both survey waves, we collected information about respondents' self-reported behaviors to reduce their risk of contracting the coronavirus.[4]

In addition to these questions, we asked respondents whether they incurred an income or health shock as a result of the pandemic between the time of the Spring and the December survey. 26% of the respondents had at least a family member or friend hospitalized because they contracted the virus. Regarding the economic impact of the pandemic, 61% of the sample declared that their financial condition had not varied, 33% that it got worse, and 6% better. Lastly, to account for indirect shocks, we complement our dataset with administrative data on COVID-19 cases based on the weekly reports of the Italian Ministry of Health.

Empirical strategy

We consider two main outcomes: (a) perceived readiness to reopen each of the eleven activities, and (b) perceived willingness of most other people to participate in these activities. To analyze the determinants of these outcomes, we create a panel dataset, in which observations are at the activity-respondent level, thus generating twenty-two data points per respondent (eleven per period, or equivalently, two per activity). We perform linear probability regressions with population survey weights, based on the following specification:[5]

$$\begin{aligned} Y_{iprjt} = {} & \alpha + \beta OwnPreference_{ijt} + \gamma NA_{ijt} + \lambda CovidShock_{it} \\ & + \theta IndirectShock_{prt-1} + \delta X_i + \lambda_j + \mu_t + \rho_r + \pi_t \\ & + \varepsilon_{iprjt} \end{aligned} \tag{1}$$

The outcomes Y_{iprjt} are binary indicators for whether respondent i, living in province p of region r, believes that it is appropriate to reopen activity j at time t, or that other people will attend that activity. The variable $OwnPreference_{ijt}$ indicates whether a respondent would attend the activity, which we use to assess whether the perception of descriptive and injunctive social norms relates to personal preferences. We add to the regression an indicator NA_{ijt} for whether participants reported that a given activity did not apply to them. $CovidShock_{it}$ is equal to one if the respondents reported having been hospitalized or having a family member or friend hospitalized or deceased because they contracted COVID-19 between the first and the second wave (this variable is equal to zero for all respondents in the first survey wave); $IndirectShock_{pt}$ reports the increase, between the survey day and the previous six days, in COVID-19 cases in the province of the respondent.

[3] The questions asked, more specifically: (1) "Given the current conditions in your region, do you think it is appropriate that the following places have been reopened to the public or, in case they are still closed, do you think it would be appropriate to reopen them in the coming weeks?"; (2) "Given the current conditions in your region, do you intend to visit or have already visited the following places, and for the ones that haven't opened yet, would you go if they were to reopen in the coming weeks; (3) "Given the current conditions in your region, do you think most people intend to visit or have already visited the following places, and for the ones that haven't opened yet, do you think they will go if they were to reopen in the coming weeks?

[4] The list of behaviors is: (i) I regularly wash my hands, (ii) I wear a mask, (iii) I no longer shake hands, (iv) I try to keep a safe distance from others, (v) I try to avoid crowded places, (vi), I reduce my visits to the supermarket to the least possible amount, (vii) I no longer see friends, (viii) I no longer see relatives who don't live with me, (ix) I don't leave home unless strictly necessary. Respondents could also select a "none of these" option or a "prefer not to answer" option.

[5] A logit specification of the model, reported in Tables A3 and A4 in the Appendix, delivers very similar estimates.

X_i is a vector of individual-level control variables, including demographic characteristics such as gender, age, education, parental status, region of residence, financial condition, political views, whether respondents live alone, their labor market status, and religious practices. λ_j, μ_t, ρ_r, and π_i represent activity, wave, region, and individual fixed effects, respectively. When reporting and discussing the results in the next section, we indicate which of these fixed effects are present in each specification, and their role in allaying concerns for spurious correlations. We correct the estimates of the standard errors by clustering them at the respondent level.

Results and Discussion

Own preferences and norm perception

We begin the analysis by computing the distribution, in the two survey waves, of respondents' own preferences, views on whether reopening is the right thing to do, and beliefs on what others do or would do. Figure 1 shows that in the Spring survey waves, across all activities, respondents consistently reported a perception of what should be done and what others would do that is significantly higher than their own willingness to attend. On average, less than half of the respondents were willing to attend an activity for nine out of the eleven activities. Conversely, the majority of respondents believed others would be willing to attend nine of the activities. The differences between what respondents believed others would do and what they believed should be done are also significant, but less systematic across activities.

We find very similar patterns in the responses to the December survey (Figure 2) Overall, across all participants and activities, a willingness to attend an activity was reported 43% of the times in the Spring and 40% in December, a positive opinion on opening activities 59% of times in the spring and 64% in December; and the opinion that other people would attend an activity 65% of the times in the Spring and 79% in December.

These findings suggest that individuals tend to perceive themselves as different from the majority of others. In this case, if a lower willingness to attend an activity is an indication of a more cautious behavior in the face of a risk of contagion and spread of a disease, these responses may indicate that individuals follow a "better than average" heuristics whereby they see themselves as more virtuous than the average citizen, and also more prudent even if agreeing that a particular activity is ready to be reopened. This behavior is consistent with previous studies that documented the presence of a "better than average" heuristic in several domains. These studies range from early studies in psychology documenting that 94% University professor rated their teaching ability as above average Cross [1977], and that college students rated their driving safety and skill as significantly higher than the 50th percentile relative to other students at their university Svenson [1981]. Zell et al. 2020 conduct a meta-analysis showing that this heuristic is persistently detected by a large number of studies. Benoît at al. 2015 also offer experimental evidence that people overplace their performance compared to others in easy quizzes and show that this tendency can't be explained by rational expectations or Bayesian updating[6].

In the regression analyses described below, we further investigate the relationship between own preferences and the perception of social norms.

In Tables 1A and 2B, we report the regression estimates from equation (1), where the outcome variables are the perception of the readiness to reopen and the perception of other people's behavior, respectively[7]. In Spring 2020, respondents who were willing to attend a particular activity were significantly more likely to believe that this activity was indeed ready to reopen safely. The negative and statistically significant estimate of the parameter on the interaction between the indicators for the December wave and the willingness to attend an activity (Own preference*Dec) indicates that the relationship between the belief that an activity is ready to open is weaker in the December survey. This suggests that one's own preferences strongly influenced perceptions of injunctive norms early on. Still, this effect faded over time as more information became available and other factors plausibly became more important for the respondents' assessment of their region's readiness to reopen. If a respondent lived in an area with a higher increase in cases the week before the survey wave (which we take as a proxy for the salience of the pandemic), they were significantly less likely to state that activities were ready to reopen. However, this result also dissipates in the second wave. If, between survey waves, a respondent was hospitalized or knew a friend or a family member who was hospitalized with or died from COVID-19, they were significantly less likely to believe that an activity should have, in hindsight, reopened.

Personal preferences also significantly influence perceptions about others' preferences and behavior (Table 2B), especially in the Spring of 2020. Moreover, if an activity did not concern them, participants were more likely to believe others would also not be interested in reopening such activity. The indirect and direct COVID shocks had a similar effect to the one on the perception that an activity could safely reopen.[8]

Our estimates of interest remain stable as we introduce a rich set of controls to the regressions. The regressor whose assumption of pre-determination requires particular attention is the one representing the respondents' own preferences for

[6] To the best of our knowledge, our study is the first to document this tendency in the context of the COVID-19 pandemic, and to our knowledge, no other research has explored it in the context of other crises, such as climate change. Existing studies in these areas have instead focused primarily on blame-shifting and self-image preservation, which represent distinct psychological mechanisms.

