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## **Collective Responsibility**

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## Collective Responsibility\*

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*Abstract:* The concept of collective responsibility, or group punishment, for crimes or other harmful acts was a pervasive feature of ancient societies, as exemplified by the Roman doctrines of *quasi-delicts* and *noxal* liability, and the Greek notion of “pollution.” This chapter briefly surveys historical examples of collective responsibility, which have largely given way to the modern concept of individual responsibility, though vestiges of collective responsibility remain in modern culture and law (notably in the form of vicarious liability). The chapter then lays out a theoretical analysis of the choice between collective and individual responsibility that highlights those circumstances in which each is preferred as a law enforcement strategy.

Key words: Collective responsibility, individual punishment, group punishment, liability  
*JEL* codes: K14, K42, N40

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# Collective Responsibility

“Collective guilt, whatever form or justification it takes, has to be one of the most evil notions the human race has concocted, most likely the cause of more suffering of innocents than any other vile belief in history.” (Simic 2013: 22)

“The principle of collective responsibility—so abhorrent to modern sensibilities—may be efficient in the conditions of primitive society.” (Posner 1983: 194)

## 1. Introduction

Economic models of law enforcement beginning with Becker (1968) have focused on the goal of identifying and apprehending the perpetrator of a crime based on an principle of “individual responsibility.” Throughout much of history, however, society operated under a much different system that attributed responsibility for wrongdoing to the entire community or group of which a wrongdoer was known to be a member. Indeed, examples of “collective responsibility,” or group punishment, are pervasive in ancient societies as well as biblical stories and mythologies. And the practice persists in various forms in modern society, such as when an entire class is punished for the actions of a prankster, a corporation is held liable for the actions of its employees, or a country is sanctioned for terrorist acts by one of its citizens.

This chapter provides an economic analysis of the choice between individual and group punishment and derives the conditions under which the latter is an optimal strategy.<sup>1</sup> According to the theory, the chief gains from group punishment are certainty of punishing the actual offender and saved detection cost, while the primary drawback is aversion to wrongfully punishing innocent members of the target group. The use of group punishment has therefore

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<sup>1</sup> Previous economic models of individual versus group punishment are found in Heckathorn (1990), Paris and Dari-Mattiacci (2004), and Miceli and Segerson (2007) (on which much of the following is based). Informal treatments of this question from a legal and economic perspective include Posner (1983), Levmore (1995a, b) and Levinson (2003). For a philosophical perspective on collective responsibility, see the various readings in May and Hoffman (1991).

varied over time and circumstance based on differing perspectives on the attribution of guilt and the perceived cost of wrongful punishment.

Several important examples of collective responsibility are found in Roman law, as described in the next section, while Section 3 offers other examples from the ancient world, including the Bible, and Section 4 provides some modern uses of the practice. Section 5 then develops the theoretical analysis and derives the principal conclusions, the formal details of which are provided in the Appendix. Finally, Section 6 concludes.

## **2. Examples from Roman Law**

The principal form of wrongfully imposed harm in Roman law was the *delict*, which is most similar to the common law tort in the sense that enforcement was by a private action, and the principal remedy was payment of damages by the responsible party. The tort analogy is not exact, however, as the *delict* is also similar to a crime in the sense that the assessment of damages was meant to be penal rather than compensatory. Thus, damages had more of the character of a criminal fine (or punitive damages) than of mere indemnification for the victim's losses (Barkowski 1994: 302). Indeed, Buckland et al. (1952: 344-5) note that the "[d]elict is imbued with the idea of vengeance," prompting the authors to argue that "[t]he Roman law of delict has far more affinity to the criminal law than to the law of tort..." (Barkowski (1994: 302) makes a similar argument.) Roman law did include a distinct concept of crime (*crimen*), which gave rise to a criminal (public) rather than a civil action, but to modern eyes "the conceptual difference between some delicts and public offenses would have been hard to establish" (Harries 2007: 58), with the two concepts apparently lying on a continuum that depended on the seriousness of the act (Watson 1991: 212). Many offenses that are nowadays

considered crimes would have been classified as *delicts* in Roman law, as is apparent from the following list of the four principal forms of *delict*: theft (*furtum*), robbery and violence (*rapina*), damage to property (*damnum iniuria datum*), and personal injury or insulting behavior (*iniuria*).<sup>2</sup> The fuzzy line between crimes and torts in Roman law is a common feature of ancient legal systems (Barkowski 1994: 302).

