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## **Perceived Social Norm and Behavior Quickly Adjusted to Legal Changes During the COVID-19 Pandemic**

Fortuna Casoria<sup>1</sup>, Fabio Galeotti<sup>1\*</sup>, Marie Claire Villeval<sup>1,2</sup>

### **Abstract**

Exploring the joint dynamics of laws and social norms helps understand when social norms are sticky or adaptive. Using the example of the social and physical distancing measures introduced to contain the COVID-19 pandemic in 2020, we studied whether introducing, and then lifting, distancing regulations led individuals to quickly change their habits, not only by modifying the monetary incentives of rule violators but also by shifting the individuals' perception of the appropriateness of social encounters. We conducted an online incentivized experiment in France, where we elicited the same participants' perceived norm and social distancing behavior every week for three months. We find that both norm perception and behavior shifted as soon as the government introduced or removed social distancing measures. This effect was fast acting and long lasting, a result that highlights the importance of the expressive power of the law for norm formation and behavior.

**Keywords:** Social Norms; Laws; COVID-19; Social Distancing; Public Policy.

**JEL codes:** C92, K1, I18

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## 1. Introduction

The understanding of the mechanisms through which laws affect individual behavior has interested economists and legal scholars alike. Economists have traditionally drawn a parallel between designing optimal laws and designing optimal incentives, and have mostly focused on the role of monetary sanctions in fostering the desired behaviors and inducing compliance. Legal scholars, on the other hand, have long emphasized the expressive function of laws (Sunstein, 1996), according to which laws may affect behavior by changing individuals' beliefs on what the majority of people consider appropriate – *i.e.*, by changing individuals' perception of the prevailing social norms.

The interaction between laws and social norms has drawn growing attention. Next to a theoretical literature (Cooter, 1998, 2000; Posner, 1998, 2000; McAdams, 2000a, 2000b; Benabou and Tirole, 2011; Acemoglu and Jackson, 2017), empirical and experimental studies have emerged, providing support to the existence of an effect of laws on behavior that is independent of monetary punishments (*e.g.*, Tyran and Feld, 2006; Funk, 2007; Galbiati and Vertova, 2008, 2014; Wittlin, 2011; Deffains et al., 2019; Rees-Jones and Rozema, 2020). However, only a few studies have attempted to establish a causal, direct link between laws and the perception of social norms.<sup>1</sup> Tankard and Levy Paluck (2017) found that the Supreme Court ruling in favor of same-sex marriage increased Americans' perceived social norms in support of gay marriage. Aksoy *et al.* (2020) showed, by means of survey data, that the legal recognition of same-sex relationships significantly improved attitudes toward sexual minorities. Lane and Nosenzo (2020) used an incentivized vignette experiment to show that laws have a direct influence on social norms, determining whether behaviors are perceived as socially appropriate or not.

According to several scholars, however, the law can affect social norms only if it is viewed as legitimate, fair and close to pre-existing social norms (*e.g.*, Bicchieri and Mercier, 2014; Bicchieri, 2017). This may explain why legislative interventions initiated in a top-down fashion by central authorities are often not effective in changing social norms and behavior (Bicchieri, 2017; see also Stuntz, 2000, for examples of failed interventions). Similarly, it may explain why compliance with

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<sup>1</sup> The limited empirical research on this topic can be mainly attributed to the difficulty of isolating the effect of the law on the norm from the reverse effect of the norm on the law (Lane and Nosenzo, 2020).

the law is more likely to be achieved when the latter is chosen endogenously, for example via a referendum, than when it is imposed exogenously by a central authority (see, *e.g.*, Tyran and Feld, 2006).

In this paper, we study the dynamics of social norms after a sudden change in the law in the light of the recent pandemic of COVID-19. Precisely, we analyze whether the sudden introduction, and subsequent removal, of social and physical distancing measures (SPDM) imposed by a central authority during the first wave of the COVID-19 pandemic was effective in changing the perception of the social norm regarding face-to-face social interactions.<sup>2</sup> As no vaccine or effective therapy was available at that time to prevent or treat rapidly COVID-19, many governments relied on SPDM to limit social interactions and contain the spread of the disease. The success of these measures crucially hinged on their ability to quickly change people’s behavior and habits by shifting the perception of certain social norms, such as meeting friends, organizing social events or shaking hands (van Bavel *et al.*, 2020; Habersaat *et al.*, 2020; West *et al.*, 2020). Indeed, while the threat of being fined by the police in case of a violation existed,<sup>3</sup> it was probably not sufficient to deter violations of SPDM as it was virtually impossible to monitor everyone all the time.<sup>4</sup> In addition, several of these violations occurred in the private sphere, which made them difficult to detect and sanction.

Evidence based on available country-level data suggests that the combination of different large-scale anti-contagion policies (such as border closure, schools closure, and public events ban) decreased the transmission of the disease (Flaxman *et al.*, 2020; Hsiang *et al.*, 2020). However, it is unknown how effective SPDM were at promoting social distancing behavior by changing the perceived social norm regarding face-to-face social interactions (Haushofer and Metcalf, 2020). Since these measures were imposed without much prior discussion in the society, the media and

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<sup>2</sup> Two other studies tackle a similar question: Galbiati *et al.* (2020) and Eckel *et al.* (2021). They developed independently from ours in the same period, and present different methodologies.

<sup>3</sup> For example, in France (where we conducted this study) 20.7 million controls were made between mid-March and the end of April, leading to 1.1 million fines, mainly for the lack of the circulation document; only 6% of the controls detected infractions of the law (Declaration of the Minister of Internal Affairs, C. Castaner, May 11, 2020. <https://bit.ly/2QMXXUF>. Accessed on May 5, 2021).

<sup>4</sup> In our study, we did not measure how deterrent the laws about social distancing were perceived by people. Hence, we cannot exclude that SPDM also worked through a standard deterrence effect by raising the marginal monetary cost of having social gatherings. We consider this possibility in our theoretical framework (see Section 3). Note that a sanction need not be perfect to be effective, provided some members of society hold sufficiently pronounced social preferences (see Engel, 2014).

the parliament – in contrast to what typically happens before a law is passed (think for example of smoking bans or laws allowing same-sex marriages) – it is possible that their effect on the social norm was limited or very slow. In addition, it is unclear how the social norm varied once certain restrictions were progressively lifted. Finally, a key question is how fast and persistent the change in the perceived norm and the associated behavior was after the introduction and the removal of SPDM.

To study these questions, we conducted an incentivized experiment in France for three months, starting in the same week when the French government introduced SPDM. To examine the causal effect of the new laws on the perception of the social norm we elicited, every week, participants' beliefs on the social appropriateness of the behavior of a hypothetical person X who invited friends over for dinner. To study changes in behavior, we asked participants to answer a number of questions on compliance with social distancing measures.

We found that the introduction of the law had a sizable effect on the social norm: as soon as social activities were banned, most people almost immediately considered them as socially inappropriate. Moreover, they reported engaging in such activities less frequently than before the law was introduced. Interestingly, the perceived norm remained low and relatively stable as long as SPDM were in force, while it increased and got closer to pre-lockdown levels once the law was lifted and social gatherings were allowed again.

We explored potential mechanisms behind the change in the perception of the norm. In particular, we checked whether the law affected people's normative beliefs through the information it conveys regarding the risks of the disease. We investigated this in three complementary ways. First, we studied the effect on the social norm of the government announcements on the dangers of social interactions, and showed that the Presidential interventions were not sufficient to lead to an immediate shift in perceived norms and to coordinate people's beliefs. Second, we examined how the concern for one's own health evolved in response to the legislative interventions, and found that, on average, participants tended to be less worried for their own health over time, irrespective of the law. Third, we examined whether social attitudes played a role by testing whether more prosocial participants were more inclined to respect SPDM and therefore more likely to consider their violation as socially inappropriate than individualistic participants. We found no differences in the perception of the norm and the associated behavior between the two types of participants.

We therefore interpret our results as evidence that people followed a general norm of legal obedience: any behavior that ceased to be legal was automatically perceived as socially inappropriate, irrespective of the costs and benefits associated with it. Overall, our findings are in line with the theoretical studies that argue in favor of an expressive function of the law to coordinate individuals' beliefs, and corroborate the few other empirical studies that assess the impact of laws on the perception of social norms.

Our contribution to the literature on social norms is threefold. First, we show, through the example of the social distancing measures against the dissemination of COVID-19, that the perception of a social norm can adapt almost immediately to the introduction (and the lifting) of a new law. Although social norms are usually sticky (see, *e.g.*, Bicchieri, 2006; Boettke *et al.*, 2008; Andreoni and Nikiforakis, 2021), we provide an example in which the adjustment to the law was very quick, despite the absence of long discussions in the society, the media and the parliament before its introduction. Moreover, we show that the law changed the norm even though, in the context under study, the pandemic might have generated a strong norm uncertainty. Second, we explore the mechanism(s) behind the fast adjustment of the perceived social norm and provide support for an expressive power of the law. The third contribution is in terms of public health policy. Although we did not elicit the participants' beliefs about the risk of being sanctioned if someone does not comply with the law, we find that these participants changed behavior consistently with the evolving norm. This suggests that, in domains in which behavior cannot be easily monitored, the adjustment of the perceived social norms can be a crucial means through which a public health policy can be effectively enforced.

The remainder of the paper is organized as follows. Section 2 describes the experimental design and procedures. Section 3 presents our conjectures. Section 4 reports the main results. Section 5 concludes.

## **2. Experimental Design and Procedures**

We exploited data from an online, incentivized experiment conducted in France every week with the same participants over a span of three months: from March 18, 2020 (that is, as soon as the French government introduced SPDM) until June 24, 2020 (few weeks after the abrogation of these laws). The long duration of the experiment allowed us to assess the evolution of the perceived

social norm and the associated behavior in response to changes in the law. We recruited 447 subjects within the GATE-LAB subject pool, Lyon, France.<sup>5</sup> Subjects were 18 years old or older, and mostly students from the local university campus.

As for any other laboratory experiment conducted with university students, one could argue that our experiment does not produce “representative” evidence because our subject pool does not reflect the general population. We mainly chose to conduct our experiment with students for logistical reasons. First, like in many countries, the French government announced the lockdown measures with very little anticipation, and there was no time to recruit a more representative population. Second, given the longitudinal nature of the study, we wanted to minimize the risk of attrition and make sure that participants believed that we would actually pay them at the end of the study. In this respect, we expected our subjects from GATE-LAB to be more trustful and committed to participate in the 15 sessions than a sample of individuals who never participated in economic experiments before. Moreover, the predominance of students in our sample, if anything, strengthens our results. Students are the category of the adult population with the lowest health risk linked to COVID-19, with the highest density of social networks, and the highest frequency of social encounters with friends and relatives before the pandemic. Thus, this category suffered probably the highest social costs associated with the social distancing measures while getting the lowest direct health benefits from these interventions. This a priori speaks against the hypothesis of a quick adjustment of social norms and behavior to the new distancing regulations. Finally, our approach complements other studies that address similar questions to ours but use survey data (Galbiati *et al.*, 2020; Eckel *et al.*, 2021). While these studies provide more representative evidence, our experiment allows for more controlled and precise tests of the phenomenon under investigation.

We recruited the participants using the software Hroot (Bock *et al.*, 2014). In the invitation email, we explained that the study would consist of 15 weekly short sessions (10 minutes on average, 15 minutes for the first session) and we recommended that the subjects participate in all sessions. We informed the participants that they would receive a fixed payoff of €2 for each session they participate in (in total, they could earn up to €30 as a fixed payoff if they participated in all

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<sup>5</sup> Ethics approval for the experiment was obtained from IRB-00003888 CEEL-INSERM (No. 20-665, March 2020).

sessions), and that they would earn an additional variable payoff depending on their decisions and the decisions that all participants would make in the experiment.

Of the 447 participants that took part in the first session, 367 participated in the last session; 228 subjects participated in all 15 sessions. These numbers were on purpose beyond the minimum requested (around 200 subjects)<sup>6</sup> to detect a small effect size (Cohen's  $d = 0.2$ ) of the impact of the law, assuming a significance level of 5% and a power of 80%, to anticipate the possible attrition. In the Results section, we report the analysis based on the full, unbalanced, sample. For information, we also report separate supplementary figures for the full and the balanced samples (see Appendices B and C). The visual inspection of these figures and the statistical tests show that considering either the full or the balanced sample does not change qualitatively our results.

After accepting our invitation, at the beginning of the first session, participants were told that the experiment included a set of decisions, standard background questions (age, gender, education, occupation) and a number of questions on their personal life (such as number of friends, type of housing, use of social networks and contacts with family and friends). The session started only after the participants signed (electronically) the consent form. Participants were given the option of not answering the health-related questions.

Each week, participants completed three incentivized behavioral tasks and a survey. The behavioral tasks included a norm-elicitation task (Krupka and Weber, 2013), a Social Value Orientation task (SVO) (Murphy *et al.*, 2011), and a trust game (Berg *et al.*, 1995) (see instructions in Appendix A).<sup>7,8</sup> In the norm-elicitation task (the focus of this paper), we described a scenario where a hypothetical person X invited friends over for dinner last week. We asked the participants to report their belief regarding the extent to which other subjects believed the behavior of person

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<sup>6</sup> The minimum sample size was computed based on a paired t-test for dependent data assuming a pre-post correlation of 0.5.

<sup>7</sup> The SVO task and the trust game were used to study the evolution of social preferences during the lockdown. The results are reported in a companion paper (Casoria *et al.*, 2021) where we test two opposite hypotheses. One is that individuals became more selfish and less trusting because the lockdown reduced direct interactions and increased the fear of contagion, making individuals less concerned about others and less willing to take social risks. The other hypothesis was that individuals became more prosocial and more trusting, because social distancing increased the bond between individuals as they shared a common fate and risk despite the reduced direct interactions.

<sup>8</sup> In the trust game, used to measure participants' trust and trustworthiness, participants decided how much money to send to another participant (trust), who then decided how much to send back (trustworthiness). Participants made both decisions without knowing in advance their role and the decision of their counterpart. As second movers, they made a decision for each possible amount sent by the first mover (strategy method).

X to be socially appropriate or inappropriate. They earned money if they reported the same answer as the majority of the other participants. That is, we used a coordination game to elicit participants' second order beliefs about the norm. This is a commonly used method in the economic literature to measure social norms (see, *e.g.*, Fallucchi and Nosenzo, 2021). The SVO task was used to measure participants' concerns for others, which might affect the perception of the norm and compliance behavior. In this task participants chose how to allocate money between themselves and another anonymous participant, who randomly changed each week. They made six decisions with different allocation options.

