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Alone at home: The impact of social distancing on norm-consistent behavior

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Alone at Home: The Impact of Social Distancing on Norm-consistent Behavior

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Alone at Home: The Impact of Social Distancing on Norm-consistent Behavior

Abstract

Around the globe, the COVID-19 pandemic has turned daily life upside down since social distancing is probably the most effective means of containing the virus until herd immunity is reached. Social norms have been shown to be an important determinant of social distancing behaviors. By conducting two experiments and using the priming method to manipulate social isolation recollections, we study whether social distancing has in turn affected norms of prosociality and norm compliance. The normative expectations of what behaviors others would approve or disapprove in our experimental setting did not change. Looking at actual behavior, however, we find that persistent social distancing indeed caused a decline in prosociality – even after the relaxation of social distancing rules and in times of optimism. At the same time, our results contain some good news since subjects seem still to care for norms and become more prosocial once again after we draw their attention to the empirical norm of how others have previously behaved in a similar situation.

Keywords: COVID-19, human behavior, norm compliance, post-COVID, priming, prosociality, social expectations

JEL classification: C91, D64, D91, H12

1. Introduction

Around the globe, the Covid-19 pandemic has turned daily life upside down. Besides comprehensive hygiene rules and widespread testing, social distancing is probably the most effective means of containing the spread of the virus as long as there is no herd immunity. Fang et al. (2020), for example, calculated that without the Wuhan lockdown, Covid-19 cases would have been 105.27% higher in the Chinese cities outside Hubei province. Given that a holistic monitoring and an aggressive enforcement of the far-reaching social distancing rules is hardly feasible in the wide and over a long period of time, voluntary compliance with the rules plays a crucial role in the success of the fight against the virus. This voluntary compliance resembles a classical collective action problem for which the development of social norms increase the probability of individuals solving these problems (Ostrom, 2000). Using a sample of almost 90k individuals from 39 countries, Ludeke et al. (2021) show that local social norms are indeed an important determinant of social distancing behaviors. Similarly, Durante et al. (2021) find that in areas with higher civic capital defined as “those persistent and shared beliefs and values that help a group overcome the free-rider problem in the pursuit of socially valuable activities” mobility declined both before and after a mandatory national lockdown in Italy (see also Barrios et al., 2021, for the impact of civic capital in both the US and European regions). Bartscher et al. (2020) define “the willingness to act collectively and pursue socially valuable activities” as social capital and also find a decline in mobility in high-social-capital areas in Italy and fewer Covid-19 cases by exploiting within-country variation of seven European countries. For the US, Gollwitzer et al. (2020) show that partisanship was more strongly associated with physical distancing than with the number of Covid-19 cases, population density, median income, or racial and age demographics.

The question, however, whether social distancing might in turn affect norms and norm compliance has not been addressed yet. Especially other-regarding behavior—which is one fundamental feature of well-functioning societies—is often conditional. In that case, one’s own behavior is either influenced by expectations about how others act in similar situations (empirical expectations) or by expectations about what behaviors others would approve or disapprove (normative expectations). Brañas-Garza et al. (2021) show that donations to a charity within an online experiment decreased with exposure to the Covid-19 pandemic. Among others, they suggest that one of the mechanisms behind this result is the role of expectations about others’ behavior. The purpose of our study is to explore whether social distancing might have affected norms of prosociality or norm compliance and, therewith, contributed to such a decline in generosity. Experimental evidence on economic behaviors from Wuhan (Shachat et al., 2020) indicate that social distancing could indeed play a role since the authors find lower levels of trust and cooperation for those subjects quarantined in Wuhan during the lockdown. Similarly, Bland et al. (forthcoming) find that social contact with friends and family predicts the offers proposed in an ultimatum game.

Even though norms usually take time to develop and individuals’ reference networks (i.e. the people whom we care about when making particular decisions) need not physically be present (Bicchieri, 2016), these networks might change due to social distancing and, hence, also normative expectations. Even if the norm of prosociality is not affected itself, norm compliance might be. It has been shown that individuals seek social cues that justify not to comply with the norm. For example, there is an asymmetric response to information about others’ behavior, observed norm violations have much larger effects on individuals’ willingness to comply with the norm than observed norm compliance (Bicchieri et al. 2020, Dimant 2019). With known

social proximity in terms of group identification, however, individuals also conform to observed norm compliance. This finding is in line with Christensen et al. (2004) who argue that positive emotions underlie conformity with social norms, since norm compliance is associated with more positive emotions the greater identification with a group is. If persistent social distancing weakens social ties and, therewith, individuals' perceived identification, norm compliance is likely to decrease not only because of less positive emotions derived from norm compliance but also because it might be easier to find a moral excuse for non-compliance. In the worst case, social isolation might lead to people simply no longer being interested in the norms of society since they have other issues to handle. Brodeur et al. (2021), for example, suggest that people's mental health may have been severely affected by the pandemic and lockdown. Especially young people, who seem to have a stronger need for social interactions, prove to be the most vulnerable to social despair (Abbott, 2021).

In our paper, we present the results from two experiments —conducted with a standard student subject pool at a German university— which are based on a Take-or-Give (ToG) game similar to Bicchieri et al. (2020). In this game, subjects are matched with a charitable organization and both the charity and the subject receive an endowment of 5 EUR. Subjects act as decision-makers and can either retain the initial allocation, take money from or give money to the charity. Whereas in the first experiment we elicit the normative expectations how one should behave in this game as proposed by Krupka and Weber (2013), we observe actual behavior in the second experiment. To test the causal impact of social distancing on the norm of pro-social behavior and norm compliance, we use the priming method to manipulate social isolation recollections. Both experiments consisted of three parts. Primed subjects started with answering questions on their social distancing behavior during the last six months of lockdown (November 2020 to April 2021). Similar to Callen et al. (2014), we additionally asked them to recall and describe a typical day or a typical situation in which they felt socially isolated. Given that we did not expect the priming to matter for subjects who did not feel isolated due to the social distancing rules, we included one targeted question in this priming part. In the second part, subjects had to judge the social appropriateness of the different behaviors in the ToG game (experiment 1) or played the ToG game (experiment 2). Afterwards, subjects had to answer questions on socio-demographics and personality traits. The latter and the priming part were designed to last about the same time so that we could simply swap the two parts to create a control and a priming group.