Yet another category of obligation in Roman law, and one that is especially relevant for current purposes, is the *quasi-delict*, which represented a form of liability arising “as if from a delict” but which lacked the existence of direct fault on the part of the responsible party (Watson 1991: 75). Examples included liability of owners of dwellings from which something was thrown or poured so as to cause damage to passersby, and liability of ship’s captains, innkeepers, or stable owners whose employees caused harm or committed fraud. In all of these cases, the person being held liable need not have committed or authorized the harmful act himself, or even have known about it, to be found responsible for the damages. In this sense, *quasi-delicts* are often likened to the modern concept of vicarious liability (Barkowski 1994: 335).

The related concept of *noxal* liability held a *paterfamilias* (head of the household) responsible for the *delicts* committed by his sons or slaves. As a remedy, the master had the choice of paying the amount of the damages or surrendering his dependent (*noxal* surrender). The surrender option thus effectively limited the amount of the master’s liability, though if the master himself had been involved in the wrong, he usually forfeited his right of surrender (Watson 1991: 75).

Generally, all cases of *quasi-delicts* and *noxal* liability reflect a separation of responsibility and fault, which is a distinguishing feature of group punishment. As will be discussed in detail below, there are often good reasons for this, including the “practical inability

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<sup>2</sup> See, generally, Watson (1991) and Barkowski (1994).

to get evidence of fault,” and “the need to get a better defendant, for the workman in charge of dangerous things is not likely to be able to compensate for the damage he does” (Buckland, et al. 1952: 397).

A final example of group responsibility in Roman times is found in the practice of *decimation*, which involved the random execution of one in ten soldiers as a means of maintaining military discipline. The Italian army employed a similar procedure in World War I to punish companies that broke and ran during combat, a practice described by Ernest Hemingway in his autobiographical novel about World War I, *A Farewell to Arms*. The example of decimation differs from vicarious liability, however, in that there is a sense in which all members of the targeted group are equally responsible, but punishing each one of them would obviously be impractical in a military context. As will be seen below, however, random individual punishment is theoretically equivalent to a scaled-down version of group punishment, and therefore has many of the same attributes (both positive and negative).

### **3. Other Ancient Examples**

As several scholars have pointed out, a defining feature of primitive law enforcement was its reliance on collective or group responsibility (Posner, 1983:193-195; Parisi and Darity-Mattiaci 2004). If a person committed a harmful act, primitive law allowed the victim’s kinship group to retaliate against the injurer or his kinship group. Even a state as civilized as ancient Greece believed that a murderer “polluted” his city and family, thereby creating a form of guilt that fell upon all citizens of the city and descendants of the family (Posner 1983: 217). Of course, the most famous example of this is the pollution of Thebes by Oedipus’s murder of his father. A more modern example of the same concept is found in the work of Nathaniel

Hawthorne, which reflects “the theme that the sins of the father are visited upon the children” (Buel 1986: 360). (Hawthorne, of course, believed that he carried the guilt of his forebear, who was a judge at the Salem witch trials.)

The Hammurabi Code contained a provision that allowed a victim of robbery, if unable to identify the guilty party, to seek compensation from the city in which the robbery occurred (Levmore 1995a: 117). Likewise, the kinsmen of a murder victim could seek compensation from the city in which the murder took place. Old English law contained a similar provision, as chronicled by Blackstone (1766, Book 3: 161) in his *Commentaries*, that obliged residents of a village in which a man was robbed to “make hue and cry after the felon,” and if they failed to identify him, the residents were collectively liable for “damages equivalent to his loss.”<sup>3</sup>

The Bible includes numerous examples of group punishment. The stories of Noah’s flood (Genesis 7) and Sodom and Gomorrah (Genesis 18-19) dramatically portray the idea that the sins of a few cast guilt upon an entire community for which all citizens, the innocent and guilty alike, must pay. (Although, as Levmore (1995a: 95) points out, if *all* citizens were truly guilty, then these are not really examples of collective responsibility.) The Old Testament also includes an example of random punishment in the story of Jonah, who boards a ship to escape God’s command to go to the wicked city of Nineveh to serve as a missionary. As punishment for Jonah’s defiance, God creates a storm that threatens to destroy the ship and its crew. The mariners then draw lots to “detect” the person whose transgression was responsible for the storm, and when Johan is miraculously identified as the guilty party, he is thrown overboard, where he is swallowed by a whale (Jonah 1:1-17). The fact that Jonah was correctly identified as the wrongdoer by the lottery is clearly meant to convey to readers the idea that wrongdoers can

