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A portable method of eliciting respect for social norms☆

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HIGHLIGHTS

- People exhibit heterogeneous respect for shared norms.
- We introduce an abstract task to measure an individual's norm-following propensity.
- Choices in this task are similar across five countries.
- Norm-following propensity is correlated with norm-consistent behavior in dictator games.

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ABSTRACT

Recent models of prosociality suggest that cooperation in laboratory games may be better understood as resulting from concern for social norms than from prosocial preferences over outcomes. Underlying this interpretation is the idea that people exhibit heterogeneous respect for shared norms. We introduce a new, abstract task to elicit a proxy for individual norm-following propensity by asking subjects to choose from two actions, where one is costly. We instruct subjects that "the rule is" to take the costly action. Their willingness to incur such a cost reveals respect for norms. We show that choices in this task are similar across five countries. Rule-following is correlated with norm-consistent behavior in dictator games, providing support for our interpretation.

1. Introduction

We present a new method for measuring the propensity to adhere to social norms, a propensity which parameterizes many recent models of prosocial behavior (Cappelen et al., 2007; López-Pérez, 2008; Kessler and Leider, 2012; Krupka and Weber, 2013; Kimbrough and Vostroknutov, 2016). In such models, individuals evaluate the appropriateness of own behavior by comparing it to exogenously defined and commonly known injunctive social norms, that is, to a set of shared beliefs about the appropriateness of possible actions available in the setting. Each possible action has both direct payoff consequences and a normative valence, which enter additively in the utility function. Social norms are assumed to vary with context, and when norms and self-interest conflict, individuals face a trade-off between following the norm and maximizing their payoff. Crucially, individuals may differ in the degree to which they suffer from norm violations (or gain from norm adherence). This can be captured in a single parameter that assigns a weight to the normative component of utility. Thus, heterogeneous behavior *within* a given game can be explained via heterogeneity in these weights, while heterogeneous behavior *across* games, or across contexts, can be explained by the fact that norms vary with the setting. In order to correctly account for both effects, it is, therefore, necessary to separately measure normative beliefs and norm-following propensity, since social behavior deviating from payoff maximization is a joint product of both norms and the weight assigned to them.

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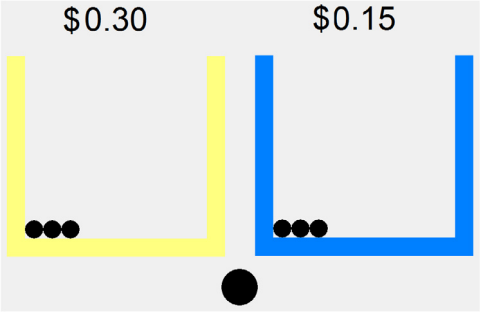

Fig. 1. Presentation of the rule-following task.

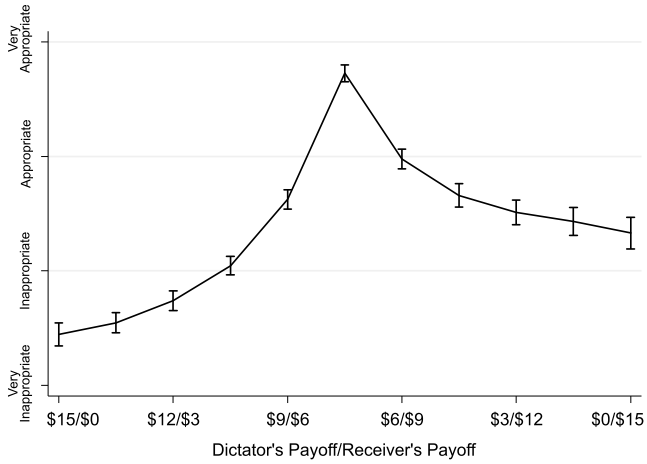

Fig. 2. Elicited norms in the dictator game (US/Canadian data, $N = 88$). Bars indicate ± 1 SE.

The task we introduce is a variant of the rule-following task used in Kimbrough and Vostroknutov (2015, 2016), in which subjects' willingness to follow an experimenter-stated rule at personal cost provides a measure of norm-following propensity. The new task is abstract unlike its predecessor, which embedded measurement of norm-following in a traffic light context. It thus facilitates empirical testing of the social norms hypothesis across diverse social environments, where some norms (e.g., traffic conventions) are likely to vary substantially. We have conducted a number of experiments that included this task in five countries (Canada, Italy, the Netherlands, Turkey, USA). We observe similarly-shaped distributions of norm-following propensity across countries. Moreover, in some countries (Canada, the Netherlands, and USA), we also subsequently collected data in a variant of the Dictator game; while, in the other two countries, subjects made other social decisions which plausibly have normative valence. Our findings broadly support the norm-driven social behavior hypothesis and demonstrate that the new task offers a portable method of eliciting individual-level respect for social norms.

