Schmalenbach Bus Rev (2019) 71:27–33
https://doi.org/10.1007/s41464-019-00071-0

COMMENT

Discussion of "Consequences of Unfair Job Promotions in Organizations"

Timo Heinrich[1]

Published online: 28 February 2019

Keywords Job promotion · Dictator game · Inequity aversion · Reciprocity · Punishment

JEL Classification C91 · J31 · M51

1 Content

The paper by Peter Bußwolder, Swetlana Dregert and Peter Letmathe presents results from an innovative laboratory experiment designed to study reactions to job promotions. The experiment is framed as an employment relation. The roles in this relation are determined based on the results of a quiz. The first factor of the 2×2 design varies whether the person answering more questions correctly in the quiz is assigned the role of the dictator or the role of the recipient ("fair" or "unfair" treatment). Dictators (called "supervisors") decide about the split of a fixed pie between themselves and a recipient (called "subordinate"). The second factor varies the ability of the recipient to reduce the payoff of the dictator in response to observing the split ("punishment" or "no-punishment" treatment). In the punishment treatments, reducing the dictator's payoff is costly, e. g. reducing it by 4.00 € reduces the payoff of the recipient by 1.00 €. The dictator's decision in the no-

Peter Bußwolder, Swetlana Dregert and Peter Letmathe analyze fair and unfair job promotions using a laboratory experiment. I discuss the methodology, comment on their findings and point to further potential applications.

✉ T. Heinrich
timo.heinrich@ibes.uni-due.de

[1] Durham University Business School, Mill Hill Lane, Durham, DH1 3LB, UK

punishment treatment resembles a standard dictator game in which the recipient has to accept the split determined by the dictator.

By comparing behavior between the four treatments, the study aims to shed light on the question whether unfairly promoted supervisors provide higher financial compensations to their subordinates, for example, in order to compensate them for their forgone promotion or out of fear of punishment. It also asks how the actual compensation levels of the subordinates influence punishment, for example, through shirking or even sabotage.

In the following, I will first discuss the methods employed by Bußwolder, Dregert and Letmathe from the viewpoint of experimental economics. Then I will comment on their findings and point to further potential applications in the conclusion.

2 Methodology

Economists frequently use selfishness with regard to one's own material payoff as an assumption when modeling behavior. Although it was always known to be questionable, this assumption proved a helpful simplification especially during the formalization of the discipline in the neoclassical era, as for example Camerer and Loewenstein (2004) and Angner and Loewenstein (2012) describe. But it was not until the methodological advances of the second half of the last century that economists were able to study social interactions in a systematic way. The tools provided by game theory and experimental economics were essential in examining how actual choices deviate from the behavior expected by selfish actors.

Perhaps the most influential experiment along these lines is the ultimatum game (Güth et al. 1982) as shown in Fig. 1a: The first player acts as the proposer and suggests the split of a fixed amount of money between himself and the second player. In this case the fixed amount is 100 yielding a payoff of $100-d$ to the proposer and a payoff of d to the recipient. The second player responds by accepting or rejecting this offer. If he accepts, both players are paid according to the suggested split $(100-d, d)$. If he rejects, both receive nothing (0, 0). If rationality and selfishness are common knowledge and payoffs are discrete, the game has two subgame-perfect equilibria: the proposer will either offer zero or the smallest possible positive amount to the responder who then accepts. However, subjects around the world on average offer around 40% of the total pie to the responder who then accepts; lower offers are often rejected (see Oosterbeek et al. 2004, who summarize the findings of 37 ultimatum game papers).