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<sup>3</sup> Also see Feinberg (1991: 65-66).

never escape the ever-present surveillance of God, which, in a world where detection and punishment of criminals is difficult, provides an important source of social control.<sup>4</sup>

Probably the most notorious example of group punishment in the Bible is the New Testament story of Herod's attempt to locate and kill the baby Jesus (Matthew 2:1-16). After learning of the birth of the prophesied messiah, Herod first attempted to locate the child by sending the Magi, but when this effort failed, he ordered the slaughter of all male children in the region under the age of two. Of course, this effort at group punishment is an obvious echo of the Old Testament story of Moses, in which God killed all the first-born in Egypt as the final plague aimed at inducing the pharaoh to free the Jewish slaves (Exodus 11:1-9).

Herod's "slaughter of the innocents" depicts, in a dramatic way, the choice between individual and group punishment, especially from the perspective of an enforcer who is unconcerned with punishing the innocent. The fact that it actually failed to punish the true "offender," however, suggests that it was intended as a critique of this especially harsh form of punishment, thus reflecting a transition to a more modern view in which punishment is linked to individual responsibility.

The pervasiveness of group punishment in ancient society reflects two characteristics of primitive law: the idea of punishment as revenge (Holmes 1881 [1963]: 6; Posner 1983: Chapter 8),<sup>5</sup> and the absence of an effective centralized enforcement mechanism. The former requirement meant that *someone* had to pay in order to satisfy and/or compensate victims and their sympathizers (a retributive motive), while the latter precluded the practicality of identifying and exacting punishment or compensation from the actual offender.

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<sup>4</sup> A modern version of this same idea is found in Adam Smith's construct of an "impartial spectator," which he argued was the basis for moral behavior by individuals (Smith, 1759 [1976]).

<sup>5</sup> As Parisi and Dari-Mattiacci (2004: 497) note, "Several ancient rules of talionic justice require that the penalty be imposed with uncompromising symmetry, replicating the harm suffered by the victim and his or her family."



#### 4. Examples from Modern Law

Although collective responsibility is commonly associated with primitive law enforcement, vestiges of it remain in contemporary doctrines and practices.<sup>6</sup> To modern sensibilities, the principal objection to collective responsibility is the idea that innocent parties are punished. Indeed, Parisi and Dari-Mattiacci (2004: 502-503) link the evolution from group to individual responsibility in the Old Testament to the emergence of the idea that “the collective guilt referred to in the earlier sources was no longer the basis of the communal responsibility for wrongs. An individual’s sin did not place any blame on the clan or class to which the wrongdoer belonged.” Modern examples of group responsibility thus tend to involve situations in which “innocent” members of the target group are nevertheless seen as being at least partially culpable for the offender’s action. In other words, the cost of punishing them is not seen as being high. In that case, the savings in detection costs under group punishment make it an attractive strategy.

A timely example of this view in modern times is the imposition of sanctions, or the waging of warfare, against nations known to harbor terrorists or other wrongdoers. Historical examples include the attack on Troy by the Greeks in retaliation for the kidnapping of Helen;<sup>7</sup> the policy of total destruction wreaked by Union general William T. Sherman in his infamous “march to the sea” during the American Civil War; the declaration of war against Germany and Japan by the United States following the bombing of Pearl Harbor; and the resulting internment of Japanese Americans during that war. As Levmore (1995a: 99) notes, “We are accustomed to the fact that war claims the lives of innocent people,” and “one nation may be justified in warring against another when the other nation is unable to control the actions of some of its inhabitants.”

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<sup>6</sup> See, for example, the surveys in Levmore (1995a, b) and Levinson (2003).

<sup>7</sup> Archeologists have concluded that the mythological story of the attack of Troy was likely based on an actual historical event (Wood 1998).

In these cases, citizens of the target country are viewed as somehow collaborating (or at least sympathizing) with the wrongdoer and are therefore partially culpable.