The fact that participants repeatedly played the same three tasks over several weeks might have generated learning effects that influenced players' responses independently of the effect of the law or the norm. This, in itself, is not an issue for our research question since we are interested in marked discontinuities in the norm at specific points in time (*i.e.*, after the introduction and after the abrogation of SPDM). That being said, to limit learning effects we did not provide participants with any feedback regarding the opponents' behavior or the resulting monetary payoffs until the end of the last session. We also minimized portfolio and wealth effects by paying only the decisions made in one session instead of paying the sum of the earnings in each session. Conversely, the repeated nature of the experiment could have induced participants to stick to their previous decisions in order to appear consistent. This assumes that individuals were able to remember the choices they made the week(s) before. This goes against our hypothesis that the norm shifts sharply after a change in the law, and it would rather reinforce our results. In addition, the social norm was measured by eliciting participants' opinion about what others believe is appropriate behavior. Therefore, the need to appear consistent in the eyes of the experimenter was probably very limited.

To study changes in behavior, we asked participants to answer a number of questions on compliance with social distancing practices. In particular, participants indicated how often, in the previous week, they took part in social activities (*e.g.*, visiting friends or family members, having face-to-face conversations with people not living with them). They answered on a 0-4 scale, where 0 meant "never" and 4 meant "every day". We elicited participants' subjective perception of the health risk with COVID-19 by asking them how concerned they were about the pandemic for their own health. We used a 1-10 scale, where 1 meant "not at all concerned" and 10 meant "extremely

concerned”. We asked participants whether they had close relatives and friends diagnosed with COVID-19 and, in the last week of the experiment, whether they themselves had been diagnosed with the disease during the whole period of investigation. More details on our subject pool are reported in Tables S1 and S2 in Appendix C.

At the end of the study, we randomly drew either the SVO or the trust game for payment. For the SVO, we randomly selected two sessions and, for each session, one of the six decisions. A participant received the money that (s)he allocated to herself or himself for the first session, and the money that another participant allocated to him or her in the other session. For the norm-elicitation task, we paid participants for their decision in one randomly drawn session. If a participant did not participate in the session that was randomly drawn, his or her variable payoff for this session was null; this rule was made common knowledge to the participants from the very beginning and it was an incentive for participants to participate in all sessions.<sup>9</sup>

We combined the experimental data with the information the French government provided during the three months of the experiment regarding the SPDM taken. On March 12 and 13, 2020 the French government announced that schools and universities would remain closed, that public gatherings (excluding public transport) with more than 100 people would not be allowed, and that all non-essential activities would not reopen, with immediate effect from either March 15 or 16 until further notice. On March 16, E. Macron went on television to announce the beginning of a nation-wide lockdown starting on March 17 for 15 days. Measures included the ban of all but the essential local travels, the interdiction of family or friend gatherings, and the closure of the French borders, among others. The French President also informed the public that all violations of these new regulations would result in penalty actions. The lockdown period was extended multiple times and was lifted only on May 11, 2020, though few restrictions remained in place (*e.g.*, ban of gatherings with more than 10 people in public spaces, interdiction of travels exceeding 100 km from one’s own residence) until late June. An advantage of the French setting for our analysis is that almost all SPDM were enacted roughly at the same time. This allowed us to estimate the effect of a sudden change in the law on the perception of the norm and on the associated behaviors.

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<sup>9</sup> Earnings were paid either by bank transfer or in person at GATE-Lab from June 25 onward.

### 3. Conjectures

In this section, we discuss our conjectures on the effects of introducing and lifting SPDM on the perceived norm regarding face-to-face social encounters, and the possible mechanisms behind these effects.

We consider a simple framework where an agent  $i$  evaluates the possibility of having social gatherings. Let  $a_i \in \{0,1\}$  be his or her decision. The utility function of the agent depends on the monetary value that (s)he places on  $a_i = 1$  (*i.e.*, having social gatherings) and the extent to which (s)he believes that this decision is perceived as socially appropriate by others (see also Krupka and Weber, 2013). Let  $V$  be the monetary value that the agent places on  $a_i = 1$ ,  $N$  the agent's expectations about the extent to which others consider  $a_i = 1$  socially appropriate, and  $\gamma_i \geq 0$  a parameter that captures how much the agent values complying with social norms. We can hypothesize that, before the COVID-19 pandemic hit France,  $N$  and  $V$  were positive (social gatherings were not perceived as socially inappropriate and the monetary benefits outweighed the costs for most people). Let  $N^0$  and  $V^0$  be the value of  $N$  and  $V$ , respectively, before the introduction of lockdown measures. We can write the utility function as

$$U_i = a_i V^0 + \gamma_i a_i N^0 \quad (1)$$

The agent chooses  $a_i = 1$  if  $V^0 > -\gamma_i N^0$ . Suppose now that the government introduces a law that sanctions individuals if  $a_i = 1$ . We expect this legislative intervention to affect the probability that agent  $i$  will choose  $a_i = 1$  in two ways. First, it reduces the value  $V$  that the agent places on  $a_i = 1$  (from  $V^0$  to  $V^1$  with  $V^1 < V^0$ ). This stems directly from the imposition of a risk of sanction on  $a_i = 1$ , and indirectly from the signal that the law potentially conveys about social gatherings not being safe anymore for one's own or others' health (especially if individuals were ex-ante unsure about these risks). Second, the law may change the expectations  $N$  regarding the social appropriateness of gathering with friends in person. Two main mechanisms can produce this change in expectations. The law may not only signal what the risks of the pandemic are, but also that most individuals no longer tolerate social gatherings because of those risks. This function of the law as a signal of the prevalent opinion of a society has been described, for example, by

McAdams (2000a, 2000b, 2015). Moreover, individuals may automatically consider any illegal behavior as socially inappropriate, irrespective of its costs and benefits. That is, the meta-norm of legal obedience, which prescribes that one ought to follow the law no matter what, may mold the perception of the social appropriateness of social gatherings (see McAdams and Rasmusen, 2007; Lane and Nosenzo, 2020). Let  $N^1$  be the perception of the norm after the introduction of the lockdown measures. We formulate our first conjecture as follows.

*Conjecture 1.* The introduction of SPDM changes the perception of the social norm regarding social gatherings from being socially appropriate to inappropriate ( $N^1 < 0 \leq N^0$ ).

Once the government removes the lockdown measures, social gatherings are no longer sanctioned. In addition, individuals may perceive that the risk of contracting the virus or the one imposed on public health is less pronounced than before. The overall effect is an increase in the value  $V$  (from  $V^1$  to  $V^2$  with  $V^2 > V^1$ ). The perception of the norm may change too, since the law no longer signals that social gatherings are socially inappropriate. Individuals may expect less social disapproval if they participate in social gatherings since the perception of the risks has changed. Moreover, the meta-norm of legal obedience does not apply anymore to social gatherings. We call  $N^2$  the new perception of the norm after the abrogation of the lockdown measures, and propose the following conjecture.

*Conjecture 2.* The abrogation of SPDM changes the perception of the social norm regarding social gatherings from being socially inappropriate to appropriate ( $N^1 < 0 \leq N^2$ ).

While the most stringent lockdown measures were dropped by the French government on May 11, 2020, few restrictions remained in place after that date. In addition, the French government continued to remind people to respect the health measures and to limit social gatherings. Hence, the perception of the social norm regarding social gatherings might not return immediately to pre-lockdown levels. We formulate the following conjecture.

*Conjecture 3.* After the abrogation of SPDM, social gatherings are perceived as less socially appropriate than before the introduction of SPDM ( $N^2 < N^0$ ).

We can test Conjectures 1-3 against the null hypothesis that a legal intervention has no effect on the social norm. Indeed, a large body of evidence suggests that social norms are sticky, and top-

down interventions are often ineffective in shifting people's perception of what is appropriate or inappropriate behavior (Bicchieri, 2017). The literature on social norms often argues that the legal approach to norm change can be effective only under very strict conditions – among others, that the law is perceived as legitimate and that it originates from fair and participative procedures (Bicchieri and Merchier, 2014; Bicchieri, 2017). In the case of the COVID-19 pandemic and the social distancing regulations, long discussions in the society, the media and the parliament did not precede the introduction of the law. Hence, it is possible that people did not perceive the introduction of SPDM as legitimate or fair. This might have been especially true for young people (the most represented category in our subject pool) who are less at risk of developing serious illnesses and potentially more damaged by a lockdown. It is not a priori obvious, therefore, that our participants would immediately change their perception of the social norm after the introduction of lockdown measures.

Besides testing the aforementioned conjectures, our experiment allowed us to explore the mechanisms behind the potential change in the perception of the norm. In particular, we tested whether the law changed the perception of the norm only by informing of the danger that social gatherings pose to oneself and/or to others, or whether it activated a meta-norm of legal obedience. We investigated this in three complementary ways. First, we checked whether the introduction of SPDM had a different effect on the social norm than governmental announcements regarding the dangers of social interactions. Second, we studied how the concern for one's own health evolved over time in response to legislative interventions. Finally, we tested whether participants with a prosocial orientation, as measured with the SVO task, reacted more to the introduction of SPDM than individualistic participants. Indeed, if the law revealed that social interactions were dangerous for public health, prosocial individuals might be more inclined to respect it and more likely to consider social gatherings inappropriate compared to individualistic individuals.

## **4. Results**

### **4.1 Social norms quickly adapt to legal changes**

The experiment allowed us to collect measures of social appropriateness one week before the lockdown (week 0), during (weeks 1-8) and after (weeks 9-14) the lockdown. In particular, week 1 represents the legal threshold after which social gatherings were illegal, while week 8 represents

the legal threshold after which social gatherings were legal again. Supplementary Table S3 in Appendix C reports the mean appropriateness ratings, while Figure S1 in Appendix B displays the full distribution of ratings for the three time-span periods. Mean ratings were constructed by converting subjects' responses into numerical scores using the same scale as in Krupka and Weber (2013): “very socially inappropriate” =  $-1$ , “socially inappropriate” =  $-2/3$ , “somewhat socially inappropriate” =  $-1/3$ , “somewhat socially appropriate” =  $1/3$ , “socially appropriate” =  $2/3$ , “very socially appropriate” =  $1$ .

To investigate the impact of SPDM on the perceived social norm regarding social gatherings, we tested for the existence of a discontinuity in the norm at the two legal thresholds, week 1 (introduction of SPDM) and week 8 (abrogation of SPDM), using an OLS regression. We included a dummy variable for each week to capture the evolution of the perceived norm over time. We controlled for age, gender, education, occupation, reported number of friends and accommodation type.<sup>10</sup> Standard errors were clustered at the individual level. The results are reported in Table 1, Model (1). The regression shows that, in line with Conjecture 1, the introduction of the law in week 1 significantly changed the perception of the norm compared to the week before the lockdown (Wald test,  $p < 0.001$ ). Similarly, the abrogation of the law in week 8 generated a significant change in the perception of the norm in week 9 compared to the week before the abrogation (comparison of weeks 9 and 8, Wald test,  $p < 0.001$ ). Control variables are not significant at standard levels.<sup>11</sup> This analysis supports Conjecture 2.

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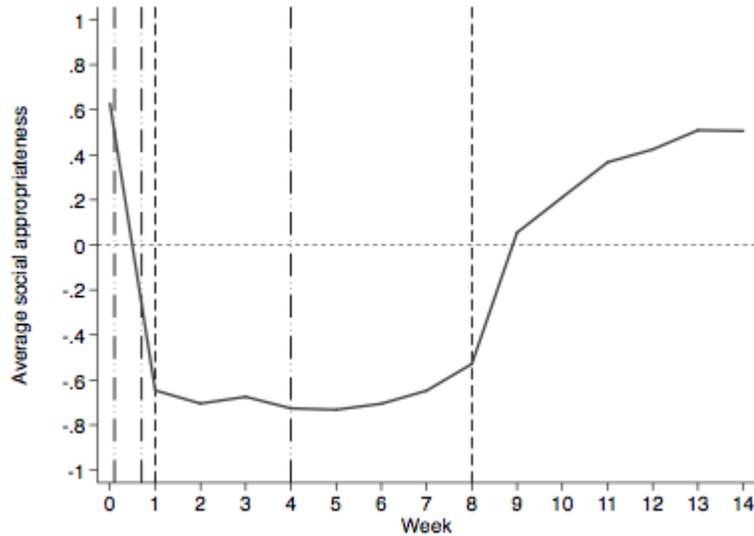
<sup>10</sup> We also conducted OLS regressions where we interacted each week dummy with the demographic variables to explore individual differences in the effect of the law on the perception of social norms and behavior. The results are reported in Figures S9 and S10 in Appendix B.

<sup>11</sup> The details of the coefficients of the control variables are provided in Table S4 in Appendix C.

**Table 1: Social norm and behavior, OLS regression**

| Dependent variable                    | Social appropriateness<br>(1) | Frequency visits<br>(2) |
|---------------------------------------|-------------------------------|-------------------------|
| Week 0                                | <i>Ref.</i>                   | <i>Ref.</i>             |
| <b>Week 1 (introduction lockdown)</b> | -1.250***<br>(0.045)          | -1.217***<br>(0.084)    |
| Week 2                                | -1.306***<br>(0.044)          | -1.171***<br>(0.084)    |
| Week 3                                | -1.275***<br>(0.046)          | -1.116***<br>(0.086)    |
| Week 4                                | -1.328***<br>(0.043)          | -1.070***<br>(0.089)    |
| Week 5                                | -1.334***<br>(0.043)          | -1.020***<br>(0.088)    |
| Week 6                                | -1.306***<br>(0.042)          | -1.008***<br>(0.092)    |
| Week 7                                | -1.249***<br>(0.043)          | -0.951***<br>(0.092)    |
| Week 8                                | -1.131***<br>(0.042)          | -0.879***<br>(0.090)    |
| <b>Week 9 (after abrogation)</b>      | -0.556***<br>(0.040)          | -0.094<br>(0.089)       |
| Week 10                               | -0.398***<br>(0.040)          | 0.044<br>(0.082)        |
| Week 11                               | -0.239***<br>(0.036)          | 0.096<br>(0.089)        |
| Week 12                               | -0.187***<br>(0.038)          | 0.147<br>(0.083)        |
| Week 13                               | -0.099**<br>(0.036)           | 0.257**<br>(0.082)      |
| Week 14                               | -0.103**<br>(0.036)           | 0.256**<br>(0.084)      |
| Social appropriateness                | .                             | 0.167***<br>(0.038)     |
| Constant                              | 0.924**<br>(0.286)            | 1.824***<br>(0.442)     |
| N                                     | 5530                          | 5530                    |
| Controls                              | Yes                           | Yes                     |

*Notes: \*\** $p < 0.01$ , *\*\*\** $p < 0.001$ . Standard errors, clustered at the individual level, are in parentheses. Controls are age, gender, education, occupation, reported number of friends and accommodation type. In all regressions, *Week 1-14* are dummy variables for each week. Week 0 (before the lockdown) serves as a reference group. Week 1 corresponds to the introduction of the lockdown, Week 9 is the first week after the abrogation of the law.