[7] We replicate these regressions using a logistic model in Tables A3 and A4 and obtain similar results.

[8] We replicate these regressions, changing our measure of indirect health shock, this time including the increase in excess deaths in the respondents' region of residence, and we obtain similar results. Living in an area that recorded an increase in excess deaths significantly reduces the probability that respondents believed activities were ready to reopen and that others would attend (although the latter less significantly), but this effect diminished over time.

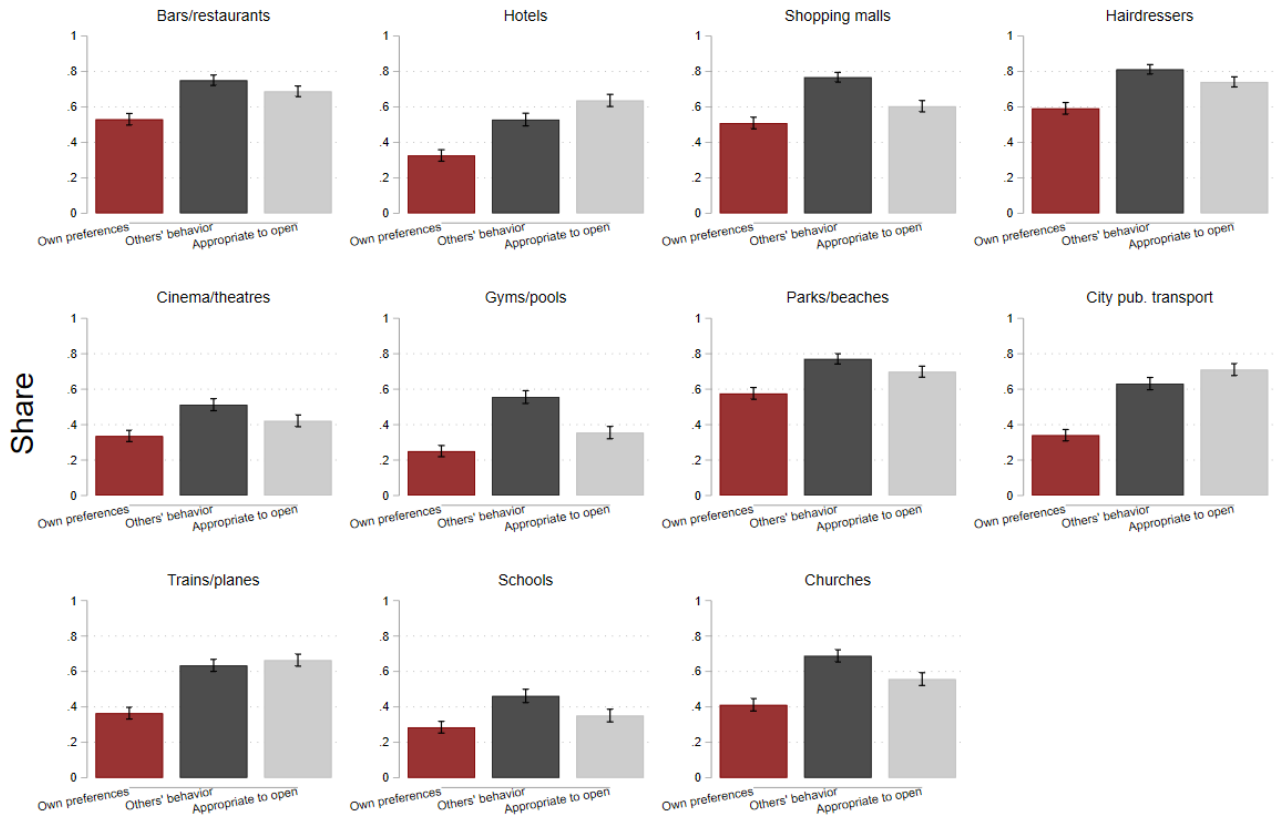

Figure 1. Own preferences and norms - April.
Notes: The figure displays, for each activity, the share of respondents who, in April 2020, said they would be willing to attend an activity (Own preferences), the share who believed others would attend (Others' behavior), and the share who believed that such activity was ready to reopen (Appropriate to open). The vertical lines on each bar represent 95% confidence intervals. Sampling weights were applied

attending an activity; the other factors of interest, such as the number of COVID-19 cases in one's province or having directly (personally or through family and friends) experienced COVID-19 are plausibly exogenous to individual norm perceptions. The inclusion of variables measuring individual sociodemographic characteristics, including trust and attitudes toward risk, shows that our main results are not confounded by individual observable characteristics that might have simultaneously affected the outcome of interest and, in particular, the reported own preferences for attending an activity. The addition of fixed effects for each activity and for the respondent's region of residence restrict the source of variations to being across individuals and waves but within activities and location, thus excluding that omitted and time-invariant geographical or activity-specific factors are the underlying determinants of the main relationship of interest. Given the uneven spread of COVID-19 cases across regions in Italy, especially at the early stages of the pandemic, and the apparent differences between the activities that we consider (for example, some occur indoors and some outdoors), controlling for these sources of heterogeneity is especially relevant to lessen concerns of spurious relationships.

Finally, we take advantage of the longitudinal nature of our survey by estimating a specification with individual fixed effects (columns (4) in both tables). The estimation of the parameters on *Own Preference* derives from individuals who expressed different preferences about attending an activity in the Spring and in December of 2020. In these fully specified models, the underlying assumption is that we are able to control for the most plausible factors that might confound the relationship between a person's preferences for attending an activity and their perceptions about the prevailing descriptive and injunctive social norms concerning the attendance of that activity. In a context like the one we study, where information about the behavior of others and objective opinions about what activities should be reopened was limited (especially in the Spring of 2020), it is plausible to assume that one's own preferences could affect beliefs on social and injunctive norms, whereas the other direction of influence was unlikely given the circumstances. The main estimates of interest do not change in magnitude until the regressions include individual fixed effects (whose inclusion also substantially increases the share of variance in the outcomes that the model explains); the reduction in the point estimate is about 20 percent when

