The Economics of Stigma: Why More Detection of Crime May Result in Less Stigmatization

Alon Harel and Alon Klement

ABSTRACT

This paper establishes that there may be an inverse relation between the rate of detection and the deterrent effects of stigma. The more people are detected and stigmatized, the less deterrence there may be. This conclusion is based on a search model in which the costs of searching for law-abiding partners increase with the rate of detection. The model distinguishes between willing stigmatizers, who refrain from business or social contacts with someone they believe has committed an offense (whether he is detected or not), and unwilling stigmatizers, whose main concern is not to be associated with the stigmatized yet are indifferent to whether that person has actually committed an offense. The inverse relation between the rate of detection and the deterrent effect of stigma is possible when the percentage of unwilling stigmatizers in the population is sufficiently high.

1. INTRODUCTION

Stigma is characterized as an external incentive founded on the reluctance of individuals to interact with a person who breaches social norms. Stigma can be either economic (for example, lower wages) or social (for example, difficulty in finding a spouse) (Rasmusen 1996, p. 520). Stigma

often follows criminal conviction, in particular in jurisdictions in which the criminal record of a person is public.[1] In recent years, criminal law experts have suggested increasing the use of stigma in sentencing. Consequently, shaming penalties—penalties whose effectiveness hinges largely on stigma—have become popular in many American jurisdictions.[2] These developments have inspired economists to investigate the usefulness of stigma as a tool in crime prevention.[3]

This article points out some limitations of using stigma in criminal law that have gone unaccounted for—limitations that constrain their extensive use. More particularly, it is argued that wide-ranging use of stigma may erode its effectiveness and that the extensive use of stigma as a substitute for traditional sanctions—for example, in the context of shaming penalties—may undermine its deterrent effects. The effectiveness of stigma, as we argue, may be inversely related to the rate of detection of crimes.[4] The more people are detected, the less effective stigma may become.[5]

---

1. Different legal systems have different rules concerning criminal records. In the United States there seems to be a tendency toward facilitating access to criminal records, whereas in Switzerland, for instance, there are strict restrictions concerning the availability of criminal records (Funk 2004, p. 716).

2. For example, Kahan (1996, p. 592) advocates the use of shaming penalties as a substitute for traditional sanctions such as incarceration and fines; Kahan and Posner (1999, pp. 367–68) advocate the use of shaming penalties for white-collar crimes.

3. Economists point out that stigma "shares with fines the advantage of deterring the criminal without real costs" (Rasmusen 1996, p. 536). Unlike fines, stigma is not subject to the risks of insolvency. Even people who cannot pay fines can still suffer from stigma. Yet stigma's effectiveness diminishes for recidivists (Funk 2004, p. 716). Furthermore, it is claimed that the stigmatizing effects may often be too large or too small and cannot be easily manipulated by the criminal law system (Kahan and Posner 1999, p. 386).

4. Some previous accounts raised a similar conjecture in the context of shaming penalties. Thus, for instance, Massaro (1997, pp. 697–98) states, "[If] shaming penalties were imposed equally on all offenders who commit similar offences, this could undercut the impact of these penalties; the more people subject to shaming, the less it compromises one's social status—it could even begin to elevate it in some cases (If, e.g., five cars in the neighborhood bear 'DUI' plates, then the plates may lose some ego ideal and social status shattering effect.) Just as jail time has lost its stigma within certain subcultures, so might pillory time lose its sting if many members of the subculture have endured it." Yet Massaro's analysis is based on psychological conjectures. Instead, our analysis is founded on the analysis of rational behavior in social groups and in the market. It is the rationality of individuals (both of law-abiding citizens and of offenders) that dictates that shaming penalties lose their effectiveness if used extensively.

5. The first to model stigma in a rational expectations model was Rasmusen (1996). In a paper based on Rasmusen's model, Funk (2004) shows that stigma has little effect on stigmatized ex-convicts and that, consequently, increasing the rate of stigmatization may have negative effects on deterrence (resulting from the fact that ex-convicts are not deterred by stigma). Yet this effect is attributable exclusively to the effects it has on ex-convicts.