**Figure 1.** Average level of social appropriateness of inviting friends over for dinner for the period March 18-June 24, 2020. Each week, participants had to assess the social appropriateness of the following scenario: “Last week, “Person X” invited some friends to her house for dinner”. The week numbers refer to the week in which the hypothetical scenario took place. In the first experimental session (March 18), the hypothetical scenario took place a week earlier (March 11), before the introduction of SPDM. We refer to it as week 0. The dashed lines represent the two legal thresholds: introduction (week 1) and abrogation (week 8) of SPDM. The dash-dotted lines represent three government nation-wide announcements: recommendations on social distancing (first line, March 12); introduction of the law (second line, March 16); lifting of the law (third line, April 13).

Figure 1 plots the average social appropriateness of inviting friends for dinner, over time. The two dashed lines indicate the two legal thresholds. The figure shows a large effect of the introduction of the new regulation on the norm. As soon as SPDM were introduced, the average appropriateness dropped dramatically (from 0.63 in week 0 to  $-0.65$  in week 1), and it remained rather low and stable (but with a small increasing trend from about week 5) until week 8 (from  $-0.65$  in week 1 to  $-0.53$  in week 8). Once the law was lifted and meetings with friends were allowed again, average appropriateness values increased (from  $-0.53$  in week 8 to 0.05 in week 9), though less sharply than they dropped when the law was introduced. This supports Conjecture 3. The perceived appropriateness of social gatherings then kept increasing gradually in the last 5 weeks until it reached a value of 0.51 in week 14, which was close to pre-lockdown levels but still slightly below (from 0.63 in week 0 to 0.51 in week 14). As a complement, Figure S2 in Appendix B displays the variation in social appropriateness ratings between one week and the previous one, from a regression analysis controlling for participant’s age, gender, education background, occupation,

reported number of friends and accommodation type. It reveals that the largest changes occur just after the introduction and after the lifting of the law.

#### **4.2 Behavior conforms to the new perceived social norm**

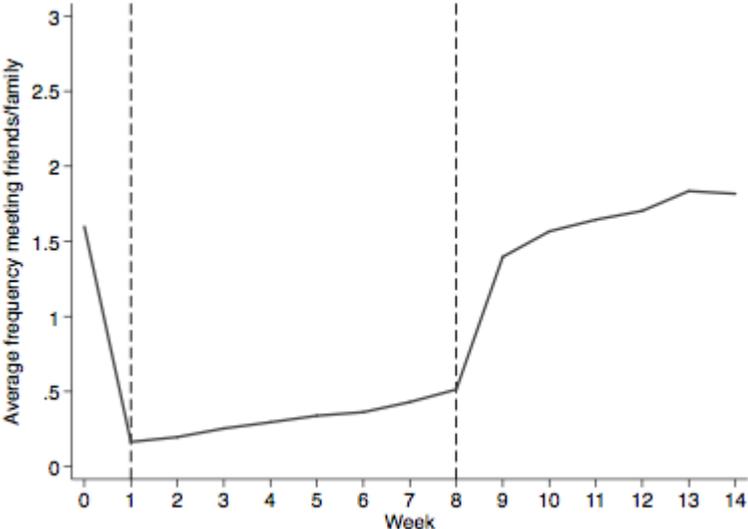
Next, we studied whether the change in the perceived social norm translated into change in behavior. Participants were invited to report whether they visited friends and/or family in person. We did not ask them whether they invited friends and family at home because we felt that they would have been less reluctant to admit a norm violation initiated by someone else (being invited by a friend or a family member) than a self-initiated violation (inviting a friend or a family member). In other words, we expected “being invited” and “inviting” to be associated with a different feeling of responsibility. In addition, we anticipated that a large proportion of participants would change accommodation during the pandemic crisis, and return to live with their parents or family.<sup>12</sup> In that environment, we expected participants not to have the same freedom to invite people over.

We performed a similar regression analysis as for the norm, except that we also included the perceived norm among the explanatory variables. The results of the OLS regression on the number of visits to friends and/or family in person are reported in Table 1, Model (2) (see Table S4 in Appendix C for the details of the coefficients of the control variables). The regression results show that the effect of time on behavior was highly non-linear: after the introduction of the law, visits to friends or family dropped dramatically compared to the previous week (Wald test,  $p < 0.001$ ). Similarly, the abrogation of the law in week 8 generated a significant increase in friends and family gatherings in week 9 compared to the week before the abrogation (comparisons of weeks 9 and 8, Wald test,  $p < 0.001$ ). The results also show that the frequency of visits to friends and family significantly increased with the perceived social norm about appropriateness of social encounters: the more socially appropriate participants perceived social gatherings to be, the more they engaged in such behaviors. The sociodemographic control variables had no effect on the frequency of visits, except that a higher number of friends increased the frequency of violations of the law (significant at the 1% level).

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<sup>12</sup> Indeed, 41.67% of those living in a flat or a student dormitory in week 0 moved to a house after the government imposed the lockdown. This is probably because many students returned to live with their family once courses moved online.

Figure 2 plots the average frequency at which participants reported to have visited in person friends and/or family (see also Table S5 in Appendix C). As a complement, Figures S3 and S4 in Appendix B show the average frequency at which participants took part in other social activities. Figure 2 clearly shows that behavior followed a very similar pattern as the social norm: at the first legal threshold, there was a sharp drop in the average frequency at which participants met in person with friends and family (from 1.60 in week 0 to 0.16 in week 1). During the lockdown, participants visited friends and family slightly more frequently over time (from 0.16 in week 1 to 0.51 in week 8). After the law had been lifted, from week 9 onward, participants reported engaging in these activities more often (from 1.40 in week 9 to 1.82 in week 14). On average, in week 14 participants met in person more frequently than they did before the lockdown (from 1.60 in week 0 to 1.82 in week 14).



**Figure 2.** Average frequency of visits to friends and family over the period March 18-June 24. Participants self-reported the frequency at which, last week, they visited friends and family members on a scale from 0 (“never”) to 4 (“every day”). The week numbers refer to the week in which the participants visited friends and family members. In the first experimental session (March 18), the information corresponds to the visits to friends and family a week earlier (March 11), before the introduction of SPDM. We refer to it as week 0. The vertical dashed lines represent the two legal thresholds: introduction (week 1) and abrogation (week 8) of the law.

### 4.3 Mechanisms

The law might change the perception of the norm by providing crucial information on the dangers of face-to-face social interactions (thereby leading people to disapprove social gatherings) and/or

by activating a meta-norm of legal obedience. Our data allowed us to test to what extent the effect of the law on the norm was driven by the former mechanism. First, we checked whether government announcements on the dangers of social interactions had a similar effect as the law. If the law acts only as a public information signal, its effect on the norm should be comparable to that of nation-wide announcements held by the French President. Already before the introduction of SPDM, the French government has warned against the dangers of social interactions and has promoted social isolation. In Figure 1, the three dash-dotted lines correspond to the three nation-wide announcements held by the French President. On March 12, 2020 (week 0), E. Macron urged people to respect measures such as handwashing, limited travels and gatherings,<sup>13</sup> and on March 16 he announced the introduction of the law on social distancing.<sup>14</sup> As Figure 1 shows, inviting friends over was still considered socially appropriate in week 0, while it was not in week 1, once the law was introduced. Similarly, the announcement of April 13 (week 4), when E. Macron informed about the future lifting of the law,<sup>15</sup> had very little effect on the social appropriateness rating: inviting friends for dinner was seen increasingly as more socially appropriate, but it was only after the law was formally lifted that the average social appropriateness returned to positive levels. The April 13's speech could have also been interpreted as a reminder of the importance of social distancing, since E. Macron announced that the lockdown would be prolonged for three more weeks, before being lifted on May 11. However, social appropriateness, if anything, started to increase after that speech, which therefore did not seem to work either as a reminder of the importance of social distancing. All these patterns suggest that informing people of the appropriateness or inappropriateness of some behaviors alone is not sufficient to rapidly shift norms and coordinate beliefs, even in a time of acute sanitary crisis. This is an important implication for public policy.

It is possible that participants interpreted the introduction of a law that forbids social interactions as a stronger signal of the danger posed by the disease compared to public announcements. Therefore, they might have considered meeting other people as more unsafe. On the contrary, the

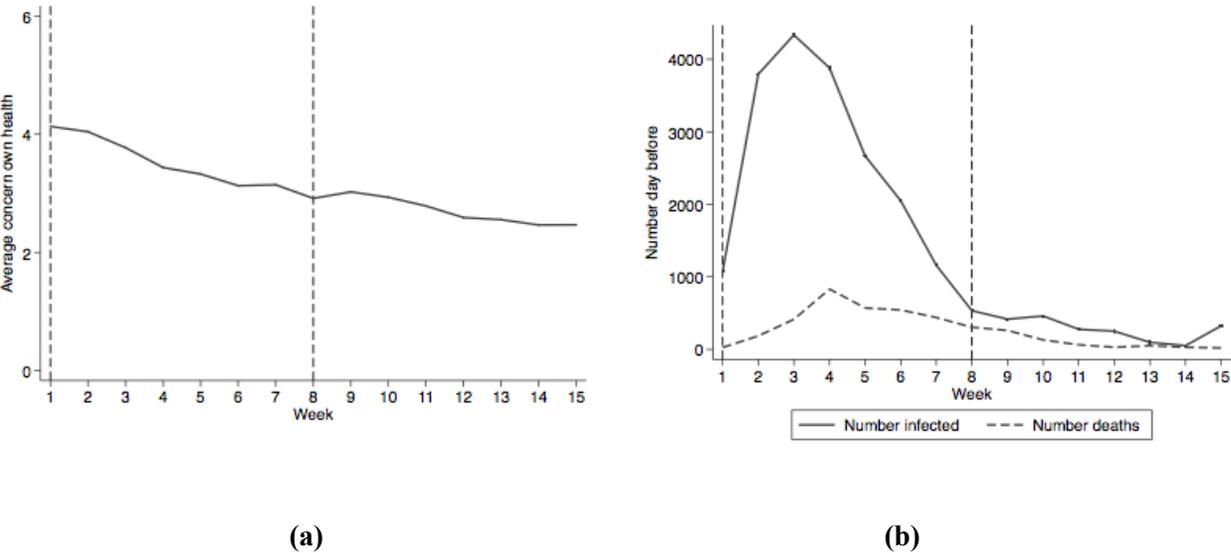
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<sup>13</sup> Broadcast of the President of the French Republic, E. Macron, March 3, 2020. <https://www.elysee.fr/emmanuel-macron/2020/03/12/adresse-aux-francais>. Accessed on September 15, 2020.

<sup>14</sup> Broadcast of the President of the French Republic, E. Macron, March 16, 2020. <https://www.elysee.fr/emmanuel-macron/2020/03/16/adresse-aux-francais-covid19>. Accessed on September 15, 2020.

<sup>15</sup> Broadcast of the President of the French Republic, E. Macron, April 13, 2020. <https://www.elysee.fr/emmanuel-macron/2020/04/13/adresse-aux-francais-13-avril-2020>. Accessed on September 15, 2020.

lifting of the law might have been seen as a signal that the virus was not spreading easily anymore and that meeting friends had become less dangerous. However, this analysis is not supported by our data. Indeed, Figure 3 shows that, on average, participants tended to be less worried for their own health over time, without leading to a similar evolution in the perception of the social norm. The trend was decreasing even during the first weeks of the lockdown (panel (a)), notwithstanding the increasing number of confirmed cases and deaths (panel (b)), and the consequent greater exposure to the virus.



**Figure 3.** Panel (a): Evolution over time of the average current concern for own health. Participants self-reported their current concern for their own health over the period March 18-June 24, 2020, on a scale from 1 (“not all concerned”) to 10 (“extremely concerned”). Panel (b): Number of COVID-19 confirmed cases (solid line) and deaths (dashed line) registered in France on the day before the experimental session. *Source:* WHO database <https://covid19.who.int/region/euro/country/fr>. The dashed vertical lines represent the two legal thresholds: introduction (week 1) and abrogation (week 8) of the law.

While we can rule out that the perceived riskiness of the disease for one’s health explains the drop in perceived social appropriateness of social encounters, it is still possible that the influence of the law on the norm was mediated by the perceived riskiness for others. Indeed, meeting friends was dangerous not only for oneself, but for others too. If the law signaled that social gatherings were dangerous for others or for the public health in general, we would expect prosocial participants (*i.e.*, participants who showed concern for the wellbeing of others) to be more inclined to respect the law and more likely to consider violating the social distancing rules as socially inappropriate compared to individualistic participants (*i.e.*, participants who showed concern only for their own

monetary wellbeing). The SVO task, which captures an individual's willingness to forgo some of their material payoff in order to increase the payoff of another person, allowed us to classify participants into prosocial and individualistic (see details in the comments of Table S6 in Appendix C). Figure S5 in Appendix B plots the average social appropriateness of inviting friends for dinner (left panel) and the average frequency at which participants visited in person friends and family, separately for prosocial and individualistic types. Our results show that there were no differences in the perception of the norm and the associated behavior for the two types of participants, and suggest that the concern for others (as it is measured in the SVO task) did not play a role in the observed patterns (this was confirmed by the regression analysis reported in Table S6 in Appendix C).<sup>16</sup> Altogether, these results speak in favor of an effect of the law that was not (only) driven by the information that the law conveyed regarding the risks of social gatherings. They suggest that the law also shaped the social norm for the very fact that it is the law and one must comply with it, besides any other motivation.

## 5. Discussion and Conclusion

In the context of the recent pandemic of COVID-19, our study suggests that SPDM strongly and very quickly influenced the perception of the social norm regarding meeting friends, and the associated behavior. As soon as social activities were banned, people considered them almost immediately as socially inappropriate and engaged less frequently in such activities. We argue that this is because people automatically associate illegal behavior to something that is socially inappropriate. In contrast, announcements by the government, even if widely listened to (for example, the intervention of E. Macron on March 16 on the TV has been watched by 35.3 million citizens and that of April 13 by 36.7 million out of a population of 67 million), had not such an impact. The coordinating power of political discourse on people's beliefs seems much weaker than

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<sup>16</sup> Leder *et al.* (2020) studied whether SVO was related to the use of protective measures against COVID-19 depending on the protective value of these measures for oneself or the public. They found that the SVO value did not influence the frequency of usage of protective measures, which is consistent with our results. However, we acknowledge that pro-sociality in the context of public health is not the same as pro-sociality in the context of monetary payoffs. In the domain of health, some studies contend that the SVO test that measures prosociality in the payoff domain captures some of the features of prosociality in the public health domain (see, e.g., van Lange *et al.*, 2007; Piko, 2009). More generally, evidence from previous studies on the correlation between behavior in experimental games and in various field contexts tends to be mixed (see, e.g., Galizzi and Navarro-Martinez, 2019 and references cited therein). Hence, one should be cautious about interpreting our results as hard evidence that social preferences do not matter for the norm. We thank a reviewer for drawing our attention to this.

that of the law. These results are useful for policymakers who are considering whether and when to enact or remove social distancing measures. They indicate that it is the introduction of SPDM that causally affected people's perception of what constituted socially appropriate distancing behavior, and their behavior itself. They suggest that the channel through which SPDM contributed to reduce the spread of the disease went beyond the mere monetary disincentive from engaging in certain behaviors, and extended to the informal rules that regulate how people should behave in society.