Our results show that the normative expectations of appropriate behaviors did not change due to social distancing. When looking at norm compliance (i.e. actual behavior), we do not find a statistically significant effect for the full sample. About one fourth of our participants, however, has not felt isolated due to the social distancing rules. When excluding these subjects, we do find a statistically ($p = 0.045$, $n = 92$) and economically significant negative impact on donations. Subjects primed on their isolation experiences took on average 1.81 EUR from the charity whereas non-primed subjects took only 0.31 EUR. To explore whether subjects still care for norms, we additionally conducted two information treatments —combined with priming— in which we draw their attention to either the empirical or the normative expectation based on the findings by Bicchieri et al. (2020). The average amount taken declined to 0.71 EUR for the normative and 0.66 EUR for the empirical expectations but only for the latter treatment, the effect is statistically significant.

We conducted our experiment at the end of May in an area in which the “nationwide emergency brake” (Bundesnotbremse)¹ was already suspended on May 9th, with rapidly declining incidence rates afterwards and opening of shops, restaurants and first cultural activities. Hence, our findings show that persistent social distancing indeed causes a decline in prosociality even after the relaxation of social distancing rules and in times of optimism. At the same time, our results also contain good news since subjects seem still to care for norms and become more prosocial once again after we draw their attention especially to the empirical norm.

2. Experimental Design

2.1. Experiment 1 – Norm Elicitation

In the first experiment, we asked our participants to read the instructions of a hypothetical Take-or-Give (ToG) donation game similar to Dimant (2019) and Bicchieri et al. (2020). Both an active player (person A) and a passive charitable organization² receive an endowment of 5 EUR by the experimenter. As the active decision maker, person A can overrule the equal split and take any desired amount from or give any desired amount to the charity, while restricting the choice set to integer values between -5 and +5. In order to elicit the normative expectations regarding the social appropriateness of taking from or giving money to the charity, we followed the experimental procedure introduced by Krupka and Weber (2013). After being familiarized with the ToG game, participants had to rate all 11 possible allocation options available to person A, using a four-point scale (very socially inappropriate, somewhat socially inappropriate, somewhat socially appropriate, very socially appropriate). We clarified that “social appropriateness” should be understood as a behavior that most people would agree to be the “correct” thing to do in a given situation.

We designed this first experiment as an online survey experiment so that participation was possible anytime during the 12 days when the survey was live, potential participants received their invitation via a subject unique survey link. The 275 participants spent on average slightly less than nine minutes for answering the whole survey. For their participation itself, they did not receive any payment. To reveal participants’ true normative expectations, however, we incentivized their responses in the norm elicitation part by randomly choosing one allocation option as being payoff relevant after the experiment was completed. From all participants whose assessment corresponded to the modal response for the selected allocation option, we randomly picked 10 participants who received 50 EUR. The payoff procedure was thoroughly explained before ratings took place.³

In order to causally assess whether experiencing persistent social isolation affects normative expectations, we used the priming technique (for an overview about priming in economics, see Cohn and Maréchal, 2016) to recollect subjects’ experiences gained during the second and third wave of the Covid-19 pandemic in Germany. First, we implemented five questions to derive an index capturing individuals’ willingness to adhere to social distancing rules as proposed Pedersen and Favero (2020) —plus a few other Covid-19 related questions. On the next screen, we pointed participants to a recently published study by Cliar et al. (2021), showing that especially young adults suffered from social isolation during the pandemic. Subsequently, we

¹ For details, see: <https://www.bundesregierung.de/breg-en/news/nationwide-emergency-brake-1889136>.

² We opted for a popular German charity named „Brot für die Welt” (“Bread for the world”). Participants received a short summary of the charity’s goal in order to make the prosocial mission of “Brot für die Welt” salient.

³ All instructions (translated from German) are provided in the Appendix A.2.

asked them to state how often they felt socially isolated (barely, sometimes, very often). Besides being part of the priming manipulation, the answer to this question plays an important role when analyzing our data since individuals who did not feel isolated should also be less sensitive (or even not sensitive at all) to the priming manipulation. In order to make own isolation experiences as salient as possible, we further posed two open questions in which subjects had the chance to describe a typical day or situation in which they felt particularly isolated (similar to Callen et al., 2014) and to name the social activity they missed the most.

In our *Prime* condition, participants answered the just described questions first, followed by the norm elicitation task. In a third part, we then posed questions on socio-demographic information, inclination towards reciprocal behavior (Perugini et al., 2003) and personality traits using the reduced form of the Big Five personality framework (Costa & McCrae, 1989). In contrast, participants in the *NoPrime* condition had to answer the socio-demographic and personality traits questions first, and the Covid-19 related “priming questions” last. Even though we were not particularly interested in the personality traits, for example, we added these questions to ensure that the two parts, which we exchanged in order to create a control and a treatment group, lasted about the same time (i.e. about three minutes each). Random treatment assignment was ensured by the software “SoSci Survey” (Leiner, 2019) at the individual level.