2. The rule-following task

We developed the new rule-following task using zTree (Fischbacher, 2007). In the rule-following task participants drag-and-drop balls one-by-one into two buckets: yellow or blue. For each ball in the yellow bucket they receive 10 cents and for each ball in the blue bucket they receive 5 cents (see Fig. 1). The current earnings from the two buckets are shown above them. The total earnings in this task is the sum of earnings from the buckets. The position of the buckets on the screen is randomized across individuals.

The instructions explicitly state that *"the rule is to put the balls into the blue bucket"* (see Appendix D). Participants have a fixed number of balls to allocate (say 100); thus, their earnings can vary from \$5, if they follow the rule completely, to \$10, if they break the rule with each ball. Over a variety of experiments we have elicited rule-following task behavior from 1138 subjects.

3. How to use the rule-following task

Like Kimbrough and Vostroknutov (2016), we use the cost incurred following the rule as a measure of an individual's propensity to follow norms in other environments. For intuition, consider a norm-dependent utility of subject i in the rule-following task. Suppose, for simplicity, that the blue bucket gives \$0 and the yellow bucket \$1 for each ball. Assume i gets linear consumption utility from money and incurs costs from not following the norm. Since the injunctive norm is clearly stated in the instructions, we assume that subjects in all countries incur costs for not putting balls in the blue bucket. The utility from having x balls in the yellow bucket can be written as follows:

$$U_i(x) = x + \phi_i g(x).$$

Here $\phi_i \geq 0$ is the propensity of i to follow norms and $g : \mathbb{R}_+ \to [-1, 1]$ is a function that assigns a normative *social appropriateness* (or inappropriateness) to each *action* x (as opposed to outcome). Function $g(x)$ is assumed to capture the unique norm shared by all members of the society which, importantly, is assumed to be independent of the parameter ϕ_i.

In the rule-following task $g(x)$ is decreasing in x as assumed above. Suppose that subject i maximizes her utility. Given appropriate assumptions on the shape of $g(x)$, we would have the following equation $\phi_i = -1/g'(x^*)$, where x^* is the optimal choice (observed in the experiment). Thus, we obtain a positive monotonic relationship between unobserved ϕ_i and observed x^*. In this sense observations in the rule-following task yield a proxy for ϕ_i.

Consider now a Dictator who keeps x dollars in the Dictator game and has the same norm-dependent utility $U_i(x)$. The only difference is that now $g(x)$ reflects the social appropriateness of action x in the Dictator game. The social appropriateness of each action can be directly measured using the norm elicitation task introduced in Krupka and Weber (2013), which uses a coordination game to measure beliefs about norms.[1] Fig. 2 illustrates.

The "very socially inappropriate" rating corresponds to $g(x) = -1$ and "very socially appropriate" rating to $g(x) = 1$. One can see that giving half in the Dictator game is considered highly appropriate and giving nothing is thought highly inappropriate.[2] Thus, norm-dependent utility maximizers with high ϕ_i should tend to choose closer to the half/half distribution and utility maximizers with low ϕ_i should choose closer to keeping the entire pie.

[1] Evidence suggests that subjects perceive a consistent injunctive norm (on average) when they are asked to identify the norm from the perspective of second- and third-parties (Erkut et al., 2015).

[2] The elicited norms for many variants of DG look quite similar across four countries. Appendix B presents the norms in Fig. 2 separately for the American and Canadian data. For the example of elicited norms in the standard DG in the Netherlands see Figure 8d in Kimbrough and Vostroknutov (2016); for norms in mini-DG games in Italy see Panizza et al. (in preparation). See also Chang et al. (2017) and Gächter et al. (2017) for additional evidence that DG norms are quite similar across subject pools.