Interestingly, the perceived norm remained relatively stable while SPDM were in force, and the level of appropriateness only slightly increased when approaching week 9. These results are striking as the majority of our participants were young students (mean age: 23.79 y, S.D.: 6.87 y) with a large social network (mean network size: 313.56 friends, S.D.: 372.7) and an active social life (see Table S1 in Appendix C), and who might have perceived the pandemic as less threatening (indeed, cohort studies like Williamson *et al.*, 2020, have concluded that risk increases exponentially with age) and the SPDM less legitimate.

The effect of the introduction of SPDM was also surprisingly fast and relatively long lasting: SPDM produced an immediate and substantial change in the perceived norm and behavior and this lasted several weeks after the introduction of these measures. This reveals that social norms are not always sticky. Our results, however, also showed that the effect died quickly as soon as the measures were lifted. Social gatherings ceased to be perceived as socially inappropriate by the majority of people and, after a few weeks, the perceived norm and the associated behavior almost returned to pre-lockdown levels, despite the recommendations of the French government to remain vigilant and behave responsibly. This suggests that the relaxation of social distancing measures may have reinstated previous habits and behaviors, perhaps too quickly, and this could have contributed to the resurgence of COVID-19 cases in the following months.

Our results on the joint dynamics of laws and social norms are in line with theoretical studies that argued in favor of an expressive function of the law through its impact on the coordination of beliefs (Sunstein, 1996; Cooter, 1998, 2000; Posner, 1998, 2000; McAdams, 2000a, 2000b). They corroborate the few other empirical studies that assessed the impact of laws on the perception of social norms (Tankard and Levy Paluck, 2017; Aksoy *et al.*, 2020; Lane and Nosenzo, 2020). Our study also informs public policy by showing that, in addition to monetary sanctions in case of

detected misbehavior, compliance depends in a crucial way on the perception of social norms about appropriate behavior; social norms therefore represent a major lever for public policy.

We naturally acknowledge potential limitations of our study. One potential drawback of our experiment (shared with other experimental studies of the same kind) is the lack of representativeness of our subject pool compared to the national population. But on this matter, one should interpret our study as a hard test of the effect of the law on the norm. This is because our experiment was conducted with the category of the adult population that we expected to be less motivated to adjust to the social distancing regulations. Another potential limitation of our study is the fact that it was conducted under unique circumstances (the COVID-19 pandemic) and relied on a one-off variation in the field (the introduction, and subsequent removal, of SPDM).<sup>17</sup> Hence, a direct replication of our experiment is unlikely. However, we believe that there are other ways in which replication can operate. One could test the conjectures of our study using different methods or data. In this respect, it is reassuring that our main results are in line with those of other recent studies on the same topic, developed in parallel with ours but using different methodologies (Galbiati *et al.*, 2020; Eckel *et al.*, 2021). Finally, while the focus of our study is on the social norm, we also looked at the effect of the law on behavior. A potential problem of that analysis is that the questions on self-reported actual behavior could not be incentivized, and we had no way to check the truthfulness of the responses. Hence, it is possible that our study underestimates the extent of the norm violations if participants were reluctant to reveal this information because of a social desirability bias. However, it is worth noting that the behaviors reported by our subjects have patterns similar to those observed in available country-level proxies of law compliance (*e.g.*, the mobility data provided by Google; see Figure S11 in Appendix B for details).

## **Acknowledgments**

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<sup>17</sup> The French governments introduced other restrictive measures to prevent and control the following waves of the pandemic (*e.g.* in October/November 2020) but of different degrees and lengths compared to the first wave.

thank the participants of the 2021 FETS Summer Experimental Economics Workshop for helpful comments.

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# Online Appendices

## Appendix A. Instructions (translated from French)

### *Invitation email*

We invite you to take part in an **online experiment** organized by GATE-Lab under the responsibility of Fortuna Casoria, Postdoc, Fabio Galeotti, CNRS Researcher, and Marie Claire Villeval, CNRS Research Professor.

This is a study on decision making. All your answers will be kept anonymous and private. You will create your own user id, which under no circumstances will be linked to your name or any other identifying characteristics.

This study consists of **15 weekly sessions (always held on the same day of the week)** of **short duration (10 minutes on average, 15 minutes for the first session)**. We strongly recommend that you don't miss any session.

You will receive a **fixed payoff** of 2€ for each session you participate in (therefore, you will receive a sure payment of 30€ if you participate in all the sessions). Moreover, you will earn an **additional variable payoff which will depend on the decisions that you and the other participants will make**.

The data that we collect will be used to write research articles.

If you are interested and want to participate, please click on this link: ...

**Beware: this link will be valid only for today!**

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### **Welcome!**

Thank you for agreeing to participate in this new experiment organized by GATE-Lab under the responsibility of Fortuna Casoria, Postdoc, Fabio Galeotti, CNRS Researcher, and Marie Claire Villeval, CNRS Research Professor.

This study is on decision making and is part of a research project supported by the French National Research Agency (ANR) and by the IDEXLyon of the University of Lyon.

### **Information to participate in the online experiment**

#### *Participation and duration of the experiment*

Your participation in this experiment is voluntary.

This experiment consists of **15 short sessions**. These sessions are held online **every week, on the same day**. Your contribution to this research project consists in participating in the 15 sessions, from today until June 24, 2020. For your participation in all the sessions, you will receive **30 Euro plus an additional variable payoff**.

Each session consists of three parts, and these three parts are more or less the same in each session. Apart from this first session, each of the following sessions will take you approximately 10 minutes.

You can withdraw from this study at any time and without providing any justification (in this case you will not receive any compensation).

We remind you that you cannot participate in this study if you are younger than 18 years old.

#### *Privacy*

We guarantee that all the data collected in this study are kept anonymous and confidential. We will not ask you to provide us with your name, address or phone number. Your name will never be linked to your decisions. You will create your own user id which will be necessary to log into each new session and to collect your payment at the GATE-Lab at the end of the experiment.

#### *Risks*

The questions we ask and the answers you provide do not expose you to any physical or psychological risk, besides those incurred when carrying out any activity on a computer.

#### *Your expected earnings*

Your earnings in this experiment consist of a fixed payoff of 2€ for each session in which you participate (up to a maximum of 30€) and a variable payoff (up to a maximum of 32€) which depends on your decisions and on the decisions of another participant in one of the three parts of one or more sessions, as it will be explained below.

Your earnings will be paid to you in cash at the end of the experiment, **starting from June 25**, and **in person** at the GATE-Lab after providing your user id. However, exceptionally and only if you are not able to get to the GATE-Lab, we can pay you through bank transfer. This will require that you provide our accountant with your bank details before the end of June.

#### *Absences*

If you miss a session and the part randomly drawn to determine your variable payoff belongs to the session you missed, your variable payoff will be null. However, you will still receive the fixed payoff for all the sessions in which you have participated.

If you need help during the experiment, you can write to: [thevenet@gate.cnrs.fr](mailto:thevenet@gate.cnrs.fr).

This project has received approval (n° 20-665) by the CEEI Inserm ethics committee (IRB00003888).

### **Instructions for session 1**

This session consists of three parts. At the end of each part, you will receive the instructions for the following part.

You have to create your own user id. You will be asked to log in with this user id at the beginning of **each session**. Therefore, it is important that you do not forget it!

In order for you to remember your user id, we advise you to create it in the following way (without spaces, dashes, cedilla and in lower case):

- the first two letters of your mother's first name
- the first two letters of your father's first name
- your day and month of birth (in figures)

For example, if your mother's name is Julie and your father's name is Martin and you are born on July 2, then your user id is juma0207.

Please, choose your user id (and write it down to remember it):

Please, type in your user id again:

### **Instructions for following sessions**

Hello and thank you for logging in!

Please enter your user id: \_\_\_\_\_

As a reminder, we advised you to create your user id in the following way (without spaces, dashes, cedilla and in lower case):

- the first two letters of your mother's first name
- the first two letters of your father's first name
- your day and month of birth (in figures)

The session consists of three parts, as in the previous session.

*Reminder:* Your earnings in this experiment include a fixed payoff of 2€ per session (30€ maximum) and a variable payoff (32€ maximum) which depends on your decisions and on the decisions of another participant in one of the three parts of one or more sessions.

Your earnings will be paid to you **from June 25** at the GATE-Lab after providing your user id. However, exceptionally and only if you are not able to get to the GATE-Lab, we can pay you through bank transfer. This will require that you provide our accountant with your bank details before the end of June.

To begin, click on OK.

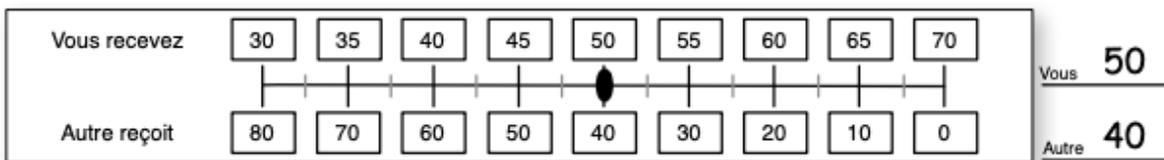
### Part 1

#### *Instructions – Part 1*

In this part, you make six decisions on how to divide an amount expressed in ECU (Experimental Currency Unit, with 10 ECU = 10€) between you and another participant in this session.

For each of the following questions, indicate your preferred allocation by clicking on the corresponding button. There are no right or wrong answers; choose according to your personal preferences.

Here is an example (*You receive / Other receives*):



In this example, the participant has chosen the allocation that gives him 50 ECU, while the other participant receives 40 ECU.

#### *Your earnings*

At the end of the experiment, the program will randomly select one of the parts. If this part is selected, it will also draw two sessions at random. In each session, you will be randomly matched with a different participant.

- For one of the two sessions, one of your six decisions will be randomly selected. This decision will determine your earnings and the earnings of the other participant.
- For the other randomly drawn session, one of the other participant's six decisions will be randomly selected. This decision will determine your earnings and the earnings of the other participant.

Your earnings in these two sessions will be added up and paid to you in Euro.

When you are ready, you can click on the OK button.

### Part 2

**(This part consists of a trust game under the strategy method and it is reported in a companion paper)**

### Part 3

To conclude, please answer the following questions.<sup>181</sup>

1. Gender: Male/Female/Other
2. Age:
3. Status: Student/Employed/Unemployed/Retired

<sup>181</sup> Questions 1 to 6 were asked only in the first session.

4. Field of education: Management/ Economics/ Engineering/ Computer Science/ Mathematics/ Medicine/ Other (specify)
5. Approximately, how many close friends (with whom you go out regularly) do you have?
6. Approximately, how many friends do you have (including your friends on social networks)?
7. **Last week**, in what type of housing did you live? House/ Apartment/ Student residence/ Other (specify).
8. **Last week**, how many people lived with you (in the same house or in the same apartment)?
9. What is the relationship between you and these people?  
 Person 1: Spouse, partner/Friend, co-tenant/Child, grandchild/Parent, grandparent/Other relative  
 Person 2, 3, 4, 5
10. **Last week**, on a scale from 1 to 10, how lonely did you feel? 1 means that you did not feel lonely at all and 10 means that you felt very lonely.
11. **Last week**, on a scale from 1 to 10, how sad or happy did you feel overall? 1 means that you felt very sad and 10 means that you felt very happy. If you did not feel sad or happy, enter 5.
12. **Last week**, what was your degree of boredom and lassitude, on a scale from 1 to 10, where 1 means “I wasn’t bored at all” and 10 means “I was terribly bored”?
13. **Last week**, did you lack anything materially because of the confinement (food, money, ...)? Yes/ No/ If yes, please specify.
14. **Last week**, what was your opinion on the information received from the authorities on the importance of the confinement? Please answer on a scale from 1 to 10, where 1 means “I did not feel informed at all” and 10 means “I felt fully informed”.
15. **Last week**, how frequently did you perform each of the following activities in physical presence? <sup>192</sup> (Every day/ Every two days/ Every three days/ Once/ Never)
  - a. Attending public gatherings (e.g. religious services, demonstrations, etc.)
  - b. Playing sports or exercising with others (gym, swimming pool)
  - c. Visiting a friend or a family member who does not live with you
  - d. Participating in the social activities of a club, company or association
  - e. Going to the supermarket, grocery store, pharmacy or medical center
  - f. Going to a restaurant, bar, café, movie theatre, non-essential store
  - g. Attending or organizing a social event with family or friends (e.g., dinner, birthday party, wedding party, game night)
  - h. Taking the public transport
16. **Last week**, on average, how frequently did you have a face-to-face conversation (apart from just greetings) with the following people living outside your home? (Every day/ Every two days/ Every three days/ Once/ Never/ NA) <sup>203</sup>
  - a. Family members
  - b. Friends or neighbors
  - c. Colleagues or fellow students
  - d. Strangers
17. **Last week**, do you think that you communicated with **your friends** via Internet and social networks:
  - a. Much less than the previous week
  - b. Less than the previous week
  - c. As much as the previous week
  - d. More than the previous week
  - e. Much more than the previous week
18. **Last week**, do you think that you communicated with **your family** via Internet and social networks:
  - a. Much less than the previous week
  - b. Less than the previous week

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<sup>192</sup> This question was added on March 27, 2020.

<sup>203</sup> This question was added on March 27, 2020.