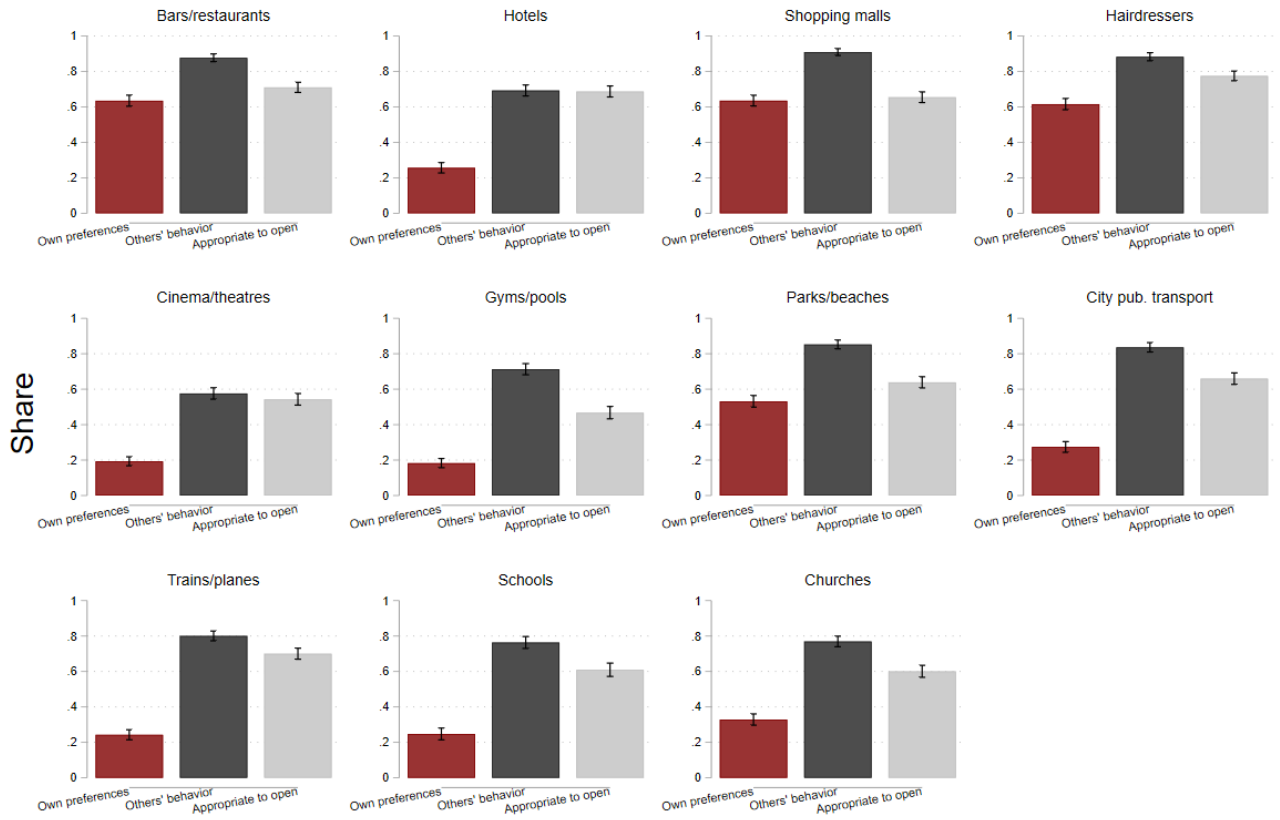

Figure 2. Own preferences and norms - December.
Notes: The figure displays, for each activity, the share of respondents who, in December 2020, said they attended an activity (Own preferences), believed others attended (Others' behavior), and believed that such activity was ready to reopen (Appropriate to open). The vertical lines on each bar represent 95% confidence intervals. Sampling weights were applied.

the outcome variable is the perception of injunctive norms, and 10 percent when it is the perception of the descriptive norms. Individual-level, time-invariant unobserved heterogeneity, therefore, seems to play a role in the formation of both norm perception and own preferences.

To further define the interpretation of our findings, we addressed additional concerns with analyses that we discuss below.

Priming and ordering effects

Our main results suggest that a person's own preferences influence their norm perceptions. To provide an additional test for this interpretation, we explore whether the estimates might depend on the random order in which the three questions of interest (own preferences and perception of injunctive and descriptive norms) appeared in the survey. The first question respondents see in the survey might prime them on how to reason about the following questions. Other studies have shown that the (random) order of survey questions can be leveraged to estimate anchoring and priming effects Branas-Garza et al. [2022]. In this section, we replicate our main analysis accounting for ordering.

In tables 3C and 4D, the first column reports our main specification with an additional regressor that takes values equal to one if the respondent saw the question on their own preferences first and zero otherwise. The estimated coefficient is positive and statistically significant in Table 4D and positive but not statistically significant in Table 3C, indicating that answering the question on their own preferences first increases the probability that respondents believed others would attend an activity, which may suggest a priming effect. However, the estimated coefficients are small in magnitude, indicating that the contribution of priming to the relationship between one's own preferences and perception of social norms is marginal. Moreover, the estimates are even smaller and statistically insignificant in the second wave. In addition to being consistent with our main results that people learn norms over time and are less reliant on their own preferences, this also runs counter to the presence of a strong priming effect, which would have also emerged in December. In columns (2)-(4) of each table, we re-run the main analyses separately on subsets of the sample, based on which of the three questions came first for a participant. In all cases, the estimates of interest (i.e., the estimated coefficient of "Own Preferences") are virtually unchanged.

Table 1A. Determinants of perception of readiness to reopen

	Outcome: Reopening the activity is appropriate			
	(1)	(2)	(3)	(4)
Own preference	0.493***	0.476***	0.475***	0.354***
	(0.0148)	(0.0140)	(0.0138)	(0.0139)
Own preference *Dec	-0.193***	-0.179***	-0.178***	-0.145***
	(0.0173)	(0.0166)	(0.0165)	(0.0155)
Activity NA	0.0989***	0.0949***	0.0924***	0.0547***
	(0.0233)	(0.0211)	(0.0210)	(0.0195)
Activity NA *Dec	-0.125***	-0.116***	-0.116***	-0.0742***
	(0.0302)	(0.0284)	(0.0284)	(0.0246)
Direct health shock	-0.0567**	-0.0482**	-0.0464**	-0.00410
	(0.0222)	(0.0213)	(0.0212)	(0.0241)
Direct economic shock	-0.00687	0.00250	0.000406	0.00594
	(0.0199)	(0.0201)	(0.0200)	(0.0219)
Cases p.c.$_{t-1}$	1.867**	0.0106	-0.0346	-0.0646
	(0.898)	(1.153)	(1.155)	(1.200)
Weekly %incr. cases	-1.194***	-1.589***	-1.608***	-2.317***
	(0.241)	(0.242)	(0.240)	(0.265)
Cases p.c.$_{t-1}$* Dec	-2.61e-07	-2.93e-07	-2.77e-07	-5.16e-07*
	(2.43e-07)	(2.65e-07)	(2.66e-07)	(2.75e-07)
Weekly %incr. cases * Dec	1.689***	1.988***	2.004***	2.382***
	(0.327)	(0.366)	(0.367)	(0.397)
December wave	0.0374	0.0665*	0.0662*	0.0465
	(0.0353)	(0.0383)	(0.0385)	(0.0382)
Constant	0.403***	0.405***	0.456***	0.556***
	(0.0230)	(0.0691)	(0.0745)	(0.0172)
Observations	44,429	44,429	44,429	44,429
R-squared	0.209	0.228	0.229	0.430
Activity F.E.	Yes	Yes	Yes	Yes
SES & Demographics	No	Yes	Yes	No
Trust and risk controls	No	No	Yes	No
Region F.E.	No	Yes	Yes	No
Individual F.E.	No	No	No	Yes
Mean D.V.	0.595	0.595	0.595	0.595

