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Emotion venting and punishment in public good experiments

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ABSTRACT

Experimental studies have shown that sanctions effectively deter free riding within groups. However, the over-use of costly punishment may actually harm overall welfare. A main reason for over-punishment is that free-riders generate negative emotions that likely favor excessive punishments. In this paper we ask whether the venting of one's emotions in different ways can reduce the level of excessive punishment in a standard VCM-with-punishment environment while preserving the norm enforcement properties of punishment. We find that venting emotions reduces (excessive) punishment, and under certain conditions the net effect is an increase in final payoffs (i.e., welfare) to the group.

1. Introduction

In typical voluntary contribution mechanism (VCM) experiments, free-riding incentives are at odds with group efficiency. Substantial contributions to the public good are common in VCM games, but such cooperative play decreases as the game is repeated (Isaac et al., 1985; Andreoni, 1988; Isaac and Walker, 1988a; Ledyard, 1995). In light of this empirical regularity of declining contributions across periods, more recent studies have attempted to identify modifications to the game that may increase cooperation.[1] Of particular interest to the present paper is the use of sanctions as a norm enforcement tool to deter free riding within groups (Fehr and Gächter, 2000; Carpenter, 2007a, b; Masclet et al., 2003; Noussair and Tucker, 2005; Bochet et al., 2006; Anderson and Putterman., 2006; Sefton et al., 2007; Carpenter, 2007a, b; Egas and Riedl, 2008; Gächter et al., 2008; Nikiforakis, 2008; Nikiforakis and Normann., 2008; Engelmann and Nikiforakis, 2012). These studies have shown that sanctioning is effective in deterring free riding. However, while the introduction of sanctioning significantly improves cooperation, it may also harm overall welfare because punishment is costly and reduces both the punisher's and target's payoff.

The short-run net effect of punishment is to reduce welfare, although punishment may increase welfare if the horizon is sufficiently long (Fehr and Gächter, 2000; Gächter et al., 2008). However, a concern with punishment is that people may over-punish due to the negative emotions generated by free riders. In other words, negative reciprocity can be disproportionate relative to what is efficient if it results from an emotionally excessive reaction (i.e., punishment will not "fit the crime"). Efficiency requires punishment intended for deterrence with emotionally excessive punishment removed.

The focus of our paper is to study whether the venting of one's emotions might reduce excessive punishment while preserving cooperative incentives created by the punishment mechanism. Allowing people to express their negative emotions may help restrain aggressive punishment by providing an alternative opportunity to vent one's own frustration. This is related to the catharsis theory perspective in psychology (Feshbach and Singer, 1971; Lee, 1993). The process of venting emotions is rather complex. One may vent emotions in many different ways, from simply taking a "time out" to distance oneself from the negative stimulus,[2] to another extreme where one is allowed the opportunity to even "violently" release negative emotions in a controlled

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[1] These include preplay communication (Dawes et al., 1977; Isaac et al., 1985; Isaac and Walker, 1988b, 1991; Ostrom et al., 1992; Kerr and Kaufman-Gilliland, 1994; Krishnamurthy, 2001; Brosig et al., 2003), creation of group identification in conjunction with post-play open discussion (Gächter and Fehr, 1999), and having each individual assign a rating to each of the other group member's contribution decisions (Masclet et al., 2003).

[2] This is based on the idea that emotional states are temporary (see Ekman, 1994; Loewenstein, 2000).

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environment. There is evidence that venting emotions is desirable, and even some examples of formalizing the venting process. "Venting rooms" are places that allow individuals to vent their negative emotions by screaming, smashing dishes, destroying a T.V. with a baseball bat, or basically demolishing anything in the room with impunity (recent examples are found in US, Bosnia, China, and Japan).[3] In some cases, stand-alone venting room businesses charge a fee to the privilege of demolishing stuff. The fact that individuals are willing to pay a fee to vent emotions attests to its perceived usefulness for emotional health. A more straightforward workplace application, where worker effort can be considered a contribution towards a public good, would be to recognize that decisions made in hot emotional states can be suboptimal (e.g., excessive workplace discipline).

Could the introduction of emotion venting opportunities increase welfare? One may reasonably conjecture that allowing people to vent their emotions will reduce excessive sanctions, leading to reduced punishment and positive effects on welfare. This is particularly important given that punishment seems to primarily result from a personal desire to express dissatisfaction through punishment, as opposed to a desire to deter free riding through strategic punishment efforts (Casari and Luini, 2012; Duersch and Müller, 2013; Ouss and Peysakhovich, 2013). On the other hand, the introduction of venting emotions may have a negative net effect on welfare if the reduction in punishment also reduces the strategic punishment necessary to limit free riding.

Emotions have been traditionally absent from the economic analysis (but also from the pre-1960 literature in psychology) given the fact that they had long been considered the antithesis of rational decisions (see Kaufman, 1999, for a discussion), with a few exceptions (e.g., Frank, 1988; Elster, 1998). This sharply contrasts with the contemporary view of the role of emotions in economics, psychology, as well as in neuroscience. In the current view, emotions are not in opposition to reason but instead provide essential support to the reasoning process that guides human decisions towards particular ends (e.g. Damasio, 1994). Furthermore, it has been argued that optimal decisions require an intermediate level of emotional arousal (Yates, 1990), thus highlighting the role that emotions may play in decision efficiency. The intuition is that too little emotional intensity is sub-optimal because it inhibits decisions, while too much emotional arousal is also detrimental to efficiency because it induces loss of control and excessive reactions.