2.2. Experiment 2 – Norm Compliance

In the second experiment, participants actually played the ToG donation game and made a payoff-relevant allocation decision between themselves and the passive charity. Contrary to the first experiment, the second one was not designed as a survey experiment. The 254 participants registered for one of the 19 online sessions that took place on 8 days during the last two weeks of May 2021. We needed the session structure since, similar to Bicchieri et al. (2020) and Dimant (2019), we opted for a “pay-one” approach (Charness et al., 2016) to reduce concerns about peer interdependencies in the decision making process. It was clearly stated that at the end of each experimental session, the allocation decision of only one randomly chosen subject would be executed while all other subjects would instead receive a fixed payment of 5 EUR. Four comprehension questions ensured a thorough understanding of both the ToG allocation and payment procedure.⁴

The construction of both the treatment and control group was identical to the one described in experiment 1 —using the same Covid-19 related questions to prime subjects to recollect experiences of social isolation. In addition to the *Prime* and *NoPrime* condition, we introduced two additional information treatments to investigate the effect of norm reminders, explicitly manipulating either the empirical or the normative expectations, on subsequent norm compliance under priming. We utilize the findings derived by Bicchieri et al. (2020) to provide participants with explicit information on how other student subjects behaved or judged behavior in a very similar ToG donation game setting.⁵ The given information before making the final decision reads as follows:

⁴ All participants were informed about the possibility to receive a copy of the donation receipt documenting all payments made to “Brot für die Welt”.

⁵ In the beginning of the experiment, we declared that all information shared within the study is true and could be verified by each participant upon request.

PrimeNormative condition: “Participants in a recently published study stated in a very similar situation that it would be socially appropriate to keep the initial allocation or to share parts or the entire personal endowment with the charity organization.”

PrimeEmpirical condition: “The majority of participants in a recently published study - facing a very similar situation - decided to keep the initial allocation or to share parts or the entire personal endowment with the charity organization.”

We implemented both the *PrimeNormative* and the *PrimeEmpirical* conditions since we had no clear prediction on which of the two is more likely to affect participants’ behavior given the ambiguity in previous findings. Even though most studies pronounce the effectiveness of empirical expectations, some studies find no effect for empirical but for normative expectations only (see, e.g. Raihani and McAuliffe, 2014) or that both are considered to be a strong mechanism of social influence (e.g. Minguez and Sese, forthcoming).

The experiment was implemented using the computer program Otree (Chen et al., 2016). Participants earned on average 11.30 EUR (including a 3 EUR show-up fee) and each experimental session lasted approximately 23 min.⁶ Both experiments were conducted in May 2021 with subjects from the Magdeburg Experimental Laboratory of Economic Research (MaxLab) located at University of Magdeburg, using “hroot” (Bock et al., 2014) for subject recruitment. We ensured that subjects participated in only one of the two experiments. Payments were realized either by bank transfer or personal collection at the MaxLab (less than 5% opted for this option).

3. Results

3.1. Norm Elicitation

Following the previous studies that use the Krupka-Weber method, we assign evenly-spaced numeric values from -1 to +1 to the four appropriateness ratings with +1 as “very socially appropriate”. Separated by treatment group, Figure 1 shows the average value for each possible action in the ToG game. Taking money from the charity is seen as socially inappropriate (negative ratings) but less inappropriate for smaller amounts taken. Keeping the equal split and giving money to the charity are seen as socially appropriate (positive ratings) with giving all the allocated money to the charity as the most socially appropriate behavior. These results are in line with findings from previous studies such as Bicchieri et al. (2020).

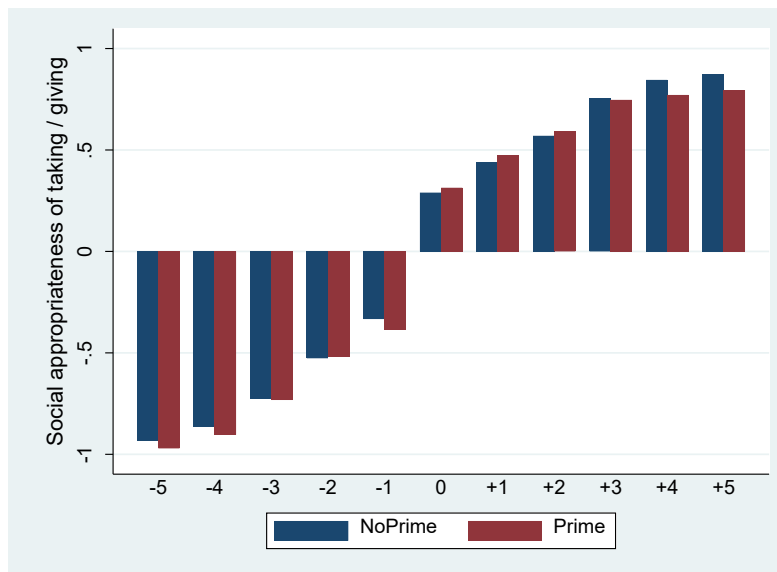
When comparing the average ratings of the *NoPrime* with the *Prime* treatment, we only observe minor differences. Taking multiple hypothesis testing into account and adjusting p -values as proposed by List et al. (2019), we do not find any statistically significant differences (all p -values > 0.6).⁷ The same is true for the reduced sample without subjects who are rather unlikely to respond to our priming intervention, i.e. the ones who did not feel isolated during the lockdown —roughly one fifth of our sample (for detailed descriptive statistics, see Appendix A.1.1). We also controlled for the observable characteristics that we collected during this short experiment in an ordered probit regression model but again, there is no significant effect of the

⁶ After completing the above-described choice experiment, participants were able to earn an additional fixed payment for answering a short survey, covering an unrelated topic.

⁷ Calculating p -values with the Wilcoxon rank-sum test and applying e.g. the Bonferroni or the Benjamini-Hochberg procedure results in the same conclusion.

Prime treatment when correcting for multiple hypothesis testing. Following Kryowski and Tremewan (2021) —who analyzed whether different norms or less norm compliance can explain why anonymous environments make us misbehave—, we replicated our analyses by gender since they find limited evidence of differences in norms across all subjects but at least some effect for females (i.e. unfair decisions are perceived as less appropriate under anonymity). Indeed, we observe a similar pattern. The average ratings for taking money from the charity are somewhat lower (i.e. it is seen less appropriate) for female participants in the *Prime* condition across all options but taking multiple hypothesis testing into account, we find a statistically significant difference only for the option to take 1 EUR (average rating of -0.209 in *NoPrime* vs. -0.467 in *Prime*, with $p = 0.045$, Cohen’s $d = 0.529$).

