No. 50 may 2010

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Research Paper Series
Thurgau Institute of Economics and Department of Economics
at the University of Konstanz

Member of

thurgauwissenschaft

www.thurgau-wissenschaft.ch

THURGAU INSTITUTE
OF ECONOMICS
at the University of Konstanz

The Impact of Law Enforcement Design on Legal Compliance

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March 16, 2010

Abstract

This paper presents experimental evidence on the way in which the design of law enforcement impacts legal compliance. The experiment includes two law enforcement designs: one in which sanctioning results in victim-compensation and one in which sanctions are rent-seeking devices for the enforcer. We show that in the rent-seeking design (i) potential violators choose non-compliance more often and (ii) the average violator tries to avoid detection less aggressively.

Keywords: norm compliance, law enforcement, avoidance, experiment.

JEL-Classification: C91, K42

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1 Introduction

The sanctioning of disobedience is usually understood as the price for non-compliance (see, e.g., Cooter 1984). It is widely held that potential offenders do not care about who puts a price on disobedience or why there is a price on it (see, e.g., Polinsky and Shavell 2007). This manifests itself in the literature on corruption where the individual who pays an officer to remain silent about his breaking of the law is indifferent to paying the bribe to the officer or paying the monetary sanction to the law enforcement authorities (see, e.g., Buccirossi and Spagnolo 2006). This reasoning culminates in the argument that corruption is not detrimental to legal compliance as long as the expected bribe does not undercut the expected sanction (see, e.g., Polinsky and Shavell 2001). In the same vein, the calculus of potential offenders is modeled as being unaffected by the government's objective, be it seeking rents or maximizing social welfare (see, e.g., Garoupa and Klerman 2002).

This paper presents evidence to the contrary. In our experiment, participants decide whether or not to steal from others and can invest in detection avoidance. We use various law enforcement designs across treatments. In one setting, there are participants who control others, have an influence on the detection process, and obtain the fine if a wrongdoer is actually detected and sanctioned. In the other setting, the detection process is random and the fine paid if a wrongdoer is detected and sanctioned goes to the participant harmed by the wrongdoing. The way in which we design the treatments is motivated by the seemingly polar cases referred to above which are nonetheless treated as indistinguishable in the theoretical literature when it comes to a potential offender's incentives. We find that if law enforcement may be viewed primarily as a rent-seeking device, (i) more participants steal and (ii) that participants who steal invest less - on average - in avoidance.

These findings have important bearing on the actual design of law enforcement. For instance, Polinsky (1980) and Garoupa (1997) discuss the case of the private enforcement of law where the fine paid by the detected violator is used to remunerate enforcers. Our study unearths potential consequences of such a regime hitherto not taken into consideration. Furthermore, policy makers may utilize our findings by realizing that declaring the purpose to which fine revenue is put may actually lower the offense rate.

The paper at hand is related to different contributions in the literature. There are many studies focusing on social norm compliance (see, e.g., Fehr and Gächter 2000). Our interest is directed towards compliance with legal norms. Hörisch and Strassmair (2008) seek to test the

deterrence hypothesis and find that compliance need not be monotonous in the level of the expected sanction. However, except for different compositions of the expected sanction as regards the level of the fine and the level of the detection probability, they are not interested in the design of law enforcement. Gneezy and Rustichini (2000) find that introducing a monetary fine may increase the occurrence of fined behavior in a field study. In our study, the sanctioning is a given, whereas the organization of law enforcement gains center stage. Tyran and Feld (2006) allow for the endogenous imposition of sanctions and find that this may transmit information about expected behavior. In our setting, law enforcement is exogenously given. We think that this better represents how people usually perceive enforcement systems. Furthermore, we allow violators to invest into detection avoidance. This idea has been analyzed in the theoretical literature (see, e.g., Malik 1990) and implemented in experiments (Bayer and Sutter 2009).