Even though the latter result is in conflict with the selfishness assumption, it is not clear why proposers choose offers that are larger than theoretically predicted. In order to test whether high offers are due to the fear of rejection, Forsythe et al. (1994) introduced the dictator game as shown in Fig. 1b. In this game the second player must accept any split $(100-d, d)$ the first player suggests. When removing the strategic incentive to give, average offers drop to around 28% on average but around 64% of dictators still give positive amounts (see Engel 2011, who summarizes the findings of 131 dictator game papers). Many economists take the results as evidence for

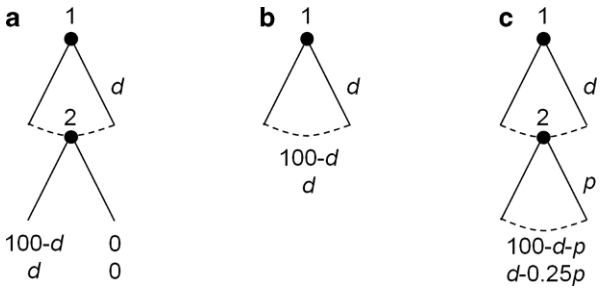

Fig. 1 Comparison of the ultimatum game (**a**), the dictator game (**b**) and the promotion game (**c**)

other-regarding motivations, i.e. motivations beyond selfishness that also consider the welfare of others or their intentions (see, e.g., Cooper and Kagel 2016).[1]

Bußwolder, Dregert and Letmathe use a dictator game as shown in Fig. 1b in their no-punishment conditions. Fig. 1c show the game used in their punishment condition i.e. a dictator game that allows recipients to punish dictators. In the following I will refer to this as the "promotion game". After receiving the split suggested by the dictator $(100-d,\ d)$, recipients can reduce the dictator's payoff by p at a cost of 0.25 to themselves (with $p>0$). This yields a payoff of $100-d-p$ to the dictator and a payoff of $d-0.25p$ to the recipient. Assuming selfishness and rationality are common knowledge, no dictator should offer a positive amount to the recipient in the subgame-perfect equilibrium of this game. As punishment is costly, no recipient would reduce their own payoff only for the sake of reducing the dictator's. Thus, the standard prediction suggests a payoff of (100, 0). This is very similar to the predictions for the ultimatum game shown in Fig. 1a, in which we would expect the proposer to suggest a split of (100, 0) or (99, 1) and the responder to accept this split.

From a behavioral perspective, it is important that subjects in the experiment also receive a budget of 30. Donations are limited to the size of the pie ($d<100$) but the budget can also be subject to punishment or be used for spending on punishment. More specifically, punishment received by the dictator is subject to the condition $p \leq 100-d+30$ and spending for punishment by the recipient is subject to $0.25p \leq d+30$. Thus, a recipient who receives nothing can reduce the dictator's to-

[1] These findings have led economists to develop several theories that aim to explain the evidence. In one stream of research, it is assumed that the payoffs of others enter an individual's utility function. Sociologists and psychologists have developed similar theories (e.g., Sawyer 1966; Marwell et al. 1969; and Griesinger and Livingston 1973). But the first demonstrations that other-regarding motivations could be consistent with the competitive behavior typically observed in market experiments are due to the economists Fehr and Schmidt (1999) and Bolton and Ockenfels (2000). Their theories postulate specific utility functions that can incorporate an aversion to unequal payoff distributions. Others have also tried to model the intentions of players, as they often influence decisions in strategic interactions: see, for example, Rabin (1993), Dufwenberg and Kirchsteiger (2004) or Falk and Fischbacher (2006). All of these theories modify utility functions, but maintain the assumption that people behave rationally. A second stream of research pioneered by Simon (1957) explains economic behavior by reference to bounded rationality, modeling decision-makers more realistically as having limited perceptual, cognitive and intellectual capabilities as described by Tietz (1992). An example is Selten's theory of equal division payoff-bounds for coalition bargaining games (Selten 1987).