Notes. The estimates are from linear regressions. Own preference is an indicator equal to one if the respondent reports attending an activity, and zero otherwise; NA is equal to one when the activity is not applicable to the respondent. Covid shock is equal to one if the respondent reported having been hospitalized or having a family member or friend hospitalized or deceased from COVID-19 between the first and the second wave; weekly % incr. cases is the weekly percent increase in coronavirus cases per capita in the respondents' province of residence between the survey week and the previous week, and cases p.c. is the cumulative number of coronavirus cases per capita in the week before the survey in the same province. Controls include gender, age, education, parental status, region of residence, financial condition, political views, whether respondents live alone, their labor market status, and religious practices. Trust and risk attitudes are validated measures on a 0-10 scale. Standard errors clustered at the individual level are in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 2B. Determinants of perception of others' preferences

	Outcome: Others are attending the activity			
	(1)	(2)	(3)	(4)
Own preference	0.385***	0.379***	0.380***	0.350***
	(0.0171)	(0.0161)	(0.0160)	(0.0157)
Own preference*Dec	-0.234***	-0.227***	-0.228***	-0.242***
	(0.0188)	(0.0184)	(0.0184)	(0.0176)
Activity NA	0.0182	0.0239	0.0252	0.0510**
	(0.0276)	(0.0251)	(0.0247)	(0.0223)
Activity NA *Dec	-0.0435	-0.0339	-0.0337	-0.0373
	(0.0347)	(0.0317)	(0.0315)	(0.0287)
Direct health shock	-0.0391*	-0.0238	-0.0228	-0.0301
	(0.0217)	(0.0195)	(0.0192)	(0.0236)
Direct economic shock	-0.0174	-0.00880	-0.0141	-0.0122
	(0.0185)	(0.0183)	(0.0182)	(0.0240)
Cases p.c.$_{t-1}$	-0.922	-1.484	-1.536	-1.587
	(0.873)	(1.117)	(1.115)	(1.224)
Weekly %incr. cases	-0.283	-0.400	-0.432*	-0.711**
	(0.273)	(0.265)	(0.260)	(0.277)
Cases p.c.$_{t-1}$ * Dec	2.43e-07	2.08e-07	2.06e-07	1.91e-07
	(2.25e-07)	(2.78e-07)	(2.78e-07)	(3.02e-07)
Weekly %incr. cases * Dec	0.270	0.255	0.288	0.585
	(0.354)	(0.388)	(0.383)	(0.409)
December wave	0.259***	0.268***	0.271***	0.269***
	(0.0366)	(0.0386)	(0.0387)	(0.0401)
Constant	0.555***	0.359***	0.400***	0.583***
	(0.0249)	(0.0727)	(0.0743)	(0.0181)
Observations	44,396	44,396	44,396	44,396
R-squared	0.161	0.187	0.190	0.417
Activity F.E.	Yes	Yes	Yes	Yes
SES & Demographics	No	Yes	Yes	No
Trust and risk controls	No	No	Yes	No
Region F.E.	No	Yes	Yes	No
Individual F.E.	No	No	No	Yes
Mean D.V.	0.702	0.702	0.702	0.702

Notes. The estimates are from linear regressions. Own preference is an indicator equal to one if the respondent reports attending an activity, and zero otherwise; NA is equal to one when the activity is not applicable to the respondent. Covid shock is equal to one if the respondent reported having been hospitalized or having a family member or a friend hospitalized or deceased from COVID-19 between the first and the second wave; weekly % incr. cases is the weekly percentage increase in coronavirus cases per capita in the respondents' province of residence between the survey week and the previous week, and cases p.c. is the cumulative number of coronavirus cases per capita in the week before the survey in the same province. Controls include gender, age, education, parental status, region of residence, financial condition, political views, whether respondents live alone, their labor market status, and religious practices. Trust and risk attitudes are validated measures on a 0-10 scale. Standard errors are clustered at the individual level. *** p<0.01, ** p<0.05, * p<0.1

Preferences for consistency and recall accuracy

In our analysis, we interpret the weaker relationship between one's own preferences and perceptions of social norms over time as corroborating our interpretation, since it is plausible that one's preferences play a more critical role when individuals cannot rely on any other information. It is also possible, however, that some respondents have a preference for providing consistent answers, especially regarding their own preferences, thus potentially affecting our estimates. Previous research has shown that people tend to misremember their own selfishness in order to prioritize their own interests and maintain a moral self-image at the same time Carlson et al. [2020]. If this mechanism is what partly drives changes to respondents' norm perceptions but not to their own preferences, then we would see differences in respondents' recollection across the three tracked domains (i.e., own preferences and social and injunctive norms). To explore the extent to which this tendency influences our results, we asked all respondents in the December wave whether they believed their opinion had changed since the previous survey wave. Around 57% reported that their opinion did not change, compared to around 35% who stated that the government should have been more careful during the re-opening phases, and to a smaller 8% who believed activities should have reopened sooner. To visualize the recall effect, we compute an index for each of the three variables of interest (own preferences, perceptions of readiness, and perception of others' preferences) that is equal to the average number of activities a respondent was willing to attend (Index own Preferences), thought was ready to reopen (Index appropriate to open) and thought others were willing to attend (Index others' behavior). For each respondent, we generate an index for each of these three variables, both for the Spring wave and the December wave. Figure 3 plots the average difference in the indices between the two waves. We do not observe statistically significant differences in each of the indices depending on respondents' self-reported changes in opinions.

In sum, these results support the hypothesis that an individual's own preferences play an important role in shaping their perceptions about social and injunctive norms. Although any statement of causality should be made with caution, the fact that respondents' preference for consistency or recall accuracy is not a major driver of the fading effect of individual preferences on social norm perceptions is reassuring.[9]

[9]We find further confirmation of recall inaccuracy by asking respondents to recall their past perceived norms: about 63% of respondents who thought

Table 3C. Ordering effects - Perceptions of Readiness

	Outcome: Reopening the activity is appropriate			
	(1) Full sample	(2) Sample w. "Own pref." question first	(3) Sample w. "Others' behav." question first	(4) Sample w. "Appr. reopen" question first
Own preference	0.341***	0.295***	0.364***	0.377***
	(0.0138)	(0.0220)	(0.0263)	(0.0242)
Own pref.*Dec	-0.132***	-0.119***	-0.181***	-0.183***
	(0.0157)	(0.0268)	(0.0288)	(0.0293)
Activity NA	0.0546***	0.0312	0.0355	0.125***
	(0.0190)	(0.0310)	(0.0309)	(0.0290)
Activity NA*Dec	-0.0721***	-0.0304	-0.0760*	-0.134***
	(0.0243)	(0.0441)	(0.0422)	(0.0369)
Own pref. before Appr.	0.0241			
	(0.0200)			
Own pref. bef. Appr.*Dec	0.0205			
	(0.0279)			
Dir. health shock	-0.0110	-0.102	0.172***	-0.00753
	(0.0233)	(0.0637)	(0.0596)	(0.0695)
Dir. econ. shock	0.000996	0.0253	-0.0248	-0.0577
	(0.0213)	(0.0555)	(0.0609)	(0.0587)
Cases p.c.$_{t-1}$	1.061	1.134	-1.622	5.620**
	(1.147)	(2.758)	(3.990)	(2.778)
Week %incr. cases	-0.368	0.416	-2.233*	1.602
	(0.396)	(1.257)	(1.195)	(1.615)
Cases p.c.$_{t-1}$*Dec	-3.89e-07	-3.85e-07	-1.05e-06	-6.56e-07
	(2.73e-07)	(7.62e-07)	(7.89e-07)	(7.58e-07)
Week %incr. c.*Dec	0.293	-1.142	2.342	-1.715
	(0.488)	(1.374)	(1.447)	(1.530)
December wave	0.202***	0.317**	0.160	0.295***
	(0.0475)	(0.126)	(0.119)	(0.111)
Constant	0.351***	0.373***	0.459***	0.164
	(0.0387)	(0.108)	(0.0940)	(0.139)
Observations	44,429	15,521	14,366	14,487
R-squared	0.436	0.507	0.513	0.495
Activity F.E.	Yes	Yes	Yes	Yes
SES & Demographics	No	No	No	No
Trust and risk controls	No	No	No	No
Region F.E.	No	No	No	No
Individual F.E.	Yes	Yes	Yes	Yes
Mean D.V.	0.595	0.627	0.573	0.582