- c. As much as the previous week
  - d. More than the previous week
  - e. Much more than the previous week
19. **Last week**, did you attend or organize a social event with family or friends (e.g., aperitifs, board game nights) via Internet and social networks? Yes/ No/ How many times? <sup>214</sup>
20. **Last week**, on average per day (over 24 hours):
- a. How much time awake did you spend alone?
  - b. How much time awake did you spend with the people that live with you?
  - c. How much time awake did you spend with people that do not live with you?
  - d. How much time did you spend asleep?
21. Below, we describe the behavior held **last week** by a “Person X”. You are asked to evaluate the behavior of this “Person X” by choosing between six options, ranging from “Very socially inappropriate” to “Very socially appropriate”. By “socially appropriate”, we mean a behavior that is considered correct and ethical by the majority of people.
- The objective is to select the option that is chosen most frequently by all the other participants in this experiment. At the end of the experiment, the program will randomly draw one session. If the option you have selected in that session is the same as the option most frequently chosen by the other participants, you will earn an additional 1€.
- For example, if the most frequent answer among the other participants is “Very socially inappropriate”, you will earn 1€ if you also chose the option “Very socially inappropriate”. If the most frequent answer among the other participants is “Very socially appropriate”, you will earn 1€ if you also answered “Very socially appropriate”.
- Here is the behavior that you are asked to evaluate: “**Last week**, “Person X” invited some friends to her house for dinner”.
- How would you rate Person X’s behavior? If you give the same answer as the majority of the other participants, you can earn an additional 1€.
- Please select only one of the following answers:
- a. Very socially inappropriate
  - b. Socially inappropriate
  - c. Rather socially inappropriate
  - d. Rather socially appropriate
  - e. Socially appropriate
  - f. Very socially appropriate
22. On a scale from 1 to 10, how concerned are you about the current coronavirus pandemic for your own health? 1 means “not at all concerned”, 10 means “extremely concerned”.
23. **Last week**, in general, how was your health? Very good/ Quite good/ Fair/ Quite bad/ Very bad/ I prefer not to answer.
24. **Last week**, have any of your family members been diagnosed positive to or carriers of the coronavirus? Yes/ No/ I prefer not to answer.
25. **Last week**, have any of your close friends been diagnosed positive to or carriers of the coronavirus? Yes/ No/ I prefer not to answer.
26. **Last week**, in which region were you? <sup>225</sup> Auvergne-Rhône-Alpes/ Bourgogne-Franche-Comté/ Bretagne/ Centre-Val-de-Loire/ Corse/ Grand-Est/ Hauts-de-France/ Île de France/ Normandie/ Nouvelle-Aquitaine/ Occitanie/ Pays-de-la-Loire/ Provence-Alpes-Côte-Azur/ Région-Outre-Mer/ Abroad

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<sup>214</sup> This question was added on March 27, 2020.

<sup>225</sup> This question was added on April 7, 2020.

27. **Last week**, have you followed your courses online or worked remotely from home? <sup>236</sup> Yes/ No
28. **Last week**, how many times did you go out to for work related reasons? <sup>247</sup> Every day/ Every two days/ Every three days/ Once/ Never/ NA
29. **Since the beginning of the lockdown/As compared to last week**, your income has: <sup>258</sup>
- been stable
  - decreased: I lost my job/ I am in partial unemployment/ I work less (excluding partial unemployment, including transition to part-time)
  - increased
30. **Last week**, if you went out, did you wear a face mask? <sup>269</sup> Never/Sometimes/Always/NA
31. **Last week**, if you went out and met a friend or somebody you used to kiss on the cheek before March 16: <sup>2710</sup> you kissed them on the cheek as before/you shook hands instead of kissing them on the cheek/you greeted them without shaking hands or kissing them on the cheek/ NA
32. For each of the following activities, please indicate whether you think that they were allowed **last week** (before May 11) in the place (city/region) where you are currently staying (while respecting all other restrictions)? <sup>2811</sup>
- Doing sports in a group (max 10 people) outside: Allowed/Forbidden
  - Visiting friends or family members who do not live with you without a compelling reason: A/F
  - Going out freely in the own neighborhood without a movement certificate (?): A/F
  - Meeting with friends (max 10 people): A/F
  - Going to the restaurant, to a bar, to the cinema, to the theatre, to a museum: A/F
  - Going to a festival: A/F
33. **Last week**, have you used the app StopCovid (have you downloaded it, accepted the conditions, and turned the Bluetooth on when going out or meeting with other people)? <sup>2912</sup> Yes/No/It does not work/My mobile is not compatible with the app/I downloaded it but I didn't use it.
34. Have you been diagnosed with coronavirus in the last 3 months? Yes/ No/ I prefer not to answer.<sup>3013</sup>
35. If yes, when (please specify the date).

This session is now over. 2€ will be added to your other earnings from this experiment. All of your earnings will be paid at the end of the experiment, from June 25, 2020.

We thank you and look forward to seeing you next week, same day.

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<sup>236</sup> This question was added on April 14, 2020.

<sup>247</sup> This question was added on April 14, 2020.

<sup>258</sup> This question was added on April 14, 2020.

<sup>269</sup> This question was added on May 12, 2020.

<sup>2710</sup> This question was added on May 12, 2020.

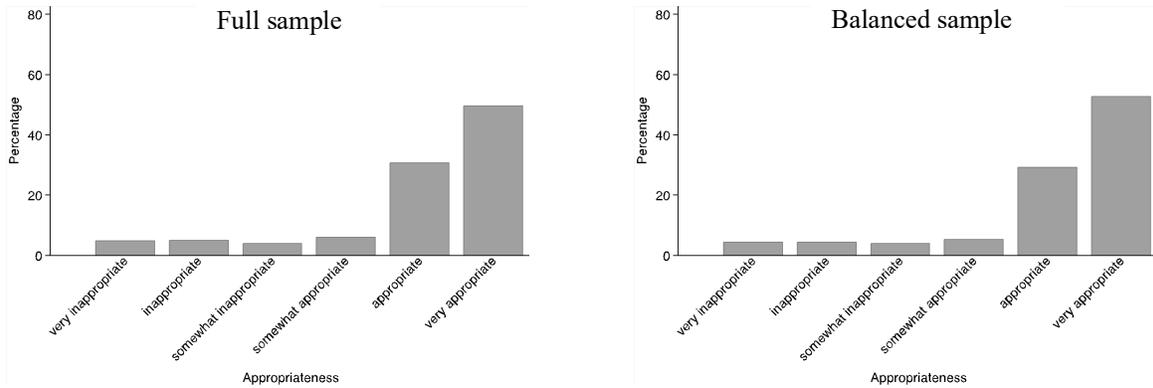
<sup>2811</sup> This question was added on May 12, 2020.

<sup>2912</sup> This question was added on June 9, 2020.

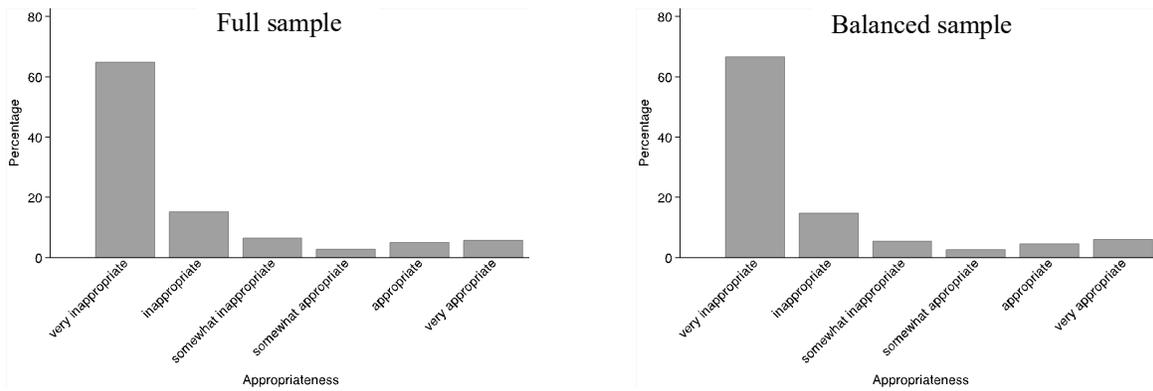
<sup>3013</sup> This question was added on June 23, 2020.

## Appendix B. Supplementary Figures

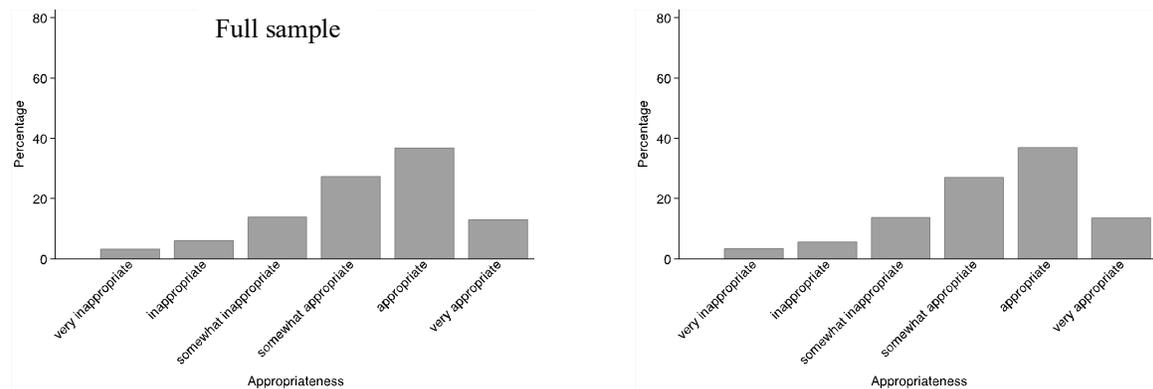
### A. Pre-lockdown (week 0)



### B. Lockdown (weeks 1-8)



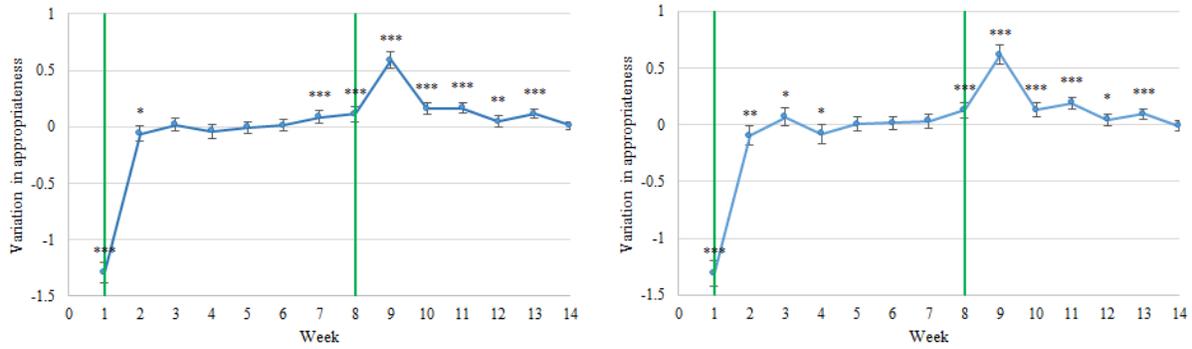
### C. Post-lockdown (weeks 9-14)



**Figure S1:** Distribution of social appropriateness ratings for the full sample (left) and the balanced sample (right).

Figure S1 reports the distribution of responses regarding the appropriateness of the behavior of a hypothetical person X who invited friends over for dinner last week. Possible responses were very

inappropriate, inappropriate, somewhat inappropriate, somewhat appropriate, appropriate, and very appropriate. Panel A considers the pre-lockdown period, panel B the lockdown period and panel C the post-lockdown period. Figures on the left are for the full sample, regardless of whether individuals participated in the 15 sessions or not, while figures on the right only consider the sample of participants who did not miss any session. The distributions of responses are very similar between the full and the balanced samples.

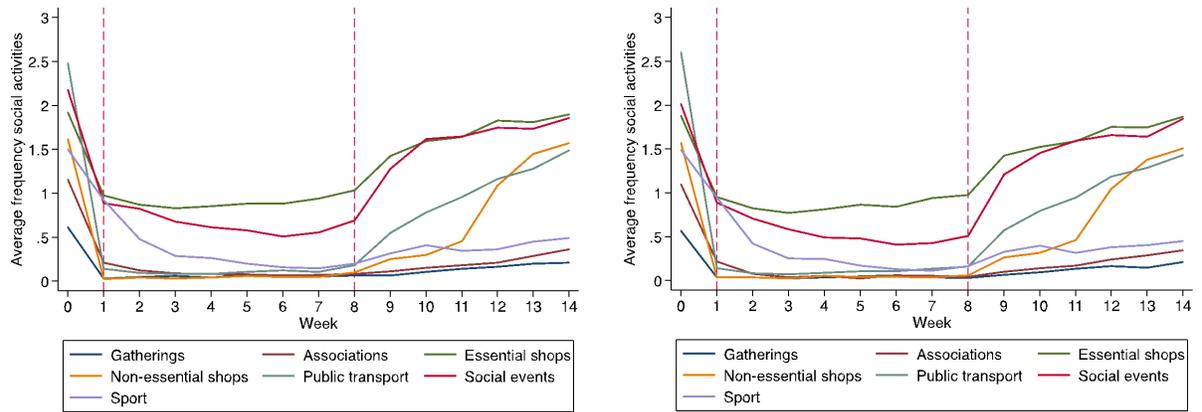


**Figure S2:** Evolution of the perceived norm (appropriateness rating) from a week to the next week over the period March 18-June 24 for the full sample (left figure) and the balanced sample (right figure).

The figure displays marginal effects from an OLS regression of the effect of time (dummy variables Week) on the variation in social appropriateness ratings between one week and the previous one, controlling for participant's age, gender, education background, occupation, reported number of friends, and accommodation type). In week 1, the data point compares the evolution between week 0 and week 1.

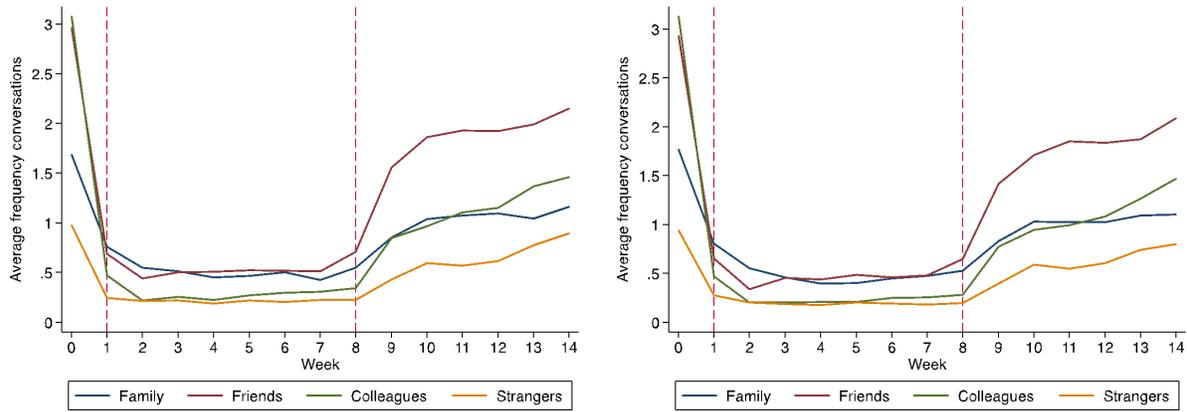
\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .

The figure reveals that the largest changes occur just after the introduction and after the lifting of the law.



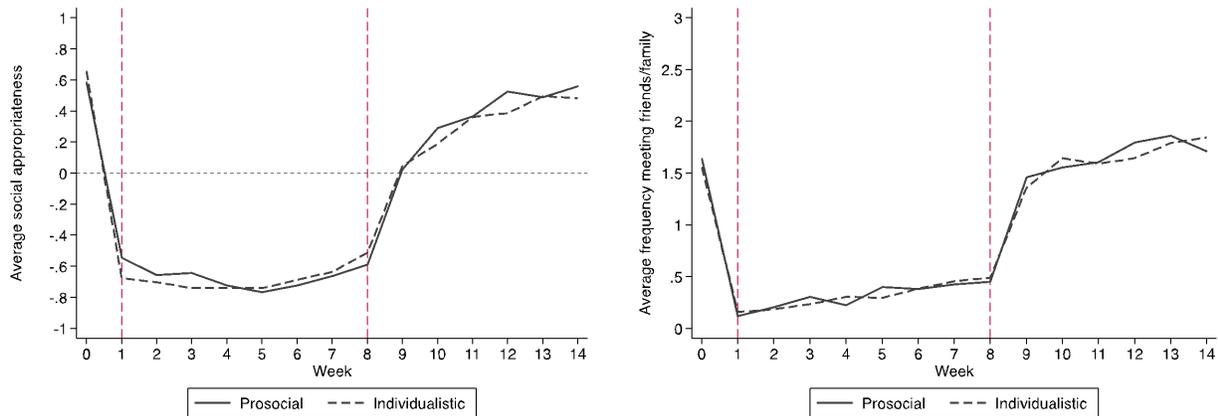
**Figure S3:** Average frequency of social activities in physical presence for the full sample (left figure) and the balanced sample (right figure).

The figures display the evolution of the mean frequency of various activities over time for the full sample (figure on the left) and the balanced sample (figure on the right). Participants reported on a scale from 0 (“never”) to 4 (“every day”) how frequently they engaged, the week before, in the following activities in physical presence: attending public gatherings (*e.g.*, religious services, demonstrations, etc.); participating in the social activities of a club, company or associations; going to essential shops (*e.g.*, supermarket, grocery store, pharmacy or medical center); going to non-essential shops (*e.g.*, restaurant, bar, café, movie theatre, non-essential store); taking the public transport; attending or organizing a social event with family or friends (*e.g.*, dinner, birthday party, wedding party, game night); playing sports or exercising with others (*e.g.*, gym, swimming pool). The red vertical lines represent the two legal thresholds: introduction (week 1) and abrogation (week 8) of the law.



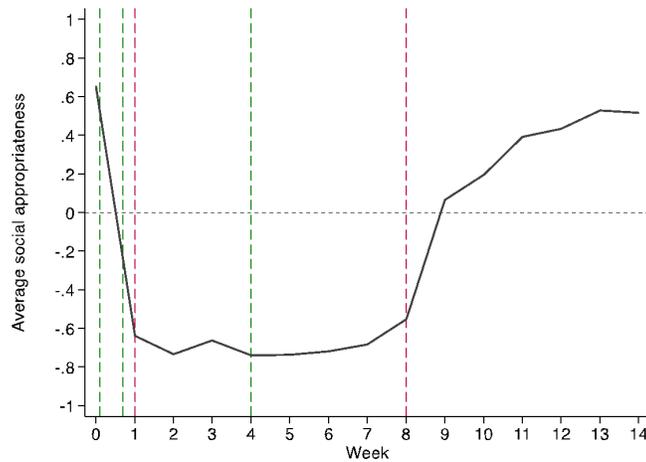
**Figure S4:** Average frequency of face-to-face conversations for the full sample (left figure) and the balanced sample (right figure).

The figures display the evolution of the average frequency of face-to-face conversations over time for the full sample (left figure) and the balanced sample (right figure). Participants reported on a scale from 0 (“never”) to 4 (“every day”) how frequently they had face-to-face conversations, the week before, with the following people living outside their home: family members, friends or neighbors, colleagues or fellow students, strangers. The red vertical lines represent the two legal thresholds: introduction (week 1) and abrogation (week 8) of the law.



**Figure S5:** Average level of social appropriateness of inviting friends over for dinner (left panel) and average frequency of visits to friends and family (right panel) over the period March 18-June 24, 2020.

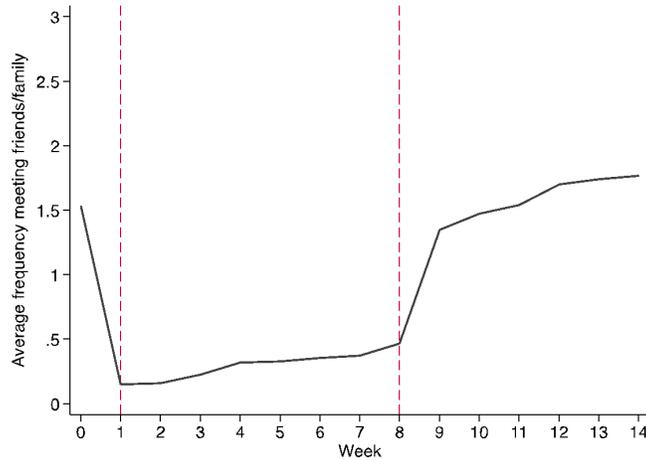
The figure plots the evolution of the average perceived social appropriateness of inviting friends over for dinner over time (left panel) and the evolution of the average frequency of visits to friends and family over time, separately for prosocial and individualistic types. Solid lines refer to participants classified as prosocial and dashed lines refer to participants classified as individualistic according to the SVO task. The red vertical lines represent the two legal thresholds: introduction (week 1) and abrogation (week 8) of the law.



**Figure S6:** Average level of social appropriateness of inviting friends over for dinner for the period March 18-June 24, for the balanced sample.

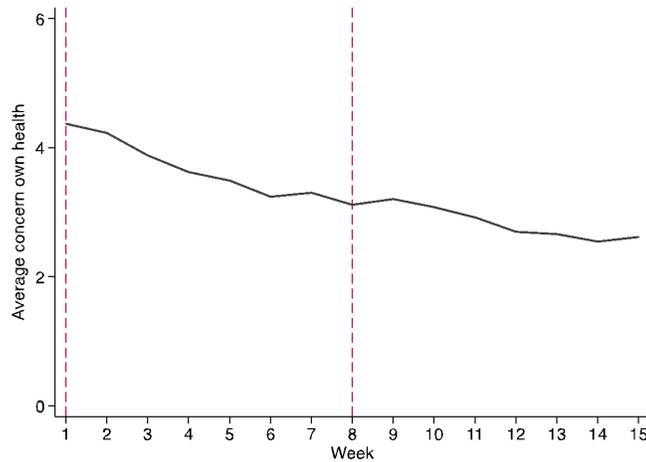
The figure displays the evolution of the average perceived social appropriateness of inviting friends over for dinner over time for the balanced sample. It is equivalent to Fig.1 for the whole sample. Each week, participants had to assess the social appropriateness of the following scenario: “Last week, “Person X” invited some friends to her house for dinner”. Mean ratings were constructed by converting subjects’ responses into numerical scores using the same scale as in Krupka and Weber (2013): “very socially inappropriate” = -1, “socially inappropriate” = -2/3, “somewhat socially inappropriate” = -1/3, “somewhat socially appropriate” = 1/3, “socially appropriate” = 2/3, “very socially appropriate” = 1.

The week numbers refer to the week in which the hypothetical scenario takes place. In the first experimental session (March 18), the hypothetical scenario took place a week earlier, before the introduction of the law. We refer to it as week 0. The red vertical lines represent the two legal thresholds: introduction (week 1) and abrogation (week 8) of the law. The green lines represent government nation-wide announcements: recommendations on social distancing (first line, March 12); introduction of the law (second line, March 16); lifting of the law (third line, April 13).



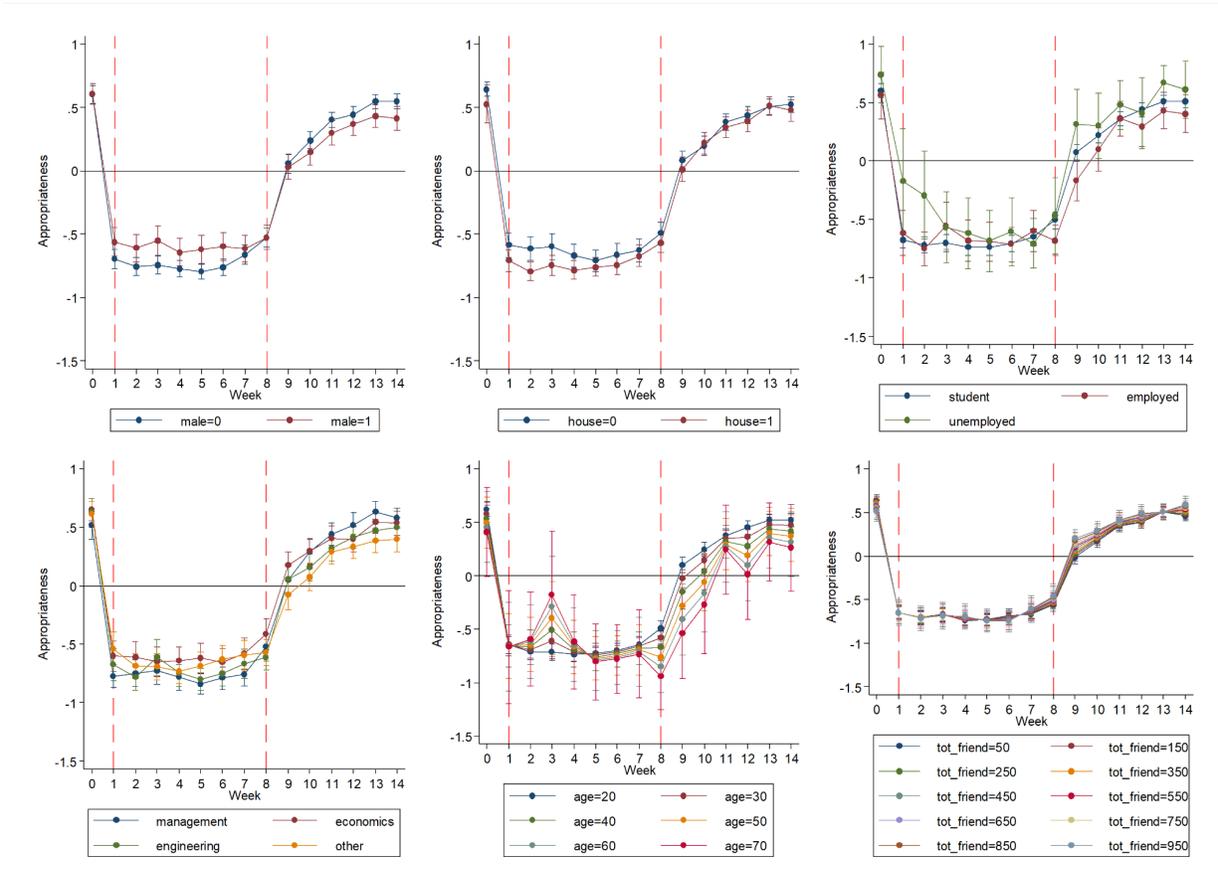
**Figure S7:** Average frequency of visits to friends and family over the period March 18-June 24, for the balanced sample.

The figure displays the evolution of the average frequency of visits to friends and family over time for the balanced sample. It is equivalent to Fig.2 for the whole sample. Participants self-reported the frequency at which, the week preceding the current one, they visited friends and family members by choosing an answer on a 0-4 scale, where 0 means “never” and 4 means “every day”. The red vertical lines represent the two legal thresholds: introduction (week 1) and abrogation (week 8) of the law.



**Figure S8:** Evolution over time of the average current concern for own health over the period March 18-June 24, for the balanced sample.

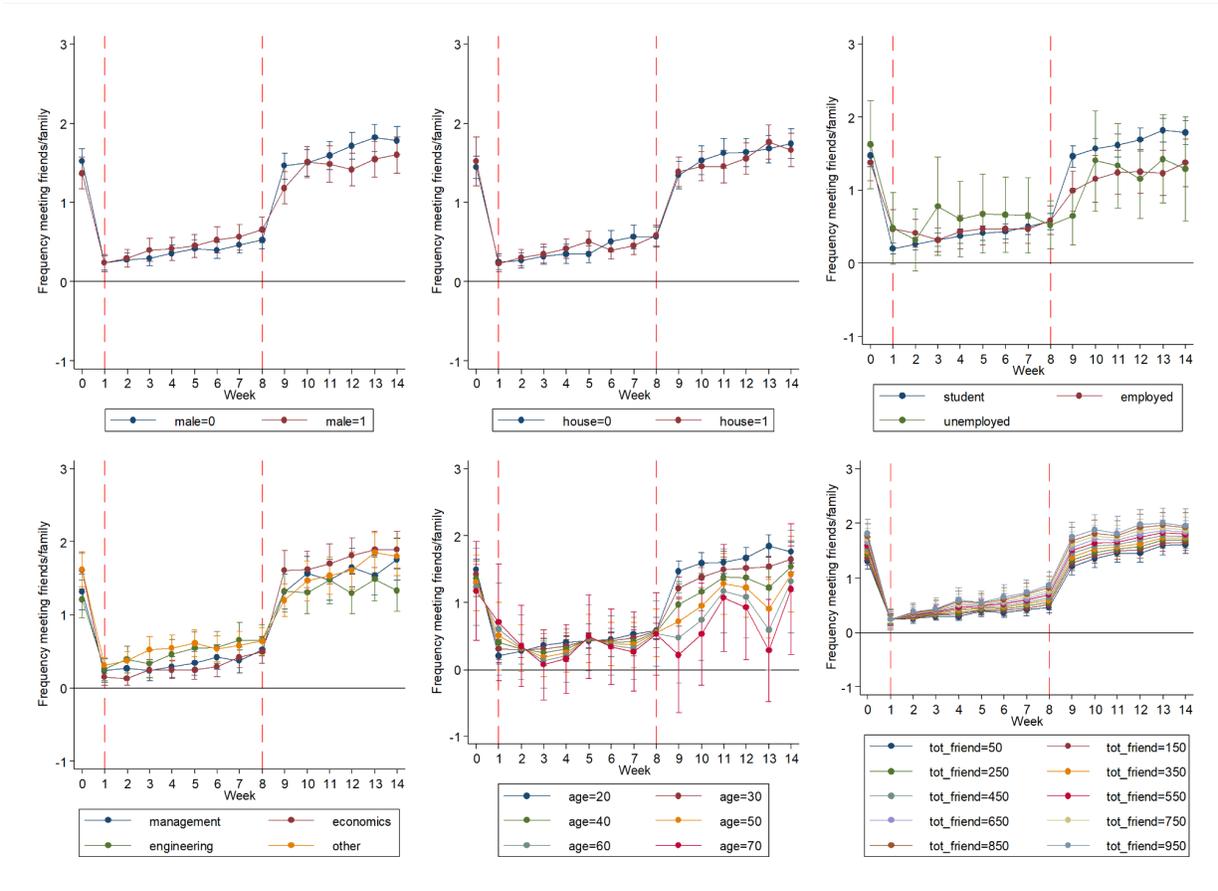
The figure displays the evolution of the average current concern for own health over time for the balanced sample. It is equivalent to Fig.3 for the whole sample. Participants had to indicate how concerned they were for their own health on a scale from 1 to 10, where 1 means “not at all concerned” and 10 means “extremely concerned”. The red vertical lines represent the two legal thresholds: introduction (week 1) and abrogation (week 8) of the law.