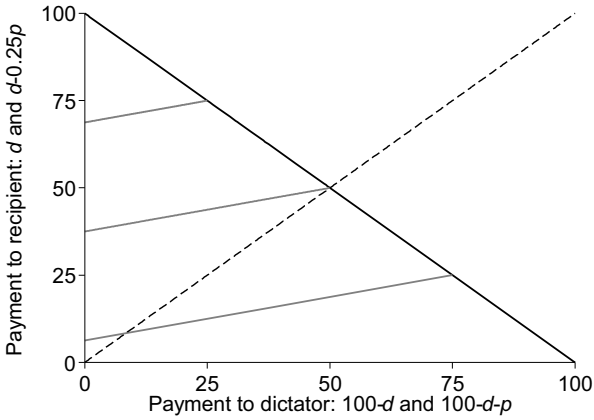

Fig. 2 Budget lines in the promotion game

tal payoff to $100-0+30-30\,/\,0.25p=10$ by completely spending his budget of 30. A recipient who receives the whole share of the pie can only reduce the dictator's payoff to 0.

Fig. 2 shows the potential allocations for the promotion game (ignoring the budget of 30). It shows the downward sloping budget line for dictators which has a slope of –1.00 because every Euro the dictator gives to the recipient reduces his own payoff by 1.00€. It also shows three possible budget lines for recipients resulting from donations d of 25, 50 or 75. The dashed 45° line indicates equal distributions. The figure illustrates that positive spending for punishment not only creates large efficiency losses but is always a dominated choice for any selfish recipient as well as for any recipient with altruistic preferences (see Andreoni and Miller 2002; and, e. g. Heinrich and Weimann 2013, for an application involving a two-stage game).

Also note that the initial quiz can be viewed as a tournament and the determination of the dictator role may be regarded as fair or unfair by the subjects. This may influence the behavior of dictators and recipients, for example by influencing the 50-50 norm commonly applied in bargaining games due to feelings of entitlement (see, e. g., Andreoni and Bernheim 2009).

Bußwolder, Dregert and Letmathe relate the behavior they observe to one of the most established measures of motivations in social psychology, the measure of social value orientation which goes back to the work of Messick and Thorngate (1967) and Griesinger and Livingston (1973). Bußwolder, Dregert and Letmathe use a (non-incentivized) version developed by Murphy et al. (2011) which allows classifying subjects into the most common forms of social value orientation namely "altruistic", "prosocial", "individualistic", and "competitive". The classification is derived from what is essentially a series of modified dictator games. In the standard dictator game, the budget line has a slope of –1.00. In the modified versions of the game the slope of the budget line may vary. In the measure by Murphy et al. (2011) subjects have to play 15 dictator games, 4 of which are dictator games with a slope of –1.00. For the remaining games the slope varies between 2.33 and –5.00. This means that there can be efficiency gains or losses: In games with a slope below –1.00 giving

generates gains in efficiency while in games with a slope above –1.00 it generates losses.

Based on this measure, (i) "altruistic" types are willing to sacrifice their own payoff and efficiency to make the other person better off, (ii) "prosocial" types prefer the efficiency maximizing distributions, (iii) "individualistic" types are willing to reduce efficiency and the other person's payoff to make themselves better off and (iv) "competitive" types are willing to make themselves worse off in order to reduce the other person's payoff to a larger degree. The larger the angle determined by this social value orientation measure, the more likely a person is to be classified as altruistic. The lower the angle the more likely he is to be classified as competitive.

When relating the measures of social value orientation to behavior in the dictator game or the promotion game, it is important that the dictator game used by Bußwolder, Dregert and Letmathe has a budget line with a slope of –1.00. The second stage of the promotion game can also be viewed as a dictator game as there are no more strategic incentives. From the recipient's viewpoint, the slope of the budget line in this game is 4.00. For every Euro the recipient spends on reducing the dictator's payoff the dictator's payoff is reduced by 4.00 €. It is therefore steeper than the steepest budget line in the set of tasks by Murphy et al. (2011). Also, the task by Murphy et al. (2011) considers only the distribution choice by a dictator and not the influences of the quiz or the strategic incentives created by the punishment stage.