Notes. Column (1) replicates the main regressions of table 1A adding a dummy for whether respondents randomly saw the question about their own preferences first, and its interaction with the survey wave dummy. Columns (2) to (4) report the estimates from separate regressions on subgroups of respondents depending on which question they saw first. Standard errors clustered at the respondent level are in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 4D. Ordering effects - Perceptions of others' behaviors

	Outcome: Others are attending the activity			
	(1) Full sample	(2) Sample w. "Own pref." question first	(3) Sample w. "Others' behav." question first	(4) Sample w. "Appr. reopen" question first
Own preference	0.346***	0.272***	0.374***	0.287***
	(0.0158)	(0.0284)	(0.0281)	(0.0266)
Own pref.*Dec	-0.239***	-0.183***	-0.237***	-0.223***
	(0.0178)	(0.0308)	(0.0319)	(0.0312)
Activity NA	0.0493**	0.00623	-0.00835	0.0355
	(0.0223)	(0.0360)	(0.0384)	(0.0301)
Activity NA*Dec	-0.0356	0.00771	0.0736	-0.0472
	(0.0287)	(0.0429)	(0.0514)	(0.0402)
Own pref. before Others	0.0483**			
	(0.0224)			
Own pref. bef. Others*Dec	-0.0352			
	(0.0314)			
Dir. health shock	-0.0315	-0.0245	-0.0299	-0.0268
	(0.0236)	(0.0703)	(0.0763)	(0.0537)
Dir. econ. shock	-0.0104	0.0156	-0.0613	-0.0414
	(0.0241)	(0.0609)	(0.0874)	(0.0656)
Cases p.c.$_{t-1}$	-1.373	-0.0169	-3.806	-0.176
	(1.222)	(3.222)	(3.932)	(3.778)
Week %incr. cases	-0.243	-0.527	-3.711**	1.187
	(0.433)	(1.645)	(1.635)	(1.386)
Cases p.c.$_{t-1}$*Dec	2.27e-07	-3.41e-08	-1.93e-07	-3.89e-07
	(3.05e-07)	(7.40e-07)	(1.04e-06)	(7.73e-07)
Week %incr. c.*Dec	0.0862	0.398	4.962**	-1.618
	(0.548)	(1.771)	(2.056)	(1.822)
December wave	0.331***	0.239*	0.0129	0.432**
	(0.0551)	(0.142)	(0.173)	(0.181)
Constant	0.509***	0.584***	0.778***	0.472***
	(0.0421)	(0.124)	(0.160)	(0.133)
Observations	44,396	15,521	14,366	14,487
R-squared	0.418	0.511	0.503	0.525
Activity F.E.	Yes	Yes	Yes	Yes
SES & Demographics	No	No	No	No
Trust and risk controls	No	No	No	No
Region F.E.	No	No	No	No
Individual F.E.	Yes	Yes	Yes	Yes
Mean D.V.	0.702	0.719	0.664	0.724

Notes. Column (1) replicates the main regressions 2B adding a dummy for whether respondents randomly saw the question about their own preferences first, and its interaction with the survey wave dummy. Columns (2) to (4) report the estimates from separate regressions on subgroups of respondents depending on which question they saw first. Standard errors clustered at the respondent level are in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Heterogeneity

We explore whether preferences are shaped by individual or environmental factors. Specifically, we examine the influences of age (whether respondents are older than 60 years), trust in others (measured by a trust level of at least 5 on a 10-point scale), trust in science (indicated by a declared trust in science of at least 5 on a 10-point scale), and the incidence of COVID-19 in their area (whether they reside in regions with COVID-19 cases above the median). The results are detailed in Tables A5 and A6 in the Appendix.

Our findings suggest that individuals over 60 years old are more likely to use their personal preferences as a basis for both injunctive and descriptive norms. For example, if they are willing to attend an activity, they are also more likely to believe that the activity should reopen and that others would attend, compared to younger individuals. This tendency also applies to activities not directly involving them, where they more frequently assume these activities should reopen and that others would participate. However, this difference diminishes over time as more information becomes available.

In regions heavily affected by COVID-19, residents were initially less likely to rely solely on their personal preferences to judge the appropriateness of reopening activities. This variance was mitigated when accounting for individual fixed effects, showing no significant differences in predicting the behaviors of others.

Regarding trust, our analysis reveals that respondents who distrust others are more inclined to assume that others would participate in any given activity, regardless of their personal inclinations. Conversely, those skeptical of science are more prone to project their own willingness to engage in an activity onto others.

Conclusions

Convergence towards beneficial social norms of behavior (or the abandonment of detrimental norms) is critical for effectively balancing the pursuit of individual interest and cooperation in society. Our work provides insights into the formation and evolution of social norms, particularly in novel scenarios characterized by high uncertainty, health risks, and limited

in Spring 2020 that a second lockdown was not going to be implemented reported in December that they did expect it.

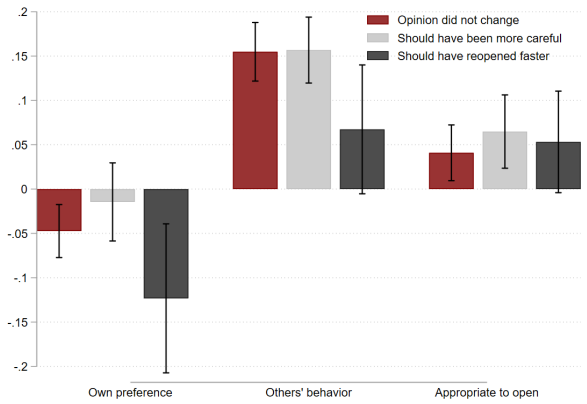

Figure 3. Variation in own preferences, injunctive and social norm perceptions, by recalling.
Notes: The figure shows the indices reporting the average number of activities respondents would attend (own preferences), perceived others would attend (descriptive norm), and perceptions were ready to reopen (injunctive norm). The bars report the average difference in indices between survey waves split by respondents' self-report recall changes, with 95% confidence intervals error bars.

information. In the context that we considered, countries around the world were faced with many difficult decisions during the COVID-19 pandemic, both in the initial phase, with the quick deployment of emergency measures, as well as at later stages, for instance, concerning the appropriate pace to return to normality. We study the exit phase from the first wave of COVID-19, a moment when, after the initial shock, there was a lively debate about the appropriateness of lightening the extraordinary measures adopted some months before, with a societal trade-off between reducing the economic and social burden of closures and lockdowns, and the risk of plunging back into the pandemic. Specifically, we study what people consider the appropriate course of action, a fundamental measure to understand political support, as well as the perception of the social norm, in terms of beliefs about the behavior of others. We also study the changes after the onset of the second wave of the pandemic crisis, when, indeed, the fears of a resurgence of the virus proved true.