**Figure S9:** Evolution over time of the perceived norm (appropriateness rating) for different types of participants for the period March 18-June 24, 2020.

The figure displays the marginal effects from OLS regressions of the effect of time (dummy variables Week) on the social appropriateness ratings for different types of participants. The OLS regressions are analogous to the one reported in Model (1) of Table 1, except that we also include interaction terms between the dummy variables Week and the demographic indicators for age, gender, education background, occupation, reported number of friends, and accommodation type (we employ a different indicator for each regression). The week numbers refer to the week in which the hypothetical scenario took place. In the first experimental session (March 18), the hypothetical scenario took place a week earlier (March 11), before the introduction of SPDM. We refer to it as week 0. The dashed lines represent the two legal thresholds: introduction (week 1) and abrogation (week 8) of SPDM.

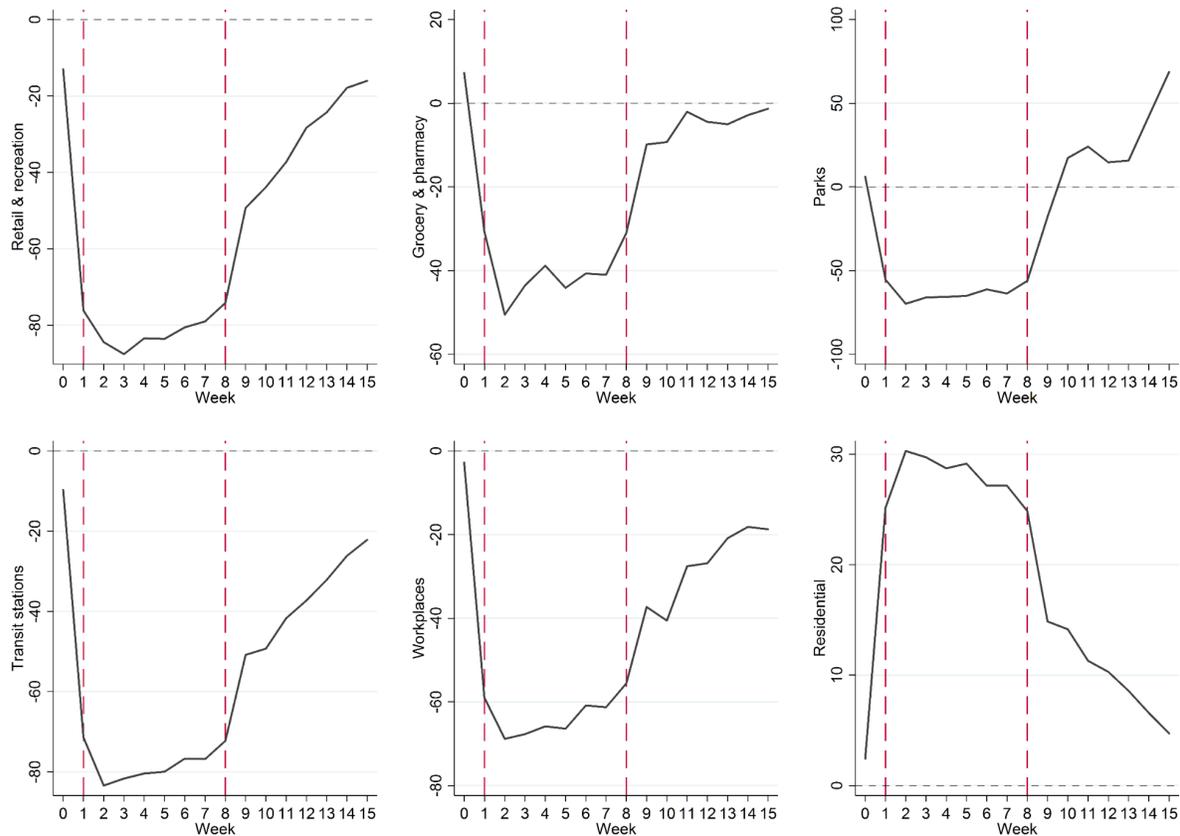
The figure reveals that there are no major individual differences in the effect of the law on the perception of the social norm. Older participants appear to react less to the abrogation of the law but there are too few of them to make reliable conclusions (the confidence intervals are very large).



**Figure S10:** Evolution over time of visits to friends and family for different types of participants for the period March 18-June 24, 2020.

The figure displays the marginal effects from OLS regressions of the effect of time (dummy variables Week) on the number of visits to friends and family for different types of participants. The OLS regressions are analogous to the one reported in Model (2) of Table 1, except that we also include interaction terms between the dummy variables Week and the demographic indicators for age, gender, education background, occupation, reported number of friends, and accommodation type (we employ a different indicator for each regression). The week numbers refer to the week in which the hypothetical scenario took place. In the first experimental session (March 18), the hypothetical scenario took place a week earlier (March 11), before the introduction of SPDM. We refer to it as week 0. The red dashed lines represent the two legal thresholds: introduction (week 1) and abrogation (week 8) of SPDM.

The figure reveals that there are no major individual differences in the effect of the law on the number of visits to friends and family. Older participants appear to react less to the abrogation of the law but there are too few of them to make reliable conclusions (the confidence intervals are very large). Similarly, students seem to resume more quickly visits in person to friends and family after the law has been lifted compared to other categories of subjects. However, this evidence should be taken with caution since we have only few non-student participants.



**Figure S11:** Weekly mobility data from Google on how visits and length of stay at different places change compared to pre-pandemic levels in France.

The figure displays French mobility data provided by Google for the period of our experiment. Each plot reports how visits and length of stay at recreational areas, grocery stores and pharmacies, parks, transit stations, workplaces, and residential areas, respectively, change, in percentage, compared to baseline levels. The latter correspond to the median values for the same weekday during the period Jan3-Feb 6, 2020. In each plot, we report weekly average changes. The red vertical lines represent the two legal thresholds: introduction (week 1) and abrogation (week 8) of the law.

## Appendix C. Supplementary Tables

**Table S1:** Demographic characteristics

|                                | Full sample      | Balanced sample |
|--------------------------------|------------------|-----------------|
| <b>N</b>                       | 441 <sup>a</sup> | 228             |
| <b>Average age</b>             | 23.79 (6.87)     | 24.25 (7.21)    |
| <b>Gender</b>                  |                  |                 |
| Male                           | 37.64%           | 32.02%          |
| Female                         | 62.13%           | 67.98%          |
| Other                          | 0.23%            | -               |
| <b>Number of close friends</b> | 10.07 (7.51)     | 9.49 (6.93)     |
| <b>Total number of friends</b> | 313.56 (372.70)  | 311.40 (368.57) |
| <b>Occupation</b>              |                  |                 |
| Student                        | 84.35%           | 81.14%          |
| Employed                       | 11.11%           | 13.60%          |
| Unemployed                     | 3.85%            | 4.38%           |
| Retired                        | 0.68%            | 0.88%           |
| <b>Education background</b>    |                  |                 |
| Management                     | 24.94%           | 25.88%          |
| Economics                      | 27.89%           | 25.00%          |
| Engineering                    | 20.86%           | 20.61%          |
| IT                             | 1.59%            | 2.19%           |
| Mathematics                    | 0.68%            | 0.88%           |
| Medicine                       | 5.44%            | 7.02%           |
| Other                          | 18.59%           | 18.42%          |

Notes: The table displays descriptive statistics for the full and the balanced samples. The descriptive statistics are based on self-reported data. Standard deviations in parentheses. <sup>a</sup>There are six missing observations on personal characteristics.

Tables S2 and S2-a report descriptive statistics for the full and the balanced samples, respectively, based on self-reported data. The data are disaggregated by the three periods: pre-lockdown (week 0), lockdown (weeks 1-8) and post-lockdown (weeks 9-14). The question on the perceived variation in income was added in week 4.

*Variable definitions*

*Accommodation:* Last week, in what type of housing did you live?

*Number of housemates:* Last week, how many people lived with you?

*Perceived income:* As compared to last week, your income has: a) been stable; b) decreased; c) increased.

*Reason for perceived lower income:* a) I lost my job; b) I am in partial unemployment; c) I work less (excluding partial unemployment, including transition to part-time).

**Table S2: Other characteristics (full sample)**

|                                | Pre-lockdown<br>(Week 0) | Lockdown<br>(Weeks 1-8) | Post-lockdown<br>(Weeks 9-14) |
|--------------------------------|--------------------------|-------------------------|-------------------------------|
| <b>Accommodation</b>           |                          |                         |                               |
| House                          | 16.93%                   | 53.47%                  | 42.53%                        |
| Flat                           | 66.59%                   | 42.22%                  | 51.51%                        |
| Student residence              | 14.88%                   | 3.62%                   | 5.53%                         |
| Other                          | 1.60%                    | 0.69%                   | 0.43%                         |
| <b>Number of housemates</b>    | 2.46 (3.02)              | 2.67 (1.72)             | 2.29 (2.17)                   |
| <b>Evolution of income</b>     |                          |                         |                               |
| Lower                          |                          | 25.61%                  | 12.70%                        |
| Stable                         |                          | 70.77%                  | 83.12%                        |
| Higher                         |                          | 3.62%                   | 4.18%                         |
| <b>Reason for lower income</b> |                          | <i>N</i> = 389          | <i>N</i> = 316                |
| Fired                          |                          | 28.28%                  | 31.02%                        |
| Partial unemployment           |                          | 16.20%                  | 19.30%                        |
| Less work                      |                          | 55.52%                  | 49.68%                        |

Notes: The table displays descriptive statistics for the full sample. The descriptive statistics are based on self-reported data. Standard deviations in parentheses. “Evolution income” relates to whether the participants reported having lower, stable or higher income at the time of the interview compared to last week.

**Table S2-a: Other characteristics (balanced sample)**

|                                | Pre-lockdown<br>(Week 0) | Lockdown<br>(Weeks 1-8) | Post-lockdown<br>(Weeks 9-14) |
|--------------------------------|--------------------------|-------------------------|-------------------------------|
| <b>Accommodation</b>           |                          |                         |                               |
| House                          | 14.60%                   | 51.56%                  | 42.41%                        |
| Flat                           | 70.80%                   | 45.09%                  | 52.53%                        |
| Student residence              | 14.60%                   | 3.24%                   | 4.84%                         |
| Other                          | -                        | 0.11%                   | 0.22%                         |
| <b>Number of housemates</b>    | 2.14 (2.59)              | 2.54 (1.70)             | 2.21 (1.97)                   |
| <b>Evolution of income</b>     |                          |                         |                               |
| Lower                          |                          | 26.78%                  | 13.76%                        |
| Stable                         |                          | 70.36%                  | 82.09%                        |
| Higher                         |                          | 2.86%                   | 4.15%                         |
| <b>Reason for lower income</b> |                          | <i>N</i> = 244          | <i>N</i> = 219                |
| Fired                          |                          | 32.79%                  | 35.16%                        |
| Partial unemployment           |                          | 14.75%                  | 18.72%                        |
| Less work                      |                          | 52.46%                  | 46.12%                        |

Notes: The table displays descriptive statistics for the balanced sample. The descriptive statistics are based on self-reported data. Standard deviations in parentheses. “Evolution income” relates to whether the participants reported having lower, stable or higher income at the time of the interview compared to last week.

Tables S3 and S3-a report the average social appropriateness ratings for the full and the balanced samples, respectively. The data are disaggregated by the three periods: pre-lockdown (week 0), lockdown (weeks 1-8) and post-lockdown (weeks 9-14).

*Variable definition*

Average social appropriateness ratings were constructed by converting participants' responses into numerical scores using the following scale (following the procedure in Krupka and Weber 2013): "very socially inappropriate" = -1, "socially inappropriate" = -2/3, "somewhat socially inappropriate" = -1/3, "somewhat socially appropriate" = 1/3, "socially appropriate" = 2/3, "very socially appropriate" = 1.

**Table S3: Average social appropriateness (full sample)**

|                         | Pre-lockdown<br>Week 0 | Lockdown<br>Weeks 1-8       | p-value |
|-------------------------|------------------------|-----------------------------|---------|
| Average appropriateness | 0.63 (0.57)            | -0.67 (0.60)                | <0.001  |
| N                       | 437                    | 3041                        |         |
|                         | Lockdown<br>Weeks 1-8  | Post-lockdown<br>Weeks 9-14 |         |
| Average appropriateness | -0.67 (0.60)           | 0.35 (0.53)                 | <0.001  |
| N                       | 3041                   | 2116                        |         |
|                         | Pre-lockdown<br>Week 0 | Post-lockdown<br>Weeks 9-14 |         |
| Average appropriateness | 0.63 (0.57)            | 0.35 (0.53)                 | <0.001  |
| N                       | 437                    | 2116                        |         |

Notes: Standard deviations are in parentheses. P-values are from Mann-Whitney tests.

**Table S3-a: Average social appropriateness (balanced sample)**

|                         | Pre-lockdown<br>Week 0 | Lockdown<br>Weeks 1-8       | p-value |
|-------------------------|------------------------|-----------------------------|---------|
| Average appropriateness | 0.65 (0.55)            | -0.68 (0.60)                | <0.001  |
| N                       | 226                    | 1823                        |         |
|                         | Lockdown<br>Weeks 1-8  | Post-lockdown<br>Weeks 9-14 |         |
| Average appropriateness | -0.68 (0.60)           | 0.36 (0.53)                 | <0.001  |
| N                       | 1823                   | 1363                        |         |
|                         | Pre-lockdown<br>Week 0 | Post-lockdown<br>Weeks 9-14 |         |
| Average appropriateness | 0.65 (0.55)            | 0.36 (0.53)                 | <0.001  |
| N                       | 226                    | 1363                        |         |

Notes: Standard deviations are in parentheses. P-values are from Mann-Whitney tests.