Figure 1: The Social Appropriateness of Possible Behaviors in the ToG Game



To summarize, if at all, taking money from the charity is seen as less appropriate after recollecting social distancing experiences, but the statistical evidence is sparse. Across all subjects, we do not observe a causal impact of social distancing on normative expectations about what behaviors others would approve or disapprove in this experimental setting.

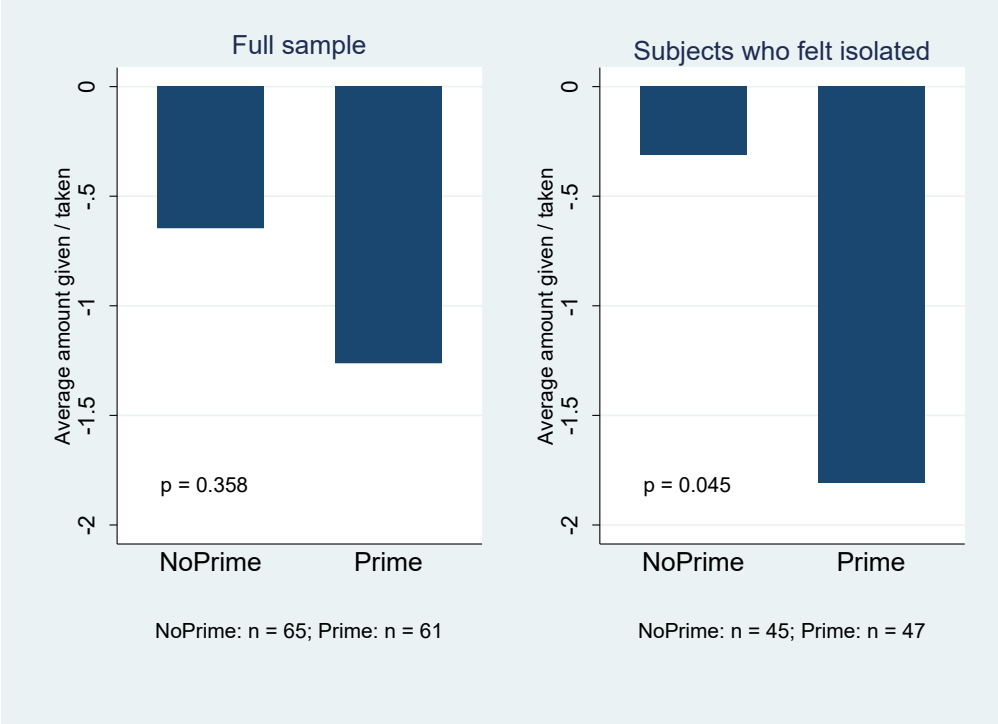
3.2. Norm Compliance

After showing that normative expectations have not been affected by social distancing, we now turn to subjects’ actual behavior in the ToG game. Even though the norm elicitation experiment clearly showed that taking money from the charity is seen as socially inappropriate, 47.64% of our subjects did so with an average amount taken of 3.81 EUR. Hence, almost half of our subjects actively engaged in violating the norm.

Figure 2 shows whether social distancing affected norm compliance by showing the average donations for our main treatment groups, *NoPrime* and *Prime*. For the full sample in the left panel, we observe no statistically significant effect but the averages already indicate that norm compliance might diminish even further due to social distancing. Given that recalling social isolation is likely to work only for those who indeed felt isolated —which is not true for about one fourth of our participants (see Appendix A.1.2)— we show the results for this reduced

sample in the right panel. The average amount taken increases from 0.31 EUR in the *NoPrime* to 1.81 EUR in the *Prime* treatment group. This difference is not only statistically significant but it is also a medium effect size in terms of Cohen’s d ($d = 0.448$).

Figure 2: The Impact of Social Distancing on Norm Compliance



Note: p -values are obtained from Wilcoxon rank-sum tests.

Next, we check the robustness of our reduced sample results using regression analyses that are shown in Table 1. These clearly reveal the robust nature of our treatment effect across all OLS specifications, as well as the Tobit model to control for the censored choice set of decision makers, as suggested by Engel (2011). Besides the robustness of our main treatment effect, our regression analyses reveal a rather large gender effect (the average donation of women is about 2 EUR higher) and a higher average donation of participants who declared to have followed the social distancing rules more strictly.⁸ Following Kimbrough and Vostroknutov (2016), one might conclude that individuals who care much about a norm in one setting (i.e. following the social distancing rules) also care more about the norm in another setting (i.e. not taking money from the charity), even without norm reminders. This also fits to recent findings by Müller and Rau (2021) showing that pre-crisis social responsible behavior is positively related with compliance to social distancing.

⁸ Given the limited sample size, we applied a median-split for this analysis. This median-split results in an average social distancing index of 3.927 and 7.290 (out of a maximum of 10) for individuals who adhere less or more strictly to the social distancing rules during the lockdown.