3 Conclusion

First of all, Bußwolder, Dregert and Letmathe observe significantly higher donations in the unfair treatments than in the fair treatments but no significant differences between the punishment treatments (promotion game) and the no-punishment treatments (dictator game). This suggests that donations are not driven by a fear of punishment (but rather inequity aversion or norm compliance, for example). This is a surprising result given the strategic similarity between the promotion and the ultimatum game on the one hand and the well-known behavioral differences between the dictator and the ultimatum game on the other hand. In addition, the authors observe a positive relationship between the angle determined by the social value orientation measure for dictators and their donations but not between the angle determined for recipients and their punishment behavior. Based on the discussion above, this finding is less surprising: The dictator game used to elicit donations is similar to 4 of the 15 games employed to measure social value orientation.

One of the standard results of dictator game experiments is that the outcome is very sensitive to the framing of the game. Previous studies find that donations are easily influenced by small changes in the instructions (e. g. Hoffman et al. 1996; and Brañas-Garza 2006), by adding social cues to the instructions (e. g. Haley and Fessler 2005; and Rigdon et al. 2009), or by varying the social distance between dictators and recipients (e. g. Bohnet and Frey 1999; and Burnham 2003). With respect to the external validity of the findings conducting the experiment in a framed setting is helpful. However, it would be interesting to analyze in how far the specific framing has driven results in the current study.

Of course, the promotion game developed by Bußwolder, Dregert and Letmathe is not limited to the study of relationships within organizations. Different from the gift-exchange game that is commonly used to study labor relations (see Charness and Kuhn 2011, for an overview), the promotion game does not allow for positive reciprocity. It only allows recipients to accept the suggested split or to exert costly punishment of dictators. This appears to be an important aspect of many contractual relations. Thus, the game could also be used for studying the respective behavioral drivers more generally. It could be applied to any situation in which there is room for one party to destroy gains from trade that accrue to both parties. Experimental methods are used more and more to study questions from operations management (see, e. g., Brosig-Koch and Heinrich 2014, 2018, on procurement auctions or Pan et al. 2018, on inventory management decisions). A game like the promotion game could also be applied to buyer and supplier relationships, for example, in order to determine the risk for a hold-up problem absent of clear monetary incentives (see, e. g., Davis and Leider 2014).

References

Andreoni, J., and B.D. Bernheim. 2009. Social image and the 50-50 norm: a theoretical and experimental analysis of audience effects. *Econometrica* 77:1607–1636.

Andreoni, J., and J.H. Miller. 2002. Giving according to GARP: an experimental test of the consistency of preferences for altruism. *Econometrica* 70:737–753.

Angner, E., and G. Loewenstein. 2012. Behavioral economics. In *Handbook of the philosophy of science: philosophy of economics*, Vol. 13, ed. D.M. Gabbay, P. Thagard, and J. Woods

Bohnet, I., and B.S. Frey. 1999. Social distance and other-regarding behavior in dictator games: comment. *American Economic Review* 89:335–339.

Bolton, G.E., and A. Ockenfels. 2000. ERC: a theory of equity, reciprocity, and competition. *American Economic Review* 90:166–193.

Brañas-Garza, P. 2006. Poverty in dictator games: awakening solidarity. *Journal of Economic Behavior & Organization* 60:306–320.

Brosig-Koch, J., and T. Heinrich. 2014. Reputation and mechanism choice in procurement auctions: an experiment. *Production and Operations Management* 23(2):210–220.

Brosig-Koch, J., and T. Heinrich. 2018. The role of communication content and reputation in the choice of transaction partners: a study based on field and laboratory data. *Games and Economic Behavior* 112:49–66.

Burnham, T.C. 2003. Engineering altruism: a theoretical and experimental investigation of anonymity and gift giving. *Journal of Economic Behavior & Organization* 50:133–144.

Camerer, C., and G. Loewenstein. 2004. Behavioral economic: past, present, future. In *Advances in behavioral economics*, ed. G. L. Colin Camerer, M. Rabin, 3–51. Princeton: Princeton University Press.