Most modern examples of group responsibility, however, are found in the context of tort law, and can be justified in various ways. One is as a form of insurance for liability, which spreads the cost of accidental harms across an injurer's risk group (Levinson 2003: 371). In this case, individuals pay premiums in proportion to their expected contribution to the risk of harm, and in this sense, are "punished" appropriately in relation to their individual "guilt." Thus, there is no cost of erroneous punishment, and, as long as premiums are calibrated to individual risk, there is no loss of deterrence. However, if such calibration is costly or impossible, deterrence may be sacrificed owing to the usual moral hazard problem (though collective governance within the group, or by the insurer, can help to restore incentives) (Levinson 2003: 372).

Group monitoring of individual members is undoubtedly the principal justification for other recognizable forms of group punishment in modern law. (May and Hoffman (1991: 1) call this as the "conspiracy model" of collective responsibility.) Examples include various forms of vicarious liability like the doctrine of *respondere superior*, under which an employer can be held responsible for torts committed by his employees; the related criminal law rule that a corporation can be held criminally liable for crimes committed by its employees;<sup>8</sup> and joint and several liability, under which any one of a group of injurers can be held responsible for the victim's entire loss.<sup>9</sup> These rules help to promote deterrence in those circumstances where offenders are out of reach of victims or law enforcers, but are under the surveillance of other members of the group, who, it is hoped, will either impose their own form of discipline or turn the offender over to plaintiffs (Varian 1990). In addition, as noted above, vicarious liability rules allow victims (or

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<sup>8</sup> As Garoupa (2000: 244) notes, "Within the context of corporate liability, shareholders become quasi-enforcers."

<sup>9</sup> Menell (1991: 109) notes that under joint and several liability for environmental harms, "disposal of a thimbleful of hazardous waste at a large disposal site exposes an entity to enormous potential liability."

prosecutors) to pursue “better defendants” (i.e., deeper pockets) in the sense of having sufficient resources to fully compensate victims.

In discussing the information revelation function of group punishment, Levmore (1995b) describes the well-known case of *Ybarra v. Spangard*,<sup>10</sup> in which a court allowed a plaintiff to jointly collect from several health care professionals for harm suffered during an operation. This case reflects a general class of torts in which courts apportion damages in the presence of uncertainty over causation (Shavell 1985), but it is unique in the fact that the members of the group held liable presumably knew which of them actually caused the injury. The court’s reasoning in holding them all liable was that the absence of proof that any one person’s negligence caused the accident, which ordinarily would have resulted in a finding of no liability, should not be grounds for denying *any* compensation to the victim, especially given that the absence of evidence was entirely due to the unwillingness of the parties to testify against one another. The threat of group punishment in such a setting may therefore be an effective way to induce one or more of the members to reveal the true offender’s identity. At the same time, failure of any to do so, thus triggering group responsibility, would not be seen as imposing wrongful punishment because, as in the terrorism example, they are all then seen as “harboring the guilty party,” which is itself a form of guilt.

Levmore (1995b) further speculates on why the court did not impose liability on each member of the group *in excess* of the harm suffered by the victim so that even the guilty party would have had an incentive to confess. For example, if the total harm was \$500, then threatening to impose damages of, say, \$600 on *each person* in the operating room would presumably induce the responsible party to confess so that he or she would only have to pay \$500. In other words, the guilty party would have saved \$100 by confessing. Such an

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<sup>10</sup> 154 P.2d 687 (Cal. 1944).

“overextraction” rule would, in addition, give other members of the group an enhanced incentive to turn over the offender. The obvious disadvantage of such a strategy is that it potentially imposes high error costs if the scheme fails to reveal the offender. Further, as Levmore (1995b: 1595) observes, the offender may anticipate that society would not tolerate the actual imposition of such disproportionate penalties on innocent offenders, making the scheme non-credible. Indeed, it is this intolerance of wrongful or disproportionate punishments that makes group punishment objectionable in all but a few settings nowadays, as described above.