Our results indicate that individuals infer social norms from their personal preferences and the belief that they are "better-than-average." This suggests that understanding the personal preferences of different population groups —such as by age, cultural communities, or socioeconomic strata— could be a starting point for policymakers aiming to shape public behavior. Tailoring interventions to these specific segments could enhance their effectiveness; for example, younger populations may respond better to digital campaigns, whereas older adults might prefer community-based outreach.

We also found that as people acquire more contextual knowledge, personal preferences have a decreased impact on their perception of norms. Policymakers could leverage this by providing targeted, region-specific information that is clear, transparent, and accessible. For instance, in contexts where misinformation is prevalent, interventions could focus on debunking myths and highlighting credible sources, while areas with higher trust in institutions might benefit more from direct appeals to collective action.

Finally, our finding that direct experiences related to the health crisis can significantly correct misperceptions about prevailing norms suggests that policymakers could facilitate testimonial sharing or exposure to individuals with diverse and relatable experiences. For example, in urban areas, campaigns might feature testimonials from frontline workers, whereas in rural regions, community leaders or peers with shared local experiences might be more effective. These regionally and demographically targeted approaches can help recalibrate public behavior in a way that resonates with diverse audiences.

Further, although survey-based studies are often subject to social desirability bias, the longitudinal nature of our survey methodology helps mitigate this risk by measuring how individuals' responses evolve over time. This temporal perspective reveals that norm perceptions follow a predictable pattern of evolution aligned with individuals' preferences. If social desirability bias were a primary driver of these effects, these systematic changes would be unlikely. By observing trends and recalibrations in norm perceptions rather than one-off responses, our approach partly overcomes this limitation.

Although our study focused on the COVID-19 pandemic in Italy, future research could explore similar dynamics in different contexts, as well as extend the analysis to other public health crises, climate change, military conflicts, or other situations where the tension between the pursuit of private interest and the necessity to cooperate is especially strong and hard to solve. Future research could also benefit from conducting longitudinal studies that track the evolution of social norms over more extended periods of time. This would enable researchers to observe how norms develop, change, and solidify, providing valuable insights into the dynamics of norm formation and adjustment. It would also allow examining the long-term effects of personal experiences and interventions on norm perceptions.

Acknowledgments

We gratefully acknowledge the financial support of the Sandra Rotman Center for Health Sector Strategy at the University of Toronto, the Hopkins Business of Health Initiative at Johns Hopkins University, and the Free University of Bolzano. Declarations of interest: none. This study obtained ethics approval from Johns Hopkins University (HIRB00010962) and the University of Toronto (REB Protocol No. 00039165).

References

Allen IV, J., A. Mahumane, J. Riddell IV, T. Rosenblat, D. Yang, and H. Yu (2021). Correcting perceived social distancing norms to combat covid-19. Technical report, National Bureau of Economic Research.

Andreoni, J., N. Nikiforakis, and S. Siegenthaler (2021). Predicting social tipping and norm change in controlled experiments. *Proceedings of the National Academy of Sciences 118*(16), e2014893118.

Benabou, R. and J. Tirole (2011). Laws and norms. Technical report, National Bureau of Economic Research.

Benoît, J.-P., J. Dubra, and D. A. Moore (2015). Does the better-than-average effect show that people are overconfident?: Two experiments. *Journal of the European Economic Association 13*(2), 293–329.

Bertrand, M. and J. Pan (2013). The trouble with boys: Social influences and the gender gap in disruptive behavior. *American economic journal: applied economics 5*(1), 32–64.

Bicchieri, C. (2005). *The grammar of society: The nature and dynamics of social norms*. Cambridge University Press.

Branas-Garza, P., R. Ciacci, and E. G. R. Ramírez (2022). Anchors matter: Eliciting maternal expectations on educational outcomes. *Journal of Economic Psychology 90*, 102510.

Bursztyn, L., T. Fujiwara, and A. Pallais (2017). 'acting wife': Marriage market incentives and labor market investments. *American Economic Review 107*(11), 3288–3319.

Bursztyn, L., A. L. González, and D. Yanagizawa-Drott (2020). Misperceived social norms: Women working outside the home in saudi arabia. *American economic review 110*(10), 2997–3029.

Bursztyn, L. and D. Y. Yang (2022). Misperceptions about others. *Annual Review of Economics 14*, 425–452.

Cardenas, J. and E. Ostrom (2006). How norms help reduce the tragedy of the commons: a multi-layer framework for analyzing field experiments. *Norms and the Law*, 105–136.

Carlson, R. W., M. A. Maréchal, B. Oud, E. Fehr, and M. J. Crockett (2020). Motivated misremembering of selfish decisions. *Nature communications 11*(1), 2100.

Cross, K. P. (1977). Not can, but will college teaching be improved? *New Directions for Higher Education 1977*(17), 1–15.

Deiana, C., A. Geraci, G. Mazzarella, and F. Sabatini (2022). Can relief measures nudge compliance in a public health crisis? evidence from a kinked fiscal policy rule. *Journal of Economic Behavior & Organization 202*, 407–428.

Eriksson, K., P. Strimling, M. Gelfand, J. Wu, J. Abernathy, C. S. Akotia, A. Aldashev, P. A. Andersson, G. Andrighetto, A. Anum, et al. (2021). Perceptions of the appropriate response to norm violation in 57 societies. *Nature communications 12*(1), 1481.

Giuliano, P. (2007). Living arrangements in western europe: Does cultural origin matter? *Journal of the European Economic Association 5*(5), 927–952.

Griskevicius, V., R. B. Cialdini, and N. J. Goldstein (2008). Social norms: An underestimated and underemployed lever for managing climate change. *International Journal of Sustainability Communication 3*(2008), 5–13.

Svenson, O. (1981). Are we all less risky and more skillful than our fellow drivers? *Acta psychologica 47*(2), 143–148.

Voigtländer, N. and H.-J. Voth (2015). Nazi indoctrination and anti-semitic beliefs in germany. *Proceedings of the National Academy of Sciences 112*(26), 7931–7936.

Zell, E., J. E. Strickhouser, C. Sedikides, and M. D. Alicke (2020). The better-than-average effect in comparative self-evaluation: A comprehensive review and meta-analysis. *Psychological bulletin 146*(2), 118.