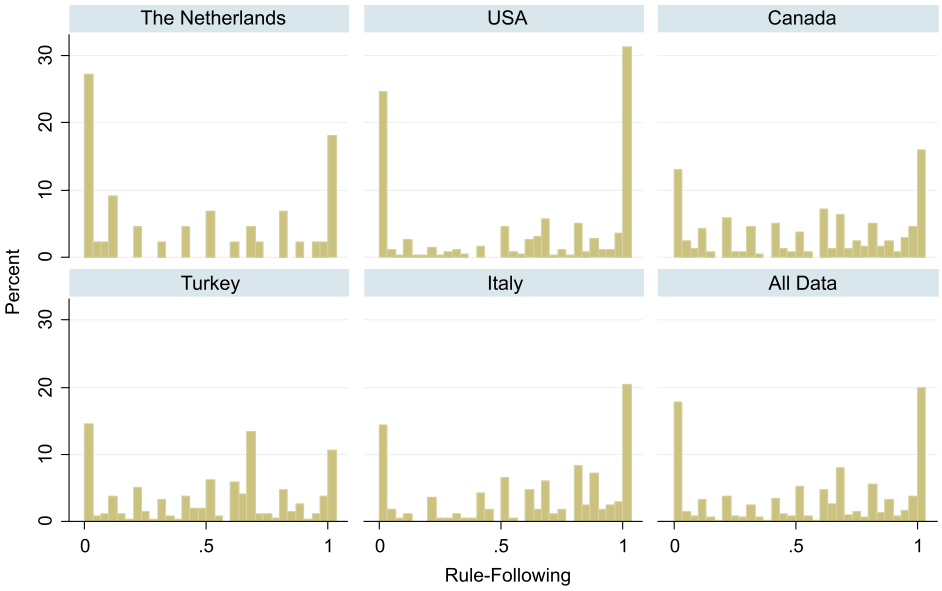

Fig. 3. Rule-following propensity (percentage of balls in blue bucket) in five countries. Number of observations: 44 in the Netherlands; 354 in USA; 238 in Canada; 336 in Turkey; 166 in Italy; 1,138 overall.

4. Results

4.1. Rule-following in five countries

Fig. 3 shows the distributions of rule-following in the Netherlands, USA, Canada, Turkey, and Italy. Appendix C reports descriptive statistics. Strikingly, all distributions have point masses at full rule-following and full rule-breaking, though the heights of these peaks differ somewhat (a Kruskal–Wallis test on the five samples gives $p = 0.005$). Pairwise comparisons via Kolmogorov–Smirnov tests, corrected for multiple comparisons, reveal significant differences between the USA and Canada, the USA and Turkey, and Turkey and Italy. In Appendix C we report regression analysis of rule-following in which we explore whether demographic differences (conditional on country) can account for these observations and find limited evidence. Overall, we find it reassuring that across languages and labs the shapes of the distributions are rather similar, suggesting that little was lost in translation.

4.2. Rule-following and behavior in the dictator game

Next we report correlations between rule-following task and Dictator game choices (see Appendix A for the details of the Dictator game design). In all sessions that also contained a Dictator game, the rule-following task was presented first. In the pooled data from USA, Canada, and the Netherlands, Spearman's rank correlation coefficient between the amount sent to the recipient and the share of balls placed into the blue (costly) bucket is highly significant and positive ($\rho = 0.31$, $p < 0.0001$, $N = 180$). This result is much stronger than the analogous correlation ($\rho = 0.191$, $p = 0.061$, $N = 67$) reported in Kimbrough and Vostroknutov (2016) where the rule-following task involving traffic lights was used, and where 65% of subjects fully complied with the norm. The new task increases power because it elicits more variation in the estimates of ϕ.

When we analyze the data within-country, we find a strong correlation between behavior in the rule-following task and Dictator game choices in the Netherlands and USA, but not in Canada. Spearman's correlation coefficient in the Netherlands is $\rho = 0.42$, ($p = 0.006$, $N = 44$); in the USA: $\rho = 0.51$, ($p < 0.0001$, $N = 70$), and in Canada: $\rho = 0.06$, ($p = 0.62$, $N = 66$). We regress the difference between the amount sent and the equal split on rule-following, country dummies and interactions to further support these findings (Table 1). Wald tests reveal that the coefficient on rule-following is significant in the Netherlands ($\beta = -0.151$, $p = 0.035$) and the USA ($\beta = -0.171$, $p < 0.001$), but not in Canada ($\beta = -0.078$, $p = 0.251$), though the coefficient has the predicted sign. Moreover, in the USA, subjects give slightly less overall ($\beta = 0.087$, $p = 0.068$), conditional on ϕ.

Table 1
OLS regression of sharing in the Dictator game. Errors are robust. Significance: * – $p < 0.1$; ** – $p < 0.05$; *** – $p < 0.01$.