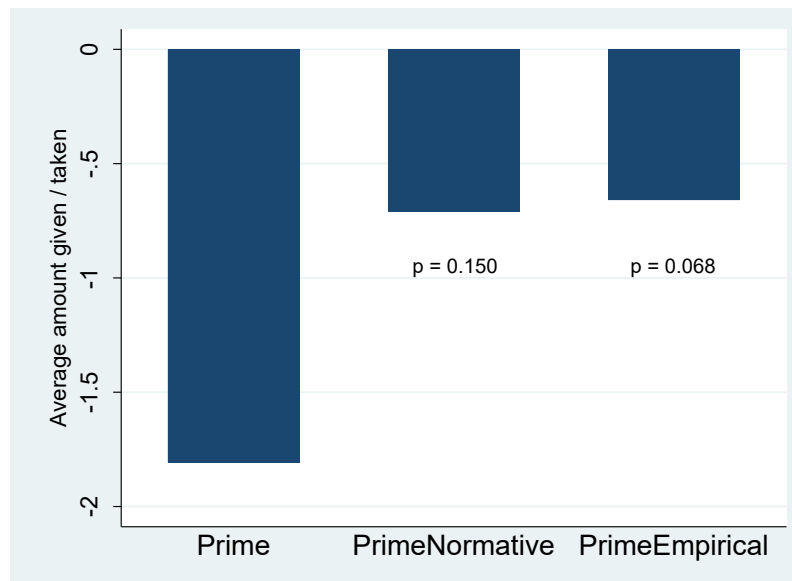
Table 1: Main Regression Results

	(1)	(2)	(3)	(4)
	OLS	OLS	OLS	Tobit
<i>Prime</i>	-1.497** (0.536)	-1.600** (0.604)	-1.393** (0.598)	-1.394*** (0.482)
Female		1.823** (0.582)	2.093*** (0.472)	2.293*** (0.499)
Age		-0.030 (0.089)	-0.060 (0.069)	-0.044 (0.064)
Adherence to social distancing rules (0/1)		1.593** (0.607)	1.526** (0.599)	1.317** (0.560)
More satisfied with life (0/1)		0.436 (0.902)	1.070 (0.814)	1.220 (0.760)
Having a job		-0.993* (0.492)	-1.240 (0.759)	-1.100 (0.773)
Economics student		-0.914 (0.687)	-0.346 (0.545)	-0.334 (0.550)
Constant	-0.311 (0.254)	-0.525 (2.589)	-2.590 (3.789)	
Big Five	No	No	Yes	Yes
<i>N</i>	92	92	92	92
Adjusted <i>R</i> ²	0.038	0.199	0.259	

Notes: Individuals who did *not* feel isolated due to the social distancing rules have been excluded. “Adherence to social distancing rules” and “More satisfied with life” are dummy variables created based on a median split. Average marginal effects are shown for the Tobit model. Robust standard errors clustered on the session level in parentheses, * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

The impact of norm reminders for subjects who felt isolated during the lockdown is shown in Figure 3 —the results for the full sample are, as before, statistically insignificant. The average amount taken from the charity declines to 0.71 EUR for the normative and to 0.66 EUR for the empirical expectations manipulation. Whereas these values are very close to each other, there is more variation in individuals’ choices in the *PrimeNormative* condition (std = 3.643 vs. 2.987 in *PrimeEmpirical*) so that we do not observe a statistically significant treatment effect here, neither using the Wilcoxon rank-sum test nor by conducting regression analyses that are presented in Table 2. Hence, subjects seem on average to care a little more for empirical than normative expectations and highlighting that the majority of individuals comply with the norm of not taking money from the charity makes primed subjects to behave similar to subjects who have not been primed on their social distancing experiences. The regression analyses (see Table 2) confirm the robustness of this finding. Taking into account the censored choice set of decision makers by using the Tobit mode, the treatment effect of the *PrimeEmpirical* condition is even significant at the 1% level.

Figure 3: Sensitivity to Social Expectations



Notes: Reduced sample of subjects who felt isolated. NoPrime: $n = 47$; PrimeNormative: $n = 52$; PrimeEmpirical: $n = 47$.

As regards the remaining controls, we again find a robust and economically significant gender effect, but the positive effect of participants who declared to have followed the social distancing rules more strictly has vanished. This finding, however, confirms that even if individuals are less sensitive to a norm (i.e. do not care much about the norm itself), salient social expectations make them to comply with the norm (Bicchieri, 2016) and, as a result, we do not observe a difference any longer between individuals who seem to be more or less sensitive to social norms in more general. Finally, we find that economics students behave more selfishly, a rather common finding in experiments that involve monetary allocation decisions. Gerlach (2017) suggests that economists make lower offers because they expect others not to comply with the shared fairness norm, and our data confirms this suggestion. Whereas the average amount taken by economists is 2.44 EUR and 2.10 EUR in the *Prime* and the *PrimeNormative* condition, respectively, it declines to 0.50 EUR in the *PrimeEmpirical* condition. When including interaction terms to our regression analysis, as shown in specification (5) in Table 2, it confirms that economics students do not care at all for normative expectations —the point estimate for *PrimeNormative* is equal in size as the interaction term of being an economics student in the *PrimeNormative* condition but with reversed signs— whereas empirical expectations seem to be even more important for them compared to the remaining sample (i.e. positive but insignificant point estimate of the interaction term). Admittedly, our sample size is not sufficiently big for such subsample analyses and, hence, the results have to be taken with care. However, this latter analysis indicates that not only the empirical expectations ($p = 0.064$) but also the normative expectations ($p = 0.087$) can help to overcome the negative effects of social distancing, at least for certain individuals.

Table 2: Sensitivity to Social Expectations — Robustness Checks

	(1)	(2)	(3)	(4)	(5)
	OLS	OLS	OLS	Tobit	Tobit
<i>PrimeNormative</i>	1.097 (0.672)	1.089 (0.634)	1.056 (0.744)	1.200 (0.737)	1.105* (0.645)
<i>PrimeEmpirical</i>	1.149* (0.558)	1.003* (0.560)	1.033** (0.456)	1.146*** (0.390)	0.785* (0.423)
Female		2.389*** (0.769)	3.050*** (0.602)	3.155*** (0.602)	2.581*** (0.480)
Age		0.016 (0.050)	0.019 (0.056)	0.049 (0.054)	0.167 (0.046)
Adherence to social distancing rules (0/1)		0.575 (0.495)	0.408 (0.517)	0.244 (0.497)	0.373 (0.423)
More satisfied with life (0/1)		0.0903 (0.522)	-0.184 (0.524)	-0.396 (0.494)	-0.175 (0.419)
Having a job		0.0572 (0.592)	-0.129 (0.555)	-0.130 (0.516)	-0.080 (0.447)
Economics student		-1.118** (0.469)	-1.161** (0.539)	-1.061** (0.516)	-0.759 (0.555)
Econ x <i>PrimeNormative</i>					-1.036 (0.721)
Econ x <i>PrimeEmpirical</i>					0.313 (0.649)
Constant	-1.809*** (0.401)	-3.650** (1.517)	-0.608 (3.367)		
Big Five	No	No	Yes	Yes	Yes
<i>N</i>	146	146	146	146	146
Adjusted <i>R</i> ²	0.012	0.115	0.136		