In this paper we report results from experiments that supplement a standard VCM punishment environment (Fehr and Gächter, 2000) with several treatments that allow players to vent their emotions prior to making punishment decisions. The treatments we administer each adds additional opportunities to vent emotions: we start with a simple cooling off period, but then add the opportunity to self-report one's emotional state as well as assign virtual punishment points. We find that venting emotions can increase efficiency under certain condition, over and above what punishment itself may accomplish. The venting-emotion treatments lead individuals to assign significantly less punishment points to others compared to a treatment without the opportunity to vent emotions. The reduction in punishment leads to reduced contributions, which highlights the deterrence value of punishment, but we find that the net effect of a simple cooling-off period to vent emotions can still be an increase in overall long-run welfare.

Our paper is related to previous studies that have investigated the behavioral impact of emotions on punishment decisions. It is known that emotional processes are involved in the decision to punish in two-person interactions. In particular, anger accompanies the application of costly punishment (Bosman and van Winden, 2002; Ben Shakhar et al., 2007; Hopfensitz and Reuben, 2009; Joffily et al., 2014). It has also been shown that when observing opportunistic behavior, anterior insula activation, which is typically associated with aversive stimuli, correlates with subsequent individuals' decision to punish others (Sanfey et al., 2003). Punishment of social norm violators has been found to increase positive self-reported emotional state satisfaction (Joffily et al., 2014), and punishment activates the dorsal striatum, a brain area often associated with pleasant stimuli and reward-driven actions (De Quervain et al., 2004). While punishing free riders activates reward centers in the brain, Andreoni's (1990) concept of a "warm glow" from giving implies that cooperation should also trigger reward center activation. Indeed, striatum activation has been associated with mutually cooperative behavior in prisoner's dilemma games (Rilling et al., 2002, 2004). In a recent work, Drouvelis and Grosskopf (2014) used short video clips to induce happiness and anger in a one-shot VCM environment. They found that angry subjects punished more than others, while happy subjects contributed more than angry subjects.

The originality of our paper is fourfold. First, we investigate the impact of venting emotions on punishment. While several studies have investigated the behavioral impact of emotions on punishment decisions, only a few studies have investigated the behavioral impact of venting emotions on punishment (Bushman et al., 1999; Bushman, 2002; Bolle et al, 2014; Xiao and Houser;, 2005), and the results are somewhat mixed. Some studies found no effect of venting emotions (Bushman et al., 1999; Bushman, 2002)[4] while others observed a positive effect of venting (e.g. Bolle et al., 2014; Xiao and Houser, 2005).[5] Our design better isolates the emotion venting effect, which is somewhat confounded in these previous studies given how they involve shared venting information. The purpose of this experiment is therefore to contribute to the resolution of the debate about whether venting emotions has an effect on punishment decisions. Secondly, our design allows us to vary the level of venting emotions from a simple cooling off period to more complete emotion venting that includes self-reporting one's emotional state and assigning virtual punishment points. We can therefore study whether some venting treatments affect punishment/contribution decisions more than others. To our knowledge no previous study has done this.

Thirdly, we investigate not only the effect of venting emotions on punishment but also its effect on welfare (i.e., efficiency). Indeed we conjecture that there may exist an optimal interior level of venting emotions corresponding to higher efficiency. Our intuition is that too little

[3] For instance, see anger rooms in Texas (http://www.cbc.ca/news/offbeat/story/2012/03/09/video-anger-room.html), in Japan (http://healthehelen.wordpress.com/tag/anger-rooms/ or in Bosnia http://www.thehimalayantimes.com/fullNews.php?headline=Serbians+pay+to+vent+anger+in+Rage+Room+&NewsID=362269). There also exists some smart phone applications that could be considered tools to vent emotions such as Angry Birds or games that allow you to shoot or smash things (although there is debate whether in extreme cases this may promote real violence for those with predispositions).

[4] Our paper is related to Bushman et al. (1999) who investigated whether reading cathartic messages and hitting a punching bag were effective means to vent anger. The authors observed that individuals were even more aggressive after reading the cathartic messages and hitting a punching bag compared to the control group, which directly contradicts the catharsis theory. Bushman (2002) also showed that doing nothing seems to be the most effective way to reduce the intensity of anger. Our current paper differs from these two experiments in psychology in the way we control the environment in the laboratory, our introduction of monetary incentives, and our generation of emotion data using a simple elicitation procedure.

[5] Our paper is most closely related to Bolle et al. (2014), who observe that venting emotions reduces aggression in a vendetta game. Our paper differs from this previous study in our investigation of the effects of venting emotions in a context of a social dilemma and not the occurrence of vendetta (i.e., personally-directed retaliatory punishment, which is precluded in our design given blind subject identities). Furthermore our study differs from this previous study in our use of multiple ways to vent emotions, which allows us to compare the relative effectiveness of different ways to vent emotions. Our paper is also closely related to Xiao and Houser (2005). Xiao and Houser (2005) find that cooperation is higher when individuals are given the opportunity to express their emotions in less expensive ways than through punishment. In Xiao and Houser (2005), responders in an ultimatum game can express emotions by sending a message to proposers at no cost, and they find that this significantly reduces the rejection rates on unfair offers. However, their paper does not implement "virtual punishment" in the same sense we do, given the information communicated to other subjects in their design. Our current paper differs from theirs in the way our message venting remains private information. All of these help us to isolate the pure emotion venting effect. It is also the case that sending written messages may convey a nonpecuniary punishment that may influence decisions. For instance, one may reasonably argue that written messages in Xiao and Houser (2005) may increase the proposer's offer as a result of, or in anticipation of, the social cost of disapproval of unfair offers (see Masclet et al., 2003).