## **5. Theoretical Analysis**

This section describes the results of a simple theoretical model devoted to answering the question of when group punishment is preferred, on economic grounds, to individual punishment. (The formal derivations of most of the results are contained in the Appendix.) The analysis is based on the following scenario. A harmful act has been committed by a single unknown individual who is known to be a member of a group of size  $n$ . In other words,  $n$  is defined to be the smallest group of which the offender is known to be a member with certainty. The enforcement authority—whether the victim, the victim’s kinship group, or the state—considers two punishment strategies: (1) seek out and punish a single member from the group (individual punishment), or (2) impose a uniform sanction on the whole group (group punishment). The enforcer’s objective in choosing between these two strategies is taken to be maximization of the net benefits from punishment, which consist of the gains from correctly punishing the true offender, less the costs of punishment (including the cost of wrongful punishment, if any) and detection.

The gains from punishment may come from various sources, including optimal deterrence, retribution, and/or compensation of victims. Whereas optimal deterrence is the primary motivation in economic models of crime (Becker 1968; Polinsky and Shavell 2000), primitive societies seem to have valued proportionality of punishments to crimes (based on the talionic dictum of “an eye for an eye”), which originally had its origins in notions of vengeance (Posner 1983). But even in modern times, there seems to be a strong inclination toward proportional penalties, based primarily on notions of fairness, regardless of whether or not they further the goal of deterrence.<sup>11</sup> The basic conclusions of the following analysis will not, however, depend on the specific motivation for punishment.<sup>12</sup>

In comparing the two punishment strategies, the primary trade-off is between certainty of punishing the true offender and the costs of erroneously punishing the innocent. Thus, if the social costs of wrongful punishment are not deemed to be high, group punishment may well be an effective strategy. This likely explains the use of this strategy, for example, in the biblical story of Herod, since his objective was to kill the would-be messiah, and he was apparently unconcerned with the residual carnage. In addition, as noted above, modern examples of group punishment also seem to be found in contexts where wrongful punishment is not a large concern, either because the sanction is not really deemed to be punishment (as in the case of the insurance examples), or because all members of the target group are seen as culpable for the underlying offense (as in the cases of military actions).

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<sup>11</sup> For example, one of the key prescriptions of Becker’s model, which is based solely on deterrence, is that punishments should be raised to the maximum extent possible, and apprehension probabilities scaled back correspondingly, so as to save on overall enforcement costs. Actual punishment schemes, however, rarely if ever implement such a policy. On the inclusion of fairness in Becker’s model, see Miceli (1991)

<sup>12</sup> See Miceli and Segerson (2007) for a formal analysis that explicitly distinguishes between deterrence and retribution as motives and shows how they affect the choice between individual and group punishment. The principal conclusion is that when retribution is the primary goal, either punishment strategy may dominate, but when deterrence is the goal, individual punishment dominates.

To the contrary, in cases of true criminal punishment, especially when imprisonment is involved, the predominant reliance in modern society on individual punishment reflects an overriding concern for avoiding wrongful punishment. Indeed, the significant safeguards of criminal defendants' rights in the Anglo-American and other modern criminal justice systems are a manifestation of this social value. The other factor that has contributed to (or, more properly, allowed) the rise of individual criminal punishment, of course, is the emergence of centralized enforcement authorities (principally governments) and the development of technologies that allow the accurate detection of offenders.

Prior to the emergence of a "science of detection," individual punishment, if employed, often amounted to little more than random punishment, as in the Roman practice of decimation (which, as noted, continued to be used by the Italian army into the twentieth century). As shown in the Appendix, however, if there are constant returns to scale in punishment costs (including error costs), then random individual punishment—that is, punishing one randomly selected individual from the group—is dominated by group punishment. The reason is that, if punishing one person in the group is socially advantageous (i.e., if it yields a net social benefit), then punishing all members must yield  $n$  times that benefit. This logic is most easily seen in the case where the enforcer incurs no punishment costs. When that is true, it makes no sense to punish only one member of the group since by punishing all of them, the true offender is punished with certainty, thereby achieving the desired level of deterrence, revenge, or incapacitation. Adding punishment costs does not alter this conclusion as long as the gain from punishment exceeds the costs on a per-person basis.

Random punishment does, however, possibly dominate group punishment if punishment costs are increasing at the margin. Thus, in cases where detection is either very difficult, or

where all group members are seen as culpable but there are decreasing returns to scale in punishment costs, random individual punishment may make sense. The case of decimation is a good example of this scenario since the imposition of some punishment no doubt provided a strong deterrent against mutiny or flight in battle, but execution or incapacitation of all members of an offending company would have been impractical for obvious manpower reasons.