Notes: Individuals who did *not* feel isolated due to the social distancing rules have been excluded. “Adherence to social distancing rules” and “More satisfied with life” are dummy variables created based on a median split. Average marginal effects are shown for the Tobit model. Robust standard errors clustered on the session level in parentheses, * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

4. Conclusion

Social norms are an important driver of individual behavior in many areas, whether at work, in solving collective action problems, or in everyday decisions such as whether to behave prosocial. The question therefore arises whether the massive changes in our everyday lives, caused by the Covid-19 pandemic and its imposed social distancing rules, had an impact on how we collectively perceive and follow shared norms. By conducting two experiments we investigate the effects of persistent social isolation on normative expectations and norm compliance in the context of other-regarding behavior. Whereas the normative assessments of the behavioral options in a Take-or-Give donation game are basically unaffected, we find that norm compliance decreases substantially among those subjects who stated to have suffered from isolation after being primed to reflect on these particular memories.

Our paper contributes to the ongoing discussion about the societal and economic damages caused by the Covid-19 pandemic. On the one hand, our findings are alarming as they show a clear negative shift in the willingness to adhere to the norms we share as a society. Even though we cannot analyze any long-run behavioral effects with our experiment, it is unlikely that everything will be forgotten in the moment the pandemic will be declared over. The reason is that we conducted our experiment at a time and in an area in which the “nationwide emergency brake” (Bundesnotbremse) was already suspended —leading to the abolishment of the night-time curfew any longer, the permit for various outdoor activities became allowed (e.g. sports and cultural activities up to 25 or 100 participants, respectively, or opening of swimming pools and campsites) and the re-opening of restaurants and shops. Hence, we observed a decline in prosociality even after the relaxation of social distancing rules and in times of optimism, suggesting rather long-lasting behavior distortions within affected groups. For possible future waves of infection, these findings should be taken into account —especially since models show that a strategic (i.e. with repeated contacts) reduction of interaction by only 50% decreases the number of infections sizeably (Block et al., 2020).

On the other hand, our analysis can also be read in a more optimistic way. First, even severe social isolation of about six months seems to be incapable of substantially changing the basic norms we uphold. Second, we reveal that simple (especially empirical) norm reminders can in turn increase prosocial behavior. We therewith not only show that people still care for the norms of their society but also offer a potential path to overcome some of the detrimental effects caused by the Covid-19 pandemic. Hence, our study may help to underline the value of putting exemplary behavior (e.g. voluntary work) into the societal spotlight, as it can serve as a powerful instrument to buffer the less obvious behavioral damages caused by social distancing in times of crisis. Such a measure, however, might only work as long as the erosion of norm compliance is not yet broadly visible since observed norm violations have much larger effects on individuals’ willingness to comply with a norm than observed norm compliance (Bicchieri et al. 2020, Dimant 2019).

Even though our paper primarily helps to understand changes in human behavior caused by the pandemic, our results call for further research in a world that becomes more digitalized every day. Our student subject pool was certainly able to stay in touch with their family and friends via video telephony, social media and alike. Still, they perceived to be socially isolated. Even though the lockdown was an extreme situation, the use of social media has surely replaced one or the other in-person interaction already before the pandemic, as daily time spent on social networking has increased from 90 minutes in 2012 to 145 minutes in 2019.⁹ If working from home is likely to stay after the pandemic —the software company SAP even announced to give its employees complete freedom in the choice where to work¹⁰—, in-person interactions will decline even further. Hence, our findings point to an important aspect to consider when discussing the pros and cons of remote working. In addition to potential productivity losses or the disruption of workers’ work-life balance, future research should be interested in asking how much in-person interaction might be necessary to prevent the impending behavioral damages caused by (perceived) social isolation.

⁹ <https://www.statista.com/statistics/433871/daily-social-media-usage-worldwide/>.

¹⁰ <https://www.dw.com/en/working-from-home-a-new-status-symbol/a-57797924>.

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Appendix

A.1. Descriptive Statistics

A.1.1. Norm Elicitation

	NoPrime	Prime	p-value
Female	0.500	0.504	0.952
Age	25.297	25.182	0.748
Adherence to social distancing rules	5.629	5.826	0.412
Feeling isolated due to distancing	0.797	0.832	0.455
Current life satisfaction	7.130	6.708	0.112
Having a job	0.587	0.701	0.049
Economics student	0.217	0.095	0.005
Conscientiousness	5.031	5.083	0.323
Agreeableness	5.331	5.411	0.234
Openness	5.000	4.842	0.394
Extraversion	4.529	4.805	0.138
Neuroticism	4.290	4.304	0.685
<i>N</i>	138	137	

A.1.2. Take-or-Give Game

	NoPrime	Prime	Prime Normative	Prime Empirical	p-value
Female	0.508	0.508	0.578	0.516	0.828
Age	25.323	25.590	25.516	25.313	0.603
Adherence to social distancing rules	5.357	5.495	5.325	5.991	0.169
Feeling isolated due to distancing	0.692	0.770	0.813	0.734	0.437
Current life satisfaction	6.877	5.705	5.984	6.266	0.012
Having a job	0.508	0.672	0.672	0.516	0.080
Economics student	0.277	0.230	0.188	0.234	0.694
Conscientiousness	5.256	5.448	5.078	4.953	0.086
Agreeableness	5.195	5.322	5.203	5.411	0.446
Openness	5.072	4.913	4.865	4.594	0.170
Extraversion	4.836	4.672	4.766	4.469	0.556
Neuroticism	4.164	4.322	4.464	4.453	0.605
<i>N</i>	65	61	64	64	

Note: p-values obtained from Kruskal-Wallis equality-of-populations rank tests and Chi² tests, respectively.