Distance of the amount sent from equal split norm		
RF	−0.138***	−0.151**
	(0.033)	(0.071)
USA	0.073**	0.087*
	(0.034)	(0.048)
USA × RF		−0.020
		(0.083)
CAN	0.018	−0.024
	(0.038)	(0.060)
CAN × RF		0.073
		(0.098)
constant	0.363***	0.368***
	(0.031)	(0.040)
N	180	180

Similar patterns arise in Turkish and Italian samples where different games were coupled with the rule-following task. In Italy subjects chose in a series of mini-Dictator games between two allocations with constant sum of payoffs. The average number of non-selfish choices (when a subject chooses an allocation that gives her less money than the alternative) correlates with rule-following: Spearman's $\rho = 0.42$, $p < 0.0001$, $N = 166$ (Panizza et al., in preparation). In Turkey subjects repeatedly chose an amount of tax to contribute to a common pool that was equally redistributed among them (without enforcement or punishment, but with an explicitly stated non-binding rule that they should contribute all their income to the tax). Rule-following propensity is correlated with the average amount contributed in late periods even after experiencing free-riding: Spearman's $\rho = 0.22$, $p = 0.0126$, $N = 128$ (Gürdal et al., in preparation).

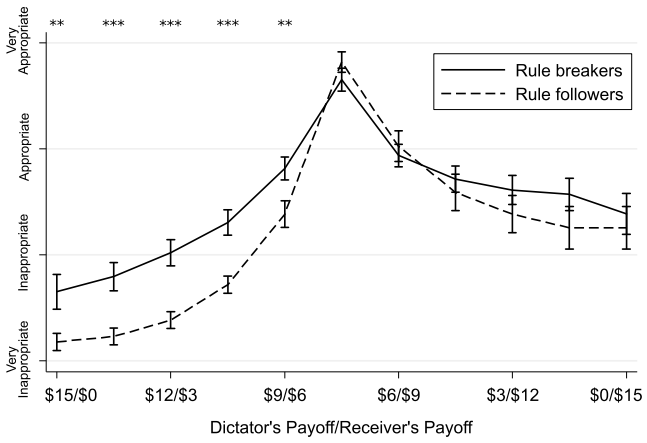

Fig. 4. Elicited norms in the Dictator game for rule-followers and rule-breakers. Bars indicate ±1 SE. Significance of permutation tests (Benjamini–Hochberg corrected for 11 comparisons): ** — $p < 0.05$; *** — $p < 0.01$.

Significant correlations between the rule-following task and various second-stage designs reported above, thus allow us to conclude that the task is portable across different experiments and is not only limited to Dictator games.

4.3. Rule-following behavior and normative beliefs

Our data facilitates a test of the as-yet untested assumption that subjects' rule-following propensities (ϕ_i) and elicited normative beliefs ($g(x)$) are independent, which underlies simple models of norm-dependent utility. The subjects, whose norm elicitation data were presented in Fig. 2, also completed the rule-following task, so we can compare rule-followers' beliefs to rule-breakers' beliefs. Fig. 4 shows elicited norms separately for rule-followers and rule-breakers (split by the median rule-following). The data reveal common agreement that the equal split is most appropriate and selfishness is inappropriate. However, permutation tests show significant differences in mean normative evaluations of five dictator actions (from giving nothing to giving almost half), with rule-breakers rating these actions less inappropriate than rule-followers (two-sided $p = 0.0469$, $p = 0.0039$, $p = 0.0015$, $p = 0.0019$, $p = 0.0380$ respectively, Benjamini–Hochberg corrected for 11 comparisons). This suggests that rule-followers and rule-breakers agree on the *content* but not necessarily on the *strength* of the norm. One plausible interpretation is a self-serving bias among rule-breakers who deem less generous actions more socially appropriate than rule-followers in order to rationalize their selfishness (Di Tella et al., 2015).

If ϕ_i and $g(x)$ are not always (or fully) independent, one solution is eliciting norms, norm-following propensity, and behavior in the relevant game within-subjects (D'Adda et al., 2016; Barr et al., 2017; Thomsson and Vostroknutov, 2017). Such data also facilitates more sophisticated analysis than when norms and behavior are elicited from different subjects.

5. Conclusion

We introduce a new rule-following task for eliciting individual propensity to follow social norms that is designed to be portable across cultures and experiments. We conducted experiments with the task in five countries, and we observe a correlation between the elicited norm-following propensity and prosocial (norm-consistent) behavior in Dictator games and in a redistribution game. Moreover, choices in this rule-following task are better predictors of norm-consistent behavior in Dictator games than the original rule-following task in Kimbrough and Vostroknutov (2016). We thus suggest that researchers seeking a method of measuring norm-following use this one. Finally, our data also facilitate a test of the assumption that norm-following propensity and normative beliefs are independent; we find some evidence that the *strength*, but not the content, of normative beliefs is correlated with norm-following propensity.

Appendix A. Supplementary data

Supplementary material related to this article can be found online at http://dx.doi.org/10.1016/j.econlet.2018.04.030.

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