The other situation where group punishment possibly offers strong advantages, as noted above, is when the members of the group can thereby be induced to reveal the identity of the true offender, or to impose their own form of punishment. In this case, the threat of group punishment effectively enlists the members of the group as surrogate enforcers, thus minimizing the cost of enforcement to the central authority.

Economic theory provides further insight into this particular motivation for group punishment. As shown in the Appendix, the size of the group likely has an important impact on the efficacy of group punishment for inducing the group to impose internal sanctions, but the effects are cross-cutting. On one hand, it would not seem to be effective if the offender is a member of a large group because then it would be fairly easy for the latter to remain anonymous to other members, and free rider problems would preclude them from investing much effort in identifying him. Based on this logic, Parisi and Dari-Mattiacci (2004) argue that growth in the size of communities over time “might explain the historical evolution towards systems of individual responsibility and in general towards the limitation of the size of the group that was to be held collectively responsible for the wrongs of its members” (504).

On the other hand, small groups would likely have significant group solidarity, and therefore would be reluctant to turn over one of their own members. Thus, for example, sanctioning of fraternities for campus pranks would not likely be an effective way to discover the

offender's identity (as exemplified by the movie *Animal House*).<sup>13</sup> Another example, suggested by Akerlof and Yellen (1994) in the context of gang behavior, emphasizes the importance of a community's willingness to cooperate with police in identifying offenders. In this case, the use of group sanctions may significantly inhibit such cooperation by fostering an "us versus them" attitude among gang members. (Although in this case, members of the group in some sense inherit the offender's guilt by their refusal to "out him.") In the same vein, some contend that harsh sanctions against countries harboring terrorists might actually incite more terrorist acts. Taken together, these arguments suggest that the information-revealing function of group punishment might best be implemented for *moderately sized* groups and those with memberships that are not long-lasting so as to avoid the emergence of strong intra-group solidarity.<sup>14</sup>

The use of vicarious liability in Roman law and the modern manifestations of this practice represent a closely related form of group responsibility. Under this strategy, a principal (an employer or head of a household) is sanctioned in the hopes that he or she will pass the sanction on to an offending agent who is either in the principal's employ or is otherwise under his or her control (as in the case of *noxal* liability). As Levinson (2003: 349) notes, "Vicarious liability might be understood as a special type of collective sanction regime, characterized by a target group consisting of (only) two individuals bound together in a contractual relationship."<sup>15</sup> In addition to providing incentives for offenders to refrain from harmful acts, vicarious liability can also increase the chances of obtaining compensation for victims (when that is one of the social goals) by correcting for judgment-proof problems, such as when employees, minor family

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<sup>13</sup> But see Feinberg (1991: 61), who argues that collective responsibility would be most effective in groups with a "high degree" of solidarity because such groups would be more likely to share common interests and thus to suffer sanctions in common. Although this might promote mutual restraint before an act is committed, it will also likely prevent the group from turning over a guilty party after the fact.

<sup>14</sup> See Heckathorn (1990) for a formal analysis of intra-group control norms in the presence of group sanctions.

<sup>15</sup> For a formal model of this in an environmental context, see Segerson and Tietenberg (1992). More generally, see Sykes (1984) and Feinberg (1991).



members, animals, or slaves lack the personal resources to cover any damages that they impose.<sup>16</sup> An offsetting effect, noted by Arlen (1994) in the context of corporate liability, is that when corporations face the threat of vicarious liability they might actually refrain from policing their employees for fear that doing so will increase the chances that crimes will be uncovered, thereby potentially raising the company's expected liability.<sup>17</sup>

Notwithstanding the foregoing benefits from group responsibility, it is undoubtedly the case that the primary objection in modern eyes to this form of punishment in most cases is the attribution of guilt to all members of the group. In addition to the stigma that this creates, especially when the punishment is criminal in nature, there is a risk that it might justify other forms of punishment or discrimination against the group. For example, the practice of statistical discrimination (or profiling) based on race, gender, or ethnic background, is a form of group punishment that may be justified on purely efficiency grounds due to imperfect information, but is in many (though not all)<sup>18</sup> cases viewed as offensive and possibly unconstitutional (Posner 2003: 689-690). This has not always been the case, however, as exemplified by the example, noted above, of the internment of Japanese Americans during World War II, an action that was accepted as a necessary security measure at the time, but which would be unthinkable today, only two generations later.