A.2. Instructions *(translated from German)*

A.2.1. Priming & General Questionnaire *(identical for both experiments)*

Priming (Part I in *Prime* condition or Part III in *NoPrime*, respectively)

We want to ask you some questions regarding a topic that currently concerns all of us: the Covid-19 pandemic and its imposed social distancing measures.

Please think about the last five months starting with the beginning of the current lockdown and indicate with the help of the provided scale ranging from 0 to 10 (0 = “strongly disagree” to 10 = “strongly agree”) to what extent you agree with the following statements (*following Pedersen & Favero, 2020*):

- I met with friends or relatives who live outside my own household.
- I made the fewest possible trips to the grocery store.
- I was at places where other people were as well (café, restaurant, specialty shops, church, etc.).
- I avoided all social gatherings and adhered to the ‘social distancing’ rules.
- I strongly encouraged others to avoid all social contact and to adhere to the ‘social distancing’ rules.

How is your current living situation?

(alone; shared apartment; with family / partner; different living situation)

Do you have a part-time job with social contacts?

(no part-time job; remote part-time job; part-time job with direct social contact)

[On the next screen]

A recently published study showed that due to social distancing measures especially young adults felt isolated and experienced negative effects on their psychological well-being. (*Study: Clair, Gordon, Kroon und Reilly in Humanities and Social Sciences Communications, 2021*)

Hence, we now would like to know how *you* feel due to the imposed social distancing measures.

- How often have you felt socially isolated? *(rarely; sometimes; very often)*

Please use the provided scale ranging from 0 to 10 (0 = “strongly disagree” to 10 = “strongly agree”) to indicate to what extent you agree with the following statement:

- Due to growing feeling of being socially isolated, I started to adhere less to social distancing measurements than in the beginning of the lockdown.

Please use the provided scale ranging from 0 to 10 (0 = “not satisfied at all” to 10 = “completely satisfied”) to answer the following question:

- How satisfied are you at present, all in all, with your life?

Please describe a situation (or a typical day) in which you felt (or feel) particularly socially isolated: _____

Which social activity do you miss the most: _____

General Questionnaire (Part III in *Prime* condition or Part I in *NoPrime*, respectively)

Please answer the following questions.

- Please indicate your age.
- Please indicate your gender.
- Which university do you belong to?
- Which faculty do you belong to?
- What degree are you striving for?

Reciprocal inclination (*6 items, following Perugini et al., 2003*)

Big five personality traits (*15 items, following Costa & McCrae, 1989*)

A.2.2. Norm Elicitation (*Part II in experiment 1*)

In the following, you will receive the instruction to an experiment, which has been run multiple times in a similar way. Please read the description of the experiment carefully. You will be asked to evaluate all possible choices in regard to their “social appropriateness”. By social appropriate we mean behavior that most people agree is the “correct” or “ethical” thing to do.

The evaluation can be conducted on a scale ranging from “very socially inappropriate” to “very socially appropriate”. You have the possibility to vary your evaluation between these two extremes.

Based on your answers and on the answers provided by all other survey participants, your payoff will be determined. In the end of the experiment, we will select one of the choice options randomly. For this selected choice, we will calculate the most selected answer (mode). If your answer corresponds to the calculated mode value, you will qualify for the 50 € payment. Among all qualified participants, we will randomly draw 10 individuals who receive 50 €.

On the following page of will find the description of the experiment and all the possible options you need to evaluate.

Important: You are asked to assess how the majority of people evaluates the different choices. The better your estimates are, the higher are your chances of winning 50 €.

[On the next screen]

In the experiment, a participant (“person A”) is being matched with the charity organization “Brot für die Welt”. Person A and “Brot für die Welt” both receive 5 € from the experimenter.

“Brot für die Welt” supports more than 1500 projects in Africa, Asia, Latin America and Eastern Europe. The charity’s goal is to ensure food security, the promotion of education and health, the strengthening of democracy, the respect for human rights, and the promotion of equality between men and women.”

The decision regarding the final allocation of the money (10 €) falls to person A. Therefore, person A determines her own personal payoff and the donation size “Brot für die Welt” receives:

- Person A can take parts or the entire endowment (5 €) allocated to “Brot für die Welt”.
- Person can keep the equal allocation between both parties.
- Person A can give parts or her entire endowment (5 €) to “Brot für die Welt”.

Please assess all possible options person A is facing.

Please indicate for each option whether the choice is being assessed as “very socially inappropriate”, “somewhat socially inappropriate”, “somewhat socially appropriate”, or “very socially appropriate” by the majority of people.

	sehr sozial unangemessen	eher sozial unangemessen	eher sozial angemessen	sehr sozial angemessen
Person A nimmt 5 € von „Brot für die Welt“ (Person A erhält 10€ / „Brot für die Welt“ erhält 0€)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Person A nimmt 4 € von „Brot für die Welt“ (Person A erhält 9€ / „Brot für die Welt“ erhält 1€)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Person A nimmt 3 € von „Brot für die Welt“ (Person A erhält 8€ / „Brot für die Welt“ erhält 2€)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Person A nimmt 2 € von „Brot für die Welt“ (Person A erhält 7€ / „Brot für die Welt“ erhält 3€)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Person A nimmt 1 € von „Brot für die Welt“ (Person A erhält 6€ / „Brot für die Welt“ erhält 4€)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Person A nimmt / gibt 0 € von / an „Brot für die Welt“ (Person A erhält 5€ / „Brot für die Welt“ erhält 5€)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Person A gibt 1 € an „Brot für die Welt“ (Person A erhält 4€ / „Brot für die Welt“ erhält 6€)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Person A gibt 2 € an „Brot für die Welt“ (Person A erhält 3€ / „Brot für die Welt“ erhält 7€)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Person A gibt 3 € an „Brot für die Welt“ (Person A erhält 2€ / „Brot für die Welt“ erhält 8€)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Person A gibt 4 € an „Brot für die Welt“ (Person A erhält 1€ / „Brot für die Welt“ erhält 9€)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Person A gibt 5 € an „Brot für die Welt“ (Person A erhält 0€ / „Brot für die Welt“ erhält 10€)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

A.2.3. Take-or-Give Game (Part II in experiment 2)

In part B of the experiment, you are asked to make an active decision which determines your final payoff.