Appendix

Table A1. Timeline of COVID-19 epidemic and policy responses in Italy

Date	*Event*
30-Jan-20	Italy closes flights from China.
31-Jan-20	First two cases of COVID-19 diagnosed in Rome.
31-Jan-20	Government declares state of emergency.
21-Feb-20	First cases of community transmission reported in Lombardia and Veneto; first COVID-19 death (in Vo', Veneto).
21-Feb-20	Most public activities suspended in outbreak areas in Lombardia and (the following day) in Veneto.
23-Feb-20	Complete lockdown of outbreak areas in Lombardia and Veneto.
24-Feb-20	Schools closed in Lombardia, Veneto, Friuli-Venezia Giulia, Emilia Romagna and (on the following days) Liguria and Marche.
4-Mar-20	Schools closure extended to the whole country, announced until March 15.
8-Mar-20	Lockdown ("stay at home" measures) declared for Lombardia and 14 Provinces in Veneto, Emilia Romagna, Piemonte and Marche.
9-Mar-20	Lockdown ("stay at home" measures) extended to the whole country until April 3rd ; school closure extended to the whole country, announced until April 3rd.
11-Mar-20	Government ordered closure of most retail stores (exceptions included groceries and pharmacies), restaurants and bars, as well as most personal services until March 25th.
19-Mar-20	Italy surpasses China as the country with the most reported COVID-19 deaths.
22-Mar-20	Government suspended all non-essential economic activities. It also prohibited individual movements outside people's town of domicile (with the exception of work- and health-related reasons or in case of absolute urgency). All these measures are put in place until April 3rd.
1-Apr-20	Lockdown extended until April 13th.
10-Apr-20	Lockdown extended until May 3rd.
26-Apr-20	Government announced a gradual reopening plan for the so-called "phase 2", that would start from May 4th.
4-May-20	"Phase 2" started: Movement between municipalities allowed only for work and health reasons, as well as for visits to relatives. Re-opening of manufacturing industries and construction sites. Movement across regions still forbidden.
13-May-20	Government announced schools would remain closed until September.
16-May-20	The Prime Minister announced the Government plan for the easing of restrictions. Most businesses could reopen, and free movement was granted to all citizens within their Region; movement across Regions was still banned for non-essential motives.
3-Jun-20	Government allows travels to and from Italy and between the country's regions.

Table A2. Sample demographics

Variable	Mean
Female	52%
Age	50.1
Bachelor+	85%
North	48%
Center	19%
South	22%
Large city	22%
Lives alone	14%
Children <18yrs	21%
Left political views	29%
Right political views	27%
Centrist political views	8%
Independent political views	25%
Self-reported financial difficulties	19%
Not in the labor force	34%
Unemployed	10%
Works in the private sector	19%
Working in office in the past weeks	40%
Smart working in the past weeks	22%
Church at least weekly	58%

Table A3. Logit Regression - Perceptions of Readiness

	Outcome: Reopening the activity is appropriate			
	(1)	(2)	(3)	(4)
Own preference	2.663***	2.640***	2.635***	2.435***
	(0.0935)	(0.0920)	(0.0904)	(0.108)
Own preference*Dec	-1.159***	-1.115***	-1.112***	-1.121***
	(0.105)	(0.103)	(0.102)	(0.122)
Activity NA	0.429***	0.414***	0.401***	0.202*
	(0.101)	(0.0944)	(0.0938)	(0.121)
Activity NA*Dec	-0.536***	-0.504***	-0.505***	-0.363**
	(0.129)	(0.125)	(0.126)	(0.161)
Direct health shock	-0.274**	-0.236**	-0.226**	-0.0587
	(0.108)	(0.106)	(0.106)	(0.181)
Direct economic shock	-0.0324	0.0180	0.00626	0.0114
	(0.0973)	(0.101)	(0.101)	(0.157)
Cases p.c.$_{t-1}$	9.093**	-0.635	-0.922	-1.743
	(4.530)	(6.074)	(6.094)	(8.225)
Weekly %incr. cases	-6.784***	-9.020***	-9.127***	-16.87***
	(1.348)	(1.378)	(1.371)	(2.369)
Cases p.c.$_{t-1}$ * Dec	-1.29e-06	-1.53e-06	-1.45e-06	-3.09e-06
	(1.18e-06)	(1.33e-06)	(1.34e-06)	(2.19e-06)
Weekly %incr. cases * Dec	9.114***	10.89***	10.96***	15.95***
	(1.750)	(2.012)	(2.021)	(2.954)
December wave	0.0797	0.245	0.246	0.295
	(0.173)	(0.201)	(0.201)	(0.275)
Constant	-0.375***	-0.362	-0.0839	
	(0.112)	(0.364)	(0.393)	
Observations	44,429	44,429	44,429	39,567
R-squared	0.595	0.595	0.595	0.595
Activity F.E.	Yes	Yes	Yes	Yes
SES & Demographics	No	Yes	Yes	No
Trust and risk controls	No	No	Yes	No
Region F.E.	No	Yes	Yes	No
Individual F.E.	No	No	No	Yes
Mean D.V.	0.595	0.595	0.595	0.595

Note: The estimates are from logistic regressions regressions. Own preference is an indicator equal to one if the respondent reports attending an activity, and zero otherwise; NA is equal to one when the activity is not applicable to the respondent. Covid shock is equal to one if the respondent reported having been hospitalized or having a family member or friend hospitalized or deceased from COVID-19 between the first and the second wave; weekly % incr. cases is the weekly percent increase in coronavirus cases per capita in the respondents' province of residence between the survey week and the previous week, and cases p.c. is the cumulative number of coronavirus cases per capita in the week before the survey in the same province. Controls include gender, age, education, parental status, region of residence, financial condition, political views, whether respondents live alone, their labor market status, and religious practices. Trust and risk attitudes are validated measures on a 0-10 scale. Standard errors clustered at the individual level are in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table A4. Logit Regression - Perceptions of others' behaviors

	Dependent variable: Others are attending an activity			
VARIABLES	(1)	(2)	(3)	(4)
Self would go	2.111***	2.130***	2.150***	2.573***
	(0.0948)	(0.0936)	(0.0926)	(0.121)
Self would go*December	-0.961***	-0.947***	-0.959***	-1.546***
	(0.121)	(0.124)	(0.125)	(0.155)
Self NA	0.0966	0.107	0.115	0.341**
	(0.115)	(0.107)	(0.106)	(0.134)
Self NA*December	-0.220	-0.148	-0.145	-0.238
	(0.157)	(0.148)	(0.148)	(0.191)
Direct health shock	-0.245*	-0.158	-0.155	-0.203
	(0.128)	(0.121)	(0.119)	(0.191)
Direct economic shock	-0.107	-0.0525	-0.0859	-0.202
	(0.114)	(0.115)	(0.115)	(0.187)
Cases p.c.$_{t-1}$	-5.796	-9.724	-10.24	-9.909
	(5.254)	(6.669)	(6.702)	(9.731)
Weekly %incr. cases	-1.566	-2.219	-2.417*	-5.873***
	(1.416)	(1.442)	(1.420)	(2.269)
Cases p.c.$_{t-1}$ * Dec	1.48e-06	1.27e-06	1.29e-06	1.50e-06
	(1.42e-06)	(1.70e-06)	(1.71e-06)	(2.40e-06)
Weekly %incr. cases * Dec	1.440	1.147	1.340	4.148
	(1.964)	(2.197)	(2.184)	(3.304)
December	1.205***	1.322***	1.347***	1.829***
	(0.206)	(0.224)	(0.225)	(0.304)
Constant	0.313**	-0.719*	-0.482	
	(0.128)	(0.382)	(0.396)	
Observations	44,396	44,396	44,396	38,291
Activity F.E.	Yes	Yes	Yes	Yes
SES & Demographics	No	Yes	Yes	No
Trust and risk controls	No	No	Yes	No
Region F.E.	No	Yes	Yes	No
Individual F.E.	No	No	No	Yes
Mean D.V.	0.702	0.702	0.702	0.702