What these examples reveal is that the acceptability of group responsibility as an enforcement strategy depends on factors that vary with both time and circumstance, and reflect a balancing of social values about guilt and punishment. As Feinberg (1991: 67) observes, the general demise of collective responsibility has not occurred because "individual responsibility is

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<sup>16</sup> On the judgment- proof problem in tort contexts, see Shavell (1986) and Miceli and Segerson (2003).

<sup>17</sup> For further discussion of collective responsibility in the context of corporations, see Velasquez (1991) and French (1991).

<sup>18</sup> The setting of different auto insurance rates based on age and gender, for example, apparently remains acceptable.

an eternal law of reason,” but because the conditions that made it reasonable or necessary in primitive societies are rarely present in modern times.

## **6. Conclusion**

Collective responsibility for wrongdoing is a law enforcement practice that is often associated with primitive society, or at least with primitive notions of vengeance (as exemplified by the infamous Hatfield-McCoy feud (Alther, 2012)). A careful examination of the practice, however, reveals that several forms of group punishment remained in use in highly civilized societies like ancient Greece and Rome, and continue to be used in various ways in modern society, both informally and doctrinally. The persistence of collective responsibility, or group punishment, suggests that the strategy must serve a useful law enforcement function in at least some circumstances. Prompted by this insight, this chapter has examined the economic logic underlying the use of group punishment by focusing on the costs and benefits of the practice in relation to individual punishment. The conclusions reveal that collective responsibility is often a rational social response to prevailing circumstances, such as when individual punishment is inefficient or impractical, or when members of the group are harboring the offending party or otherwise share in his or her responsibility for the wrongful act.

## Appendix: A Simple of Model of Individual versus Group Punishment

The model will make use of the following notation:

$B$  = social benefit of punishing the true offender, reflecting either deterrence, retribution, or the desire for compensation of victims;

$k$  = social cost incurred for each person wrongfully punished;

$n$  = smallest group of which the offender is known to be a member,  $n > 1$ ;

$p$  = probability of correctly apprehending the true offender;

$c(p, n)$  = cost of detection, where  $c_p > 0$ ,  $c_{pp} > 0$ ,  $c_n > 0$ , and  $c_{pn} > 0$ .

The cost of detection function reflects the best available technology for identifying the true offender under a strategy of individual punishment. It seems plausible to assume that both the overall cost, and the marginal cost of increasing  $p$  (i.e., of achieving greater certainty), are increasing in the group size.

Given this notation, we can write the expected social benefits from individual (I) and group (G) punishment as

$$W_I = pB - (1-p)k - c(p, n), \quad (1)$$

$$W_G = B - (n-1)k. \quad (2)$$

For sake of comparison, we assume equal punishments under the two regimes, given that both  $B$  and  $k$  will depend on the nature and magnitude of the sanction.<sup>19</sup> In the case of individual punishment, the enforcer will ordinarily be able to choose  $p$  to maximize  $W_I$ , which yields the first order condition

$$B + k = c_p. \quad (3)$$

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<sup>19</sup> See Miceli and Segerson (2007) for a model that allows an endogenous choice of the punishment under each regime, and also formally distinguishes between deterrence and retribution as social goals of punishment.

According to (3), the optimal probability of apprehension, denoted  $p^*$ , equates the marginal benefit of correct punishment, consisting of the direct benefit  $B$  plus the savings in error costs  $k$ , to the marginal cost. Totally differentiating (3) and using the assumption that  $c_{pn} > 0$  shows that  $p^*$  is decreasing in  $n$  and increasing in  $k$  and  $B$ . Thus, under individual punishment, the enforcer devotes less effort to identifying the true offender as the group size increases, and more effort as the cost of erroneous punishment and/or the benefit of conviction increases.

Using this model, we can prove several of the claims asserted in the text.

Result 1: When the cost of erroneous punishment is zero, group punishment is preferred to individual punishment for any choice of  $p$ .

This follows immediately from a comparison of (1) and (2) when  $k=0$ . Intuitively, group punishment both ensures that the true offender is punished and saves enforcement costs compared to individual punishment. This establishes that the primary justification for individual punishment is the aversion to wrongful punishment.