Table S4 is identical to Table 1, but gives the details of the coefficients of the sociodemographic control variables.

**Table S4: Social norm and behavior, OLS regression**

| Dependent variable                    | Social appropriateness<br>(1) | Frequency visits<br>(2) |
|---------------------------------------|-------------------------------|-------------------------|
| Week 0                                | <i>Ref.</i>                   | <i>Ref.</i>             |
| <b>Week 1 (introduction lockdown)</b> | -1.250***<br>(0.045)          | -1.217***<br>(0.084)    |
| Week 2                                | -1.306***<br>(0.044)          | -1.171***<br>(0.084)    |
| Week 3                                | -1.275***<br>(0.046)          | -1.116***<br>(0.086)    |
| Week 4                                | -1.328***<br>(0.043)          | -1.070***<br>(0.089)    |
| Week 5                                | -1.334***<br>(0.043)          | -1.020***<br>(0.088)    |
| Week 6                                | -1.306***<br>(0.042)          | -1.008***<br>(0.092)    |
| Week 7                                | -1.249***<br>(0.043)          | -0.951***<br>(0.092)    |
| Week 8                                | -1.131***<br>(0.042)          | -0.879***<br>(0.090)    |
| <b>Week 9 (after abrogation)</b>      | -0.556***<br>(0.040)          | -0.094<br>(0.089)       |
| Week 10                               | -0.398***<br>(0.040)          | 0.044<br>(0.082)        |
| Week 11                               | -0.239***<br>(0.036)          | 0.096<br>(0.089)        |
| Week 12                               | -0.187***<br>(0.038)          | 0.147<br>(0.083)        |
| Week 13                               | -0.099**<br>(0.036)           | 0.257**<br>(0.082)      |
| Week 14                               | -0.103**<br>(0.036)           | 0.256**<br>(0.084)      |
| Social appropriateness                | .                             | 0.167***<br>(0.038)     |
| Total number of friends               | 0.000<br>(0.000)              | 0.000***<br>(0.000)     |
| House                                 | -0.074*<br>(0.029)            | -0.009<br>(0.055)       |
| Age                                   | -0.003<br>(0.003)             | -0.008<br>(0.006)       |
| Male                                  | -0.033<br>(0.032)             | -0.043<br>(0.059)       |
| Student                               | -0.264<br>(0.235)             | -0.126<br>(0.298)       |
| Employed                              | -0.301<br>(0.215)             | -0.270<br>(0.253)       |
| Unemployed                            | -0.124<br>(0.220)             | -0.186<br>(0.246)       |
| Management                            | 0.007<br>(0.040)              | -0.131<br>(0.087)       |
| Economics                             | 0.086<br>(0.048)              | -0.065<br>(0.089)       |
| Engineering                           | -0.001<br>(0.045)             | -0.131<br>(0.101)       |
| Constant                              | 0.924**                       | 1.824***                |

|   |         |         |
|---|---------|---------|
| N | (0.286) | (0.442) |
|   | 5530    | 5530    |

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*Notes:* \* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$ . Standard errors, clustered at the individual level, in parentheses. In all regressions, *Week 1-14*: dummy variables for each week. Week 0 (before the lockdown) serves as a reference group. Week 1 corresponds to the introduction of the lockdown, Week 9 is the first week after the abrogation of the law.

Table S5 reports Ordinary Least Squares (OLS) regressions of the effect of time (dummy variables *Week*) on social appropriateness ratings (Model (1)) and on the frequency at which participants visited friends and family over the period March 18-June 24 (Model (2)), for the balanced sample. We controlled for participant's age, gender, education background and occupation.

#### *Variable definitions*

*Week 1, ..., Week 14*: dummy variables for each week. Week 0 (before the law was introduced) serves as the reference group. Week 1 corresponds to the introduction of the lockdown, Week 9 is the first week after the abrogation of the law.

*Social appropriateness* in Model (2) captures the perception of the social norm by the participant about the social appropriateness of social gatherings.

#### *Control variables*

*Age*: participant's age in years.

*Male*: category variable taking value 1 for male, and 0 for female or other.

*Education*: categories included are management, economics, engineering, other.

*Occupation*: categories included are student, employed, unemployed, retired.

*Total number of friends*: self-reported total number of friends.

*House*: category variable taking value 1 if the participant lives in a house, 0 otherwise.

The regressions show that the introduction of the law in week 1 changes significantly the perception of the norm and behavior compared to the week before the lockdown (Wald tests, both  $p < 0.001$ ). Similarly, the abrogation of the law in week 8 generates a significant change in the perception of the norm and behavior in week 9 compared to the week before the abrogation (comparisons of weeks 9 and 8, Wald tests, both  $p < 0.001$ ). The evolution is slower for the perception of the norm than for behavior, as the coefficient remains negative after abrogation but the size of the coefficients after Week 8 (Model (1)) decreases significantly.

Model (2) shows that the effect of time on behavior is highly non-linear: after the abrogation of the law, the Week coefficient is no longer significant and it becomes positive and significant after week 11. It also shows that the frequency of visits to friends and family significantly increases with the perceived social norm about appropriateness of social encounters.

**Table S5: Social norm and behavior, OLS regression, balanced sample**

|                                       | Social appropriateness<br>(1) | Frequency visits<br>(2) |
|---------------------------------------|-------------------------------|-------------------------|
| Week 0                                | <i>Ref.</i>                   | <i>Ref.</i>             |
| <b>Week 1 (introduction lockdown)</b> | -1.271***<br>(0.059)          | -1.124***<br>(0.113)    |
| Week 2                                | -1.364***<br>(0.060)          | -1.097***<br>(0.115)    |
| Week 3                                | -1.293***<br>(0.062)          | -1.043***<br>(0.113)    |
| Week 4                                | -1.371***<br>(0.056)          | -0.931***<br>(0.116)    |
| Week 5                                | -1.366***<br>(0.057)          | -0.924***<br>(0.115)    |
| Week 6                                | -1.348***<br>(0.055)          | -0.900***<br>(0.118)    |
| Week 7                                | -1.314***<br>(0.056)          | -0.890***<br>(0.120)    |
| Week 8                                | -1.183***<br>(0.054)          | -0.820***<br>(0.117)    |
| <b>Week 9 (after abrogation)</b>      | -0.570***<br>(0.050)          | -0.056<br>(0.108)       |
| Week 10                               | -0.437***<br>(0.051)          | 0.048<br>(0.104)        |
| Week 11                               | -0.246***<br>(0.048)          | 0.076<br>(0.110)        |
| Week 12                               | -0.205***<br>(0.048)          | 0.223*<br>(0.101)       |
| Week 13                               | -0.109*<br>(0.044)            | 0.253*<br>(0.100)       |
| Week 14                               | -0.121*<br>(0.048)            | 0.279**<br>(0.107)      |
| Social appropriateness                | .                             | 0.179***<br>(0.051)     |
| Constant                              | 0.966**<br>(0.352)            | 1.929***<br>(0.563)     |
| N                                     | 3411                          | 3411                    |
| Controls                              | Yes                           | Yes                     |

Notes: \*p < 0.05, \*\*p < 0.01, \*\*\*p < 0.001. Standard errors, clustered at the individual level, are in parentheses. Controls are age, gender, education, occupation, reported number of friends and accommodation type. In all regressions, Week 0 (before the introduction of the lockdown) serves as the reference group.

Tables S6 and S6-a report the average frequency at which participants visited friends and family for the full and the balanced sample, respectively. The data are disaggregated by the three periods: pre-lockdown (week 0), lockdown (weeks 1-8) and post-lockdown (weeks 9-14).

*Variable definition*

Participants self-reported the frequency at which they visited friends and family members on a scale from 0 (“never”) to 4 (“every day”).

**Table S6:** Average frequency of family and friends visits

|                   | Pre-lockdown<br>Week 0 | Lockdown<br>Weeks 1-8       | p-value |
|-------------------|------------------------|-----------------------------|---------|
| Average frequency | 1.60 (1.26)            | 0.32 (0.76)                 | <0.001  |
| N                 | 437                    | 3041                        |         |
|                   | Lockdown<br>Weeks 1-8  | Post-lockdown<br>Weeks 9-14 |         |
| Average frequency | 0.32 (0.76)            | 1.66 (1.28)                 | <0.001  |
| N                 | 3041                   | 2116                        |         |
|                   | Pre-lockdown<br>Week 0 | Post-lockdown<br>Weeks 9-14 |         |
| Average frequency | 1.60 (1.26)            | 1.66 (1.28)                 | 0.3340  |
| N                 | 437                    | 2116                        |         |

Notes: Standard deviations are in parentheses. p-values are from Mann-Whitney tests.

**Table S6-a:** Average frequency of family and friends visits, balanced sample

|                   | Pre-lockdown<br>Week 0 | Lockdown<br>Weeks 1-8       | p-value |
|-------------------|------------------------|-----------------------------|---------|
| Average frequency | 1.53 (1.17)            | 0.30 (0.72)                 | <0.001  |
| N                 | 226                    | 1823                        |         |
|                   | Lockdown<br>Weeks 1-8  | Post-lockdown<br>Weeks 9-14 |         |
| Average frequency | 0.30 (0.72)            | 1.60 (1.23)                 | <0.001  |
| N                 | 1823                   | 1363                        |         |
|                   | Pre-lockdown<br>Week 0 | Post-lockdown<br>Weeks 9-14 |         |
| Average frequency | 1.53 (1.17)            | 1.60 (1.23)                 | 0.5057  |
| N                 | 226                    | 1363                        |         |

Notes: Standard deviations are in parentheses. p-values are from Mann-Whitney tests.

Tables S7 and S7-a report the results of OLS regressions of social appropriateness ratings over time (dummy variables *Week*), controlling for prosocial types. We performed Ordinary Least Squares (OLS) regressions, and controlled for age, gender, education background and occupation. Table S6 refers to the full sample and Table S6-a to the balanced sample.

#### *Variable definitions*

All variables and controls are defined as in Table S5.

*Prosocial*: dummy variable taking value 1 if the participant was classified as prosocial or altruistic according to the Social Value Orientation (SVO) task, and 0 otherwise. Participants' decisions in the SVO task were translated into a score of their SVO expressed in terms of an angle, with a positive (negative) angle indicating a positive (negative) concern for the other's payoff. The SVO angle ranges from  $-16.26^\circ$  (perfectly competitive individuals) to  $61.39^\circ$  (perfectly altruistic individuals). Narrow self-interest would result in an angle close to  $0^\circ$ . 24.6% of the decisions made by the participants showed an intransitive pattern and were therefore excluded from the analysis. 70.1% of the participants were classified as individualistic, 29.5% as prosocial, 0.3% as competitive and 0.2% as altruistic. Given the small share of competitive and altruistic types, we aggregated our data to have only two categories: prosocial types (prosocial+altruistic) and individualistic types (individualistic+competitive).

This regression confirms the results reported in Table S5: the introduction of the law in week 1 changes significantly the perception of the norm compared to the week before the lockdown (Wald test,  $p < 0.001$ , full and balanced sample) and its abrogation in week 8 generates a significant change in the perception of the norm in week 9 (Wald test,  $p < 0.001$ , full and balanced sample). Moreover, it reveals that the type of the participant (prosocial vs. individualistic) had no significant effect on the rating of appropriateness. An alternative model has been estimated in which the participant type was interacted with the *Week* dummy variables. It led to the same conclusion.

**Table S7: Social norm, control for prosocial types**

|                                       | Social appropriateness |
|---------------------------------------|------------------------|
| Week 0                                | <i>Ref.</i>            |
| <b>Week 1 (introduction lockdown)</b> | -1.250***<br>(0.045)   |
| Week 2                                | -1.306***<br>(0.044)   |
| Week 3                                | -1.274***<br>(0.046)   |
| Week 4                                | -1.327***<br>(0.043)   |
| Week 5                                | -1.333***<br>(0.043)   |
| Week 6                                | -1.304***<br>(0.042)   |
| Week 7                                | -1.247***<br>(0.043)   |
| Week 8                                | -1.130***<br>(0.042)   |
| <b>Week 9 (after abrogation)</b>      | -0.554***<br>(0.040)   |
| Week 10                               | -0.397***<br>(0.039)   |
| Week 11                               | -0.236***<br>(0.036)   |
| Week 12                               | -0.184***<br>(0.037)   |
| Week 13                               | -0.096**<br>(0.036)    |
| Week 14                               | -0.101**<br>(0.036)    |
| Prosocial                             | 0.038<br>(0.028)       |
| Constant                              | 0.907**<br>(0.282)     |
| N                                     | 5530                   |
| Controls                              | Yes                    |

Notes: \* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$ . Standard errors, clustered at the individual level, are in parentheses. Controls are age, gender, education, occupation, reported number of friends and accommodation type. In all regressions, Week 0 serves as the reference group. Prosocial takes value 1 if the individual is classified as a prosocial or altruistic type according to the SVO task, and 0 otherwise.

**Table S7-a: Social norm, control for prosocial types, balanced sample**

|                                       | Social appropriateness |
|---------------------------------------|------------------------|
| Week 0                                | <i>Ref.</i>            |
| <b>Week 1 (introduction lockdown)</b> | -1.272***<br>(0.059)   |
| Week 2                                | -1.364***<br>(0.060)   |
| Week 3                                | -1.294***<br>(0.062)   |
| Week 4                                | -1.370***<br>(0.056)   |
| Week 5                                | -1.366***<br>(0.057)   |
| Week 6                                | -1.347***<br>(0.055)   |
| Week 7                                | -1.313***<br>(0.056)   |
| Week 8                                | -1.183***<br>(0.054)   |
| <b>Week 9 (after abrogation)</b>      | -0.569***<br>(0.050)   |
| Week 10                               | -0.437***<br>(0.051)   |
| Week 11                               | -0.243***<br>(0.047)   |
| Week 12                               | -0.203***<br>(0.048)   |
| Week 13                               | -0.107*<br>(0.044)     |
| Week 14                               | -0.120*<br>(0.048)     |
| Prosocial                             | 0.049<br>(0.037)       |
| Constant                              | 0.942***<br>(0.349)    |
| N                                     | 3411                   |
| Controls                              | Yes                    |

Notes: \* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$ . Standard errors, clustered at the individual level, are in parentheses. Controls are age, gender, education, occupation, reported number of friends and accommodation type. In all regressions, Week 0 serves as the reference group. Prosocial takes value 1 if the individual is classified as a prosocial or altruistic type according to the SVO task, and 0 otherwise.