Note: The estimates are from logistic regressions regressions. Own preference is an indicator equal to one if the respondent reports attending an activity, and zero otherwise; NA is equal to one when the activity is not applicable to the respondent. Covid shock is equal to one if the respondent reported having been hospitalized or having a family member or friend hospitalized or deceased from COVID-19 between the first and the second wave; weekly % incr. cases is the weekly percent increase in coronavirus cases per capita in the respondents' province of residence between the survey week and the previous week, and cases p.c. is the cumulative number of coronavirus cases per capita in the week before the survey in the same province. Controls include gender, age, education, parental status, region of residence, financial condition, political views, whether respondents live alone, their labor market status, and religious practices. Trust and risk attitudes are validated measures on a 0-10 scale. Standard errors clustered at the individual level are in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table A5. Heterogeneous Analysis - Perception of readiness to reopen

	Outcome: Reopening the activity is appropriate			
	(1) Group: Over 60 y.o.	(2) Group: Covid-19 c. above median	(3) Group: Low trust in others	(4) Group: Low trust in Science
Own preference	0.451***	0.494***	0.466***	0.462***
	(0.0166)	(0.0220)	(0.0210)	(0.0147)
Own preference*Dec	-0.152***	-0.207***	-0.155***	-0.161***
	(0.0189)	(0.0237)	(0.0245)	(0.0181)
Activity NA	0.0654***	0.119***	0.138***	0.0803***
	(0.0249)	(0.0368)	(0.0314)	(0.0220)
Activity NA*Dec	-0.0666*	-0.117***	-0.0766	-0.0901***
	(0.0342)	(0.0426)	(0.0501)	(0.0313)
Group	-0.0202	0.0965	0.00453	0.0280
	(0.0296)	(0.0629)	(0.0208)	(0.0234)
Own pref.*Group	0.0454*	-0.0459*	-0.000585	0.00333
	(0.0236)	(0.0241)	(0.0236)	(0.0272)
Own pref.*Group*Dec	-0.0533**	0.0622***	-0.0167	-0.0147
	(0.0215)	(0.0239)	(0.0235)	(0.0239)
Activity NA*Group	0.0863**	-0.0351	-0.0585	0.0406
	(0.0393)	(0.0418)	(0.0381)	(0.0438)
Activity NA*Group*Dec	-0.123**	0.00344	-0.0486	-0.0687
	(0.0505)	(0.0529)	(0.0563)	(0.0566)
December wave	0.208***	0.204***	0.206***	0.207***
	(0.0428)	(0.0425)	(0.0428)	(0.0427)
Constant	0.249***	0.176**	0.246***	0.243***
	(0.0735)	(0.0867)	(0.0737)	(0.0730)
Observations	44,429	44,429	44,429	44,429
R-squared	0.236	0.236	0.236	0.236
Activity F.E.	Yes	Yes	Yes	Yes
SES & Demographics	Yes	Yes	Yes	Yes
Trust and risk controls	No	No	No	No
Region F.E.	Yes	Yes	Yes	Yes
Individual F.E.	No	No	No	No
Mean D.V.	0.595	0.595	0.595	0.595

Note: The regression replicates the full specification of column (2) of table 1A but adding two interaction terms between a dummy flagging the group analysed and "own preferences" and "activity NA". The groups considered are: respondents aged over 60 years old (col 1), respondents who live in a province that by June 2021 had a number of COVID-19 cases that was higher than the national median (col 2), respondents who reported low trust (5 or below on a 10-point scale) in others (col. 3) and in science (col, 4). Controls include gender, education, parental status, region of residence, financial condition, political views, whether respondents live alone, their labor market status, and religious practices. Trust and risk attitudes are validated measures on a 0-10 scale. Standard errors clustered at the individual level are in parentheses. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table A6. Heterogeneous Analysis - Perception of others' preferences

	Outcome: Others are attending an activity			
	(1) Group: Over 60 y.o.	(2) Group: Covid-19 c. above median	(3) Group: Low trust in others	(4) Group: Low trust in Science
Own preference	0.362***	0.380***	0.411***	0.359***
	(0.0187)	(0.0224)	(0.0252)	(0.0173)
Own preference*Dec	-0.209***	-0.232***	-0.228***	-0.210***
	(0.0202)	(0.0231)	(0.0242)	(0.0194)
Activity NA	-0.0191	0.0142	0.0532	0.00513
	(0.0308)	(0.0414)	(0.0420)	(0.0275)
Activity NA*Dec	0.00811	-0.0591	-0.0220	-0.0234
	(0.0397)	(0.0515)	(0.0521)	(0.0345)
Group	-0.00529	0.0576	0.0732***	-0.00927
	(0.0311)	(0.0690)	(0.0252)	(0.0247)
Own pref.*Group	0.0453**	-0.00670	-0.0456*	0.0520**
	(0.0227)	(0.0245)	(0.0264)	(0.0262)
Own pref.*Group*Dec	-0.0585***	0.0113	0.00319	-0.0421**
	(0.0182)	(0.0200)	(0.0216)	(0.0210)
Activity NA*Group	0.123***	0.0149	-0.0419	0.0546
	(0.0439)	(0.0479)	(0.0484)	(0.0504)
Activity NA*Group*Dec	-0.117**	0.0427	-0.0149	-0.0280
	(0.0563)	(0.0605)	(0.0605)	(0.0643)
December wave	0.304***	0.298***	0.303***	0.301***
	(0.0476)	(0.0468)	(0.0472)	(0.0473)
Constant	0.327***	0.272***	0.268***	0.315***
	(0.0797)	(0.0958)	(0.0810)	(0.0779)
Observations	44,396	44,396	44,396	44,396
R-squared	0.188	0.187	0.190	0.187
Activity F.E.	Yes	Yes	Yes	Yes
SES & Demographics	Yes	Yes	Yes	Yes
Trust and risk controls	No	No	No	No
Region F.E.	Yes	Yes	Yes	Yes
Individual F.E.	No	No	No	No
Mean D.V.	0.702	0.702	0.702	0.702

Note: The regression replicates the full specification of column (2) of table 2B but adding two interaction terms between a dummy flagging the group analysed and "own preferences" and "activity NA". The groups considered are: respondents aged over 60 years old (col 1), respondents who live in a province that by June 2021 had a number of COVID-19 cases that was higher than the national median (col 2), respondents who reported low trust (5 or below on a 10-point scale) in others (col. 3) and in science (col, 4). Controls include gender, education, parental status, region of residence, financial condition, political views, whether respondents live alone, their labor market status, and religious practices. Trust and risk attitudes are validated measures on a 0-10 scale. Standard errors clustered at the individual level are in parentheses. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1