One step on the road to individual punishment is punishment of a randomly chosen member of the group known to harbor the true offender.

Result 2: Random individual punishment achieves the same level of social welfare, on a per-person basis, as group punishment.

To prove this, note first that under random individual punishment,  $p=1/n$  and  $c(1/n,n)=0$  (given that no enforcement costs are expended). Thus, (1) reduces to

$$\begin{aligned}
W_I^R &= B/n - (1-1/n)k \\
&= [B-(n-1)k]/n.
\end{aligned} \tag{4}$$

Comparing (4) to (2) shows that  $W_I^R = W_G/n$ . Further, assuming that  $B-(n-1)k > 0$ ,  $W_G > W_I^R$  provided for  $n > 1$ . It therefore follows that

Result 3: Group punishment is preferred to random individual punishment, provided that punishment is desirable at all.

Thus, if random individual punishment is desirable in the sense that it yields a net social gain, then punishing all members of the group must yield proportionately greater social benefits, given constant returns to scale.

The preceding conclusions imply that the benefits of individual punishment must come from optimal detection efforts. Indeed, when  $p$  is chosen optimally we have

Result 4: As the cost of erroneous punishment rises, individual punishment will eventually be preferred to group punishment.

The effects of an increase in  $k$  on welfare under the two punishment regimes are given by

$$\frac{\partial W_G}{\partial k} = -(n-1) < 0 \tag{5}$$

$$\frac{\partial W_I}{\partial k} = -(1-p^*) < 0, \tag{6}$$

where the Envelope Theorem was invoked to obtain (6). From Result 1 above, we know that  $W_G > W_I$  when  $k=0$ , but both expressions are decreasing in  $k$ . However,  $W_G$  declines linearly

whereas  $W_I$  is convex given that  $p^*$  rises with  $k$ . Thus, for large enough  $k$ ,  $W_I$  will cross  $W_G$  from below.

One claimed advantage of group punishment is that it may induce members of the group to identify the offender.

Result 5: Social welfare from group punishment is increasing in the probability that the group will turn over the true offender.

Let  $q$  be the probability that the group will identify the true offender when faced with group punishment. In that case, expected social welfare under group punishment becomes

$$W_G = B - (1-q)(n-1)k. \quad (7)$$

This expression is clearly increasing in  $q$ , reflecting the savings in the expected costs of erroneous punishment when the group may turn over the offender. Generally, we would expect  $q$  to be a function of the group size, but the sign of  $q'(n)$  may be positive or negative. On one hand,  $q' < 0$  because an offender can avoid detection more easily in a larger group, but on the other,  $q' > 0$  if smaller groups have greater solidarity and hence are less willing to turn over one of their own. Thus, we have

Result 6: If  $q' < 0$ , welfare under group punishment is decreasing in group size, but if  $q' > 0$ , welfare under group punishment may be increasing or decreasing in group size.

Differentiating (7) yields

$$\frac{\partial W_G}{\partial n} = -(1-q)k + (n-1)kq'. \quad (8)$$

The first term is the direct increase in error costs from an increase in  $n$ , while the second reflects the effect of  $n$  on  $q$ . If  $q' < 0$ , this term reinforces the first term and the entire expression is negative, but if  $q' > 0$ , this term offsets the first term and the entire expression is ambiguous in sign. It follows from these results that the most effective use of group punishment may be for moderately sized groups. One may also infer that group punishment would be most effective for groups that endure only temporarily so that members don't have an opportunity to establish significant intra-group solidarity (in which case  $q$  would be high).

Finally, suppose that punishment is costly to impose (apart from error costs), and let  $s$  be the social cost per person punished. Now (1) and (2) become

$$W_I = pB - (1-p)k - s - c(p,n), \quad (9)$$

$$W_G = B - (n-1)k - ns. \quad (10)$$

Clearly, the higher cost of punishment under group punishment is now a significant disadvantage compared to individual punishment, all else equal. This will be especially true if  $s$  is itself increasing in  $n$ ; that is, if marginal punishment costs are increasing. In this case, random individual punishment is no longer simply equal to  $W_G/n$  due to decreasing returns to scale in punishment costs. Rather,  $W_I^R > W_G/n$ , and it is no longer necessarily true that group punishment dominates random individual punishment. Beyond these factors, the other results derived above for the case where  $s=0$  remain largely unaffected.

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