In this part, you are the active decision maker and you have been matched with the passive receiver —the charity organization “Brot für die Welt”.

“Brot für die Welt” supports more than 1500 projects in Africa, Asia, Latin America and Eastern Europe. The charity’s goal is to ensure food security, the promotion of education and health, the strengthening of democracy, the respect for human rights, and the promotion of equality between men and women.”

You and “Brot für die Welt” both receive 5 €.

This means that 5 € will be added to your final payoff while "Brot für die Welt" receives a 5 € donation made by the MaxLab after the finalization of the experiment.

(The donation receipt will be send to you upon request. Please turn to the MaxLab if you want to receive the final receipt!)

You have the chance to change the initial allocation of the sum of 10 € to your desire.

[On the next screen]

Important payoff information:

We will randomly select one participant from today’s session, whose allocation decision will be executed! All other participants receive a fixed endowment of 5 € instead. For the non-selected individuals, no donations will be made.

- You can take parts or the entire endowment (5 €) allocated to “Brot für die Welt”.
- You can keep the equal allocation of money.
- You can give parts or the entire endowment (5 €) allocated to you to “Brot für die Welt”.

Before making your final allocation decision, please answer the following comprehension questions:

- Imagine you decide to give 4 € to "Brot für die Welt". What would be your final payoff and the donation made to "Brot für die Welt", if the computer picks you at the end of the experiment?
- Imagine you decide to take 4 € from "Brot für die Welt". What would be your final payoff and the donation made to "Brot für die Welt", if the computer picks you at the end of the experiment?
- Imagine you decide to give 2 € to "Brot für die Welt". What would be your final payoff and the donation made to "Brot für die Welt", if the computer doesn’t pick you at the end of the experiment?
- Imagine you decide to keep the equal allocation between you and "Brot für die Welt". What would be your final payoff and the donation made to "Brot für die Welt", if the computer picks you at the end of the experiment?

[On the next screen]

Now it is your turn. Please decide how you want to allocate the money (10 €) between you and “Brot für die Welt”.

[Additionally for PrimeNormative: Participants in a recently published study stated in a very similar situation that it would be socially appropriate to keep the initial allocation or to share parts or the entire personal endowment with the charity organization.]

[Additionally for PrimeEmpirical: The majority of participants in a recently published study, facing a very similar situation, decided to keep the initial allocation or to share parts or the entire personal endowment with the charity organization.]

Please make your choice now:

Handlungsoption	Auszahlung
Ich nehme 5 € von Brot für die Welt	<input type="radio"/> Sie erhalten 10 € Brot für die Welt erhält 0 €
Ich nehme 4 € von Brot für die Welt	<input type="radio"/> Sie erhalten 9 € Brot für die Welt erhält 1 €
Ich nehme 3 € von Brot für die Welt	<input type="radio"/> Sie erhalten 8 € Brot für die Welt erhält 2 €
Ich nehme 2 € von Brot für die Welt	<input type="radio"/> Sie erhalten 7 € Brot für die Welt erhält 3 €
Ich nehme 1 € von Brot für die Welt	<input type="radio"/> Sie erhalten 6 € Brot für die Welt erhält 4 €
Ich nehme / gebe 0 € von / an Brot für die Welt	<input checked="" type="radio"/> Sie erhalten 5 € Brot für die Welt erhält 5 €
Ich gebe 1 € an Brot für die Welt	<input type="radio"/> Sie erhalten 4 € Brot für die Welt erhält 6 €
Ich gebe 2 € an Brot für die Welt	<input type="radio"/> Sie erhalten 3 € Brot für die Welt erhält 7 €
Ich gebe 3 € an Brot für die Welt	<input type="radio"/> Sie erhalten 2 € Brot für die Welt erhält 8 €
Ich gebe 4 € an Brot für die Welt	<input type="radio"/> Sie erhalten 1 € Brot für die Welt erhält 9 €
Ich gebe 5 € an Brot für die Welt	<input type="radio"/> Sie erhalten 0 € Brot für die Welt erhält 10 €

You will be informed by the end of the experiment, whether your allocation decision will be executed.

A.2.4. General Instructions

Norm elicitation

Thank you for participating in this study. You can only answer this survey once. You will need approximately 10 minutes to complete.

This study consists of three parts. In the second part, you will be asked to think yourself into a particular situation —the more successful you are, the higher your chances of winning 50 €. Overall, we pay out 10x50 € prizes via bank transfer. You will receive all necessary information in the second part.

The prerequisite to receive any compensation is the completion of all survey questions. Please answer all questions faithfully. Your answers will be used in an anonymized form in order to guarantee your privacy.

Take-or-Give Game

Welcome to the experiment. Please note that you have to finalize the entire experiment to receive your final payoff (3 € show-up fee + subsequent earnings). As usual in the MaxLab, all shared information in this experiment are true and can be verified by you upon request.

The entire experiment consist of four short parts (A, B, C, D). You will need around 30 minutes to complete the entire experiment. All necessary information will be shared on your screen.

(Part D consisted of an unrelated survey study not discussed in the paper)

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