2 The Experiment

2.1 Design

One of three different roles is assigned to participants, A, B, or C. We are interested in player B's decisions. Initially, both player A and B are endowed with 10 points, while player C's endowment is 5 points. Thus, the initial distribution of points within a group of three roles is $(a, b, c) = (10, 10, 5)$. Next, player B decides whether or not to take 5 points from player A. If B decides to steal, the distribution is $(a, b, c) = (5, 15, 5)$. Stealing may be detected and sanctioned. Irrespective of the treatment, the initial detection probability is equal to 25 percent. However, a player B who has decided to steal can reduce the detection probability by investing in detection avoidance. Each point invested reduces the risk of being detected by 10 percentage points. Player B can invest up to 2 points in steps of 0.1 points into cover-up activities. If player B invests the maximum of 2 points, the effective detection probability is equal to five percent. If B steals from A and is detected, B pays a fine amounting to 10 points. At the end, all players receive full feedback and there is no repetition.

The payoffs are such that a risk-neutral player B prefers stealing to not stealing and is indifferent as regards the level of detection avoidance. Ignoring detection avoidance for the moment, stealing implies an expected payoff of 12.5 $(3/4 \cdot 15 + 1/4 \cdot 5)$ which is more than the certain payoff of 10 if player B does not steal. After stealing, player B decides about avoidance. Reducing the detection probability by 10 percentage points is equivalent to a reduction of the

expected fine by 1 point, which is exactly equal to the price of the reduction of the detection probability.

We test the effect of two different regimes of norm enforcement. In the compensation regime (treatment COMP), the fine paid by player B is used to (over-)compensate player A, yielding a distribution of points of $(a, b, c) = (15, 5, 5)$. A random mechanism decides whether player B is sanctioned or not. The renk-seeking regime (treatment RENT) mirrors circumstances in which an enforcer (player C) is responsible for B's sanctioning and claims B's eventual fine. In RENT, we get a point distribution of $(a, b, c) = (5, 5, 15)$ if B steals from A and is detected.

To make our treatments comparable, player C can control B only with a probability of 25 percent in RENT. We implement this as follows. Player C selects one number out of the set $\{1, 2, 3, 4\}$. The computer randomly generates one number out of the same set where each will be drawn with equal probability of 25 percent. Player B is controlled only if the number selected by C matches the number generated by the computer.

2.2 Procedures

The experiment was computerized using z-tree (Fischbacher 2007). Overall, 153 subjects participated in the experiment, 51 of them as player B. Each subject participated in only one of the two treatments. Thus, we receive a total of 51 independent observations, 26 in COMP and 25 in RENT.

Subjects were students with various fields of study at the University of Konstanz, recruited via ORSEE (Greiner 2004). The experiment took place in *Lakelab*, the laboratory for experimental economics at the University of Konstanz. Sessions lasted about 40 minutes. The experimental currency was points, with each point being converted into 1 Euro after the experiment. On average, participants earned 8.04 Euros in the experiment. Before the experiment, subjects received written instructions about the experiment.[1]

3 Behavioral Predictions

Our experiment was motivated by how the theoretical literature treats set-ups comparable to RENT and COMP, namely as being interchangeable with respect to potential offender's incentives. The design allows us to contrast norm compliance and detection avoidance given

[1] An English translation of the instructions is available from the authors upon request.

very different kinds of law enforcement.

Indeed it is our expectation that the different designs of law enforcement will elicit very different kinds of behavior. The regime COMP gives more emphasis to the consequence of stealing, given that it seeks to make up for the repercussions of wrong-doing. This should impact on the level of wrong-doing. Moreover, the purpose to which fine revenue is put lends law enforcement in COMP more legitimacy. This should impact on the number of transgressions as well as the average level of detection avoidance. Stated succinctly:

Hypothesis 1 *Players B will*
i) choose a deviation from the norm more often and
ii) invest more in cover-up activities,
if the enforcer C decides on and consumes the fine (treatment RENT*) than if detection is random and the harmed party benefits from the fine (treatment* COMP*).*

4 Results

In COMP, 50 percent of players B decide to steal points from player A, while 68 percent of the players B do so in RENT. This difference is statistically significant ($p < 0.1$) in a Fisher Exact Test. It is our understanding that players B consider the norm not to steal to be more legitimate if they perceive the enforcement system as compensation-oriented (player A gets the fine if B is detected) and as anonymous (random sanction).