Charness, G., and P. Kuhn. 2011. Lab labor: what can labor economists learn from the lab? In *Handbook of labor economics*, Vol. 4, 229–330. Amsterdam: Elsevier.

Cooper, D.J., and J.H. Kagel. 2016. Other regarding preferences: a selective survey of experimental results. In *The handbook of experimental economics*, Vol. 2, ed. J.H. Kagel, A.E. Roth

Davis, A.M., and S.G. Leider. 2014. *Capacity investment in supply chains: contracts and the hold-up problem*. Working paper. Ithaca: Cornell University.

Dufwenberg, M., and G. Kirchsteiger. 2004. A theory of sequential reciprocity. *Games and Economic Behavior* 47:268–298.
Engel, C. 2011. Dictator games: a meta study. *Experimental Economics* 14(4):583–610.
Falk, A., and U. Fischbacher. 2006. A theory of reciprocity. *Games and Economic Behavior* 54:293–315.
Fehr, E., and K.M. Schmidt. 1999. A theory of fairness, competition, and cooperation. *Quarterly Journal of Economics* 114:817–868.
Forsythe, R., J.L. Horowitz, N.E. Savin, and M. Sefton. 1994. Fairness in simple bargaining experiments. *Games and Economic Behavior* 6:347–369.
Griesinger, D.W., and J.W. Livingston. 1973. Toward a model of interpersonal motivation in experimental games. *Behavioral Science* 18:173–188.
Güth, W., R. Schmittberger, and B. Schwarze. 1982. An experimental analysis of ultimatum bargaining. *Journal of Economic Behavior & Organization* 3:367–388.
Haley, K., and D. Fessler. 2005. Nobody's watching? Subtle cues affect generosity in an anonymous economic game. *Evolution and Human Behavior* 26:245–256.
Heinrich, T., and J. Weimann. 2013. A note on reciprocity and modified dictator games. *Economics Letters* 121(2):202–205.
Hoffman, E., K. McCabe, and V.L. Smith. 1996. Social distance and other-regarding behavior in dictator games. *American Economic Review* 86:653–660.
Marwell, G., K. Ratcliff, and D.R. Schmitt. 1969. Minimizing differences in a maximizing difference game. *Journal of Personality and Social Psychology* 12:158–163.
Messick, D., and W.B. Thorngate. 1967. Relative gain maximization in experimental games. *Journal of Experimental Social Psychology* 3:85–101.
Murphy, R.O., K.A. Ackermann, and M. Handgraaf. 2011. Measuring social value orientation. *Judgment and Decision Making* 6(8):771–781.
Oosterbeek, H., R. Sloof, and G. Van De Kuilen. 2004. Cultural differences in ultimatum game experiments: evidence from a meta-analysis. *Experimental Economics* 7(2):171–188.
Pan, J., J. Shachat, and S. Wei. 2018. *Cognitive stress and learning economic order quantity (EOQ) inventory management: an experimental investigation*. Working paper.
Rabin, M. 1993. Incorporating fairness into game theory and economics. *American Economic Review* 83:1281–1302.
Rigdon, M., K. Ishii, M. Watabe, and S. Kitayama. 2009. Minimal social cues in the dictator game. *Journal of Economic Psychology* 30:358–367.
Sawyer, J. 1966. The altruism scale: a measure of co-operative, individualistic, and competitive interpersonal orientation. *American Journal of Sociology* 71:407–416.
Selten, R. 1987. Equity and coalition bargaining in experimental three-person games. In *Laboratory experimentation in economics—six points of view*, ed. A.E. Roth, 42–98. Cambridge: Cambridge University Press.
Simon, H. 1957. *Models of man: social and rational*. New York: Wiley.
Tietz, R. 1992. Semi-normative theories based on bounded rationality. *Journal of Economic Psychology* 13:297–314.