With regard to detection avoidance, we obtain a different picture. Players B who decided to steal points in COMP invest significantly more ($p < 0.05$, Wilcoxon rank-sum test, one-sided) in cover-up activities (1.66 points) than players B in RENT (1.34 points). Figure 1 shows the cumulative distribution functions of cover-up investments. This finding does not concur with our Hypothesis 1 and requires explanation. We believe that this second result stems from a selection effect.[2] Note that only players B who have stolen points in the first place may invest in cover-up activities. In COMP, the data can be interpreted such that violators of the norm have little regard for being obedient when it does not pay off in material terms. Therefore, they also have less scruple to minimize the detection probability. In contrast, some subjects in RENT prefer stealing to not stealing seemingly only as a consequence of the perceived illegitimacy of law enforcement regime, but still are not ready to invest in cover-up activities.

[2] As we assigned subjects randomly to one of the two treatments, we assume that the distribution of their risk attitude is the same in the two conditions.

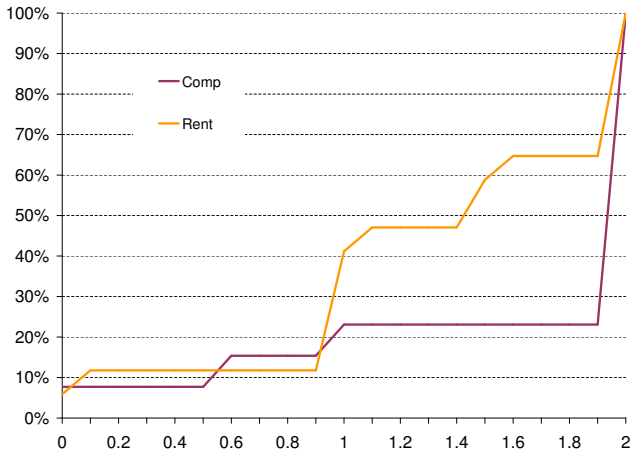

Figure 1: Cover-up activities

5 Conclusion

This paper investigated the impact of law enforcement design on norm compliance and related decisions. The designs differ in that one entails an identified enforcer who claims the fine, whereas the other anonymously collects fines for compensation of victims of wrong-doing. Our data show that people violate the norm less often when sanction is anonymous and random, and the fine is used to compensate the harmed party. At the same time, people which nevertheless violate the norm invest more in detection avoidance. This empirical evidence is in sharp contrast to the treatment in the theoretical literature heretofore.

We interpret the findings as follows. People consider norms backed by law enforcement which may be perceived as facilitating rent-seeking to be less legitimate. This explains why more participants opt for non-compliance. Furthermore, we observe less investment in avoidance per offender in this regime. We explain this second effect assuming different types of participants. One extreme type tends to fit the standard depiction of a potential offender in the literature on the economics of crime in that these care only about personal material payoffs. This type steals in both treatments and invests as much as possible into minimizing the detection risk. The other extreme type, characterized by compliance in any circumstance, steals in neither of the treatments. In between, there is another type which can be deterred from non-compliance

by law enforcement which is perceived as legitimate. However, if individuals of this type offend in the rent-seeking regime, they still do not go to extreme lengths to avoid detection.

This study bears the following policy implications: Policy makers can benefit from informing the public about the way in which fine revenue is used. Furthermore, policy makers need to realize the additional potential downside of private enforcement financed by fine revenue implied by our findings.

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