To demonstrate the inverse relations between the rate of detection and the effectiveness of stigma, we use a market search model that shows that the search costs of law-abiding citizens (resulting from shunning the stigmatized and searching for law-abiding commercial partners) increase with the size of the stigmatized population. We show that stigma may be more effective when it is rarely used.

The inverse relationship between the number of stigmatized and the deterrent effect of stigma may translate into two distinctive and counterintuitive features that ought to influence the ways in which these penalties are used. We show that increasing the probability of detection and conviction and increasing the magnitude of the stigma may each dilute the deterrent effects of stigma. These effects ought to be considered when determining the optimal investment in detection and the optimal size of stigma. Furthermore, these effects should alert policy makers that the maximal level of deterrence feasible through stigma might prove to be lower than expected.

Section 2 analyzes the costs borne by individuals and the effects that these costs may have on their willingness to stigmatize. It also demonstrates that the willingness to bear the costs of stigmatization differs between different groups of stigmatizers. Section 3 establishes our main claim—that the deterrent effects of stigma may be inversely related to the number of individuals who are stigmatized. It also demonstrates that an increase in the probability of detection and the size of the stigmatic sanction may result in a decrease in the deterrent effects of the stigma attached to penalties. Section 4 briefly demonstrates the relevance of the search model to policymaking. Section 5 concludes.

2. WHY DO PEOPLE STIGMATIZE?

Stigmatization imposes costs on offenders by identifying them and disseminating information that generates social and professional isolation and alienation from law-abiding society. Individuals are deterred because other individuals, law-abiding individuals in particular, would limit their social or professional interaction with them as a result of their being subjected to a criminal penalty. This is particularly true in the context

---

Finally, Blume (2003) analyzes a dynamic population model and explores the evolution of stigma and crime. Blume assumes that stigma is inversely correlated with the rate of detection of criminals, an assumption that we demonstrate as a result in our model.

of shaming penalties.[6] Stigmatization effects of shaming penalties can be particularly harsh.[7]

Stigma, under this explanation, presupposes the active cooperation of private individuals—individuals who incur costs in facilitating the stigmatization scheme.[8] Such a costly cooperation is needed because stigmatization facilitates the imposition of private sanctions on offenders. The effectiveness of private sanctions is based on the active cooperation of private enforcers and their willingness to incur costs in imposing private sanctions.

Other things being equal, the larger the costs private enforcers incur in the imposition of private sanctions, the less the willingness of private enforcers to stigmatize, and consequently, the less effective stigma becomes. To evaluate the effectiveness of stigma, it is therefore crucial to identify the costs that private enforcers have to incur in order to cooperate with the scheme of stigmatization.

Private enforcers are not a homogenous group. There are different types of private enforcers, and their willingness to incur costs in stigmatizing differs from one group to another. Stigmatizers can be usefully classified into two groups. Each of these groups faces a different set of incentives and, consequently, reacts differently to an increase in the probability of detection and shaming. The first group—the willing stigma-

6. According to Braudway (2004, p. 80), "The consequences of shaming penalties are extremely unpleasant. Those who lose the respect of their peers often suffer a crippling diminishment of self-esteem." Garvey (1998, p. 752) notes that the person who is subject to shame penalties "may suffer adverse consequences from members of the community, who may . . . refuse to engage in various forms of social and economic intercourse with him."

7. The dissemination of information concerning a person's criminal record is also facilitated by the imposition of traditional sanctions such as incarceration and fines. The criminal trial itself (irrespective of what the sanctions are) is public, and the criminal record of a person is often available. Yet shaming penalties are distinctive because they are especially designed to facilitate easy and cheap dissemination of information and thereby result in a much broader dissemination of information than traditional sanctions. Publicity is often the primary and sometimes the exclusive component of shaming penalties. Moreover, the theatrical exposure of the criminal, his evil deeds, and sometimes his (forced) apology attracts broad public attention, and consequently the relevant information is likely to be more broadly disseminated. Posner (2000, pp. 108–10) discusses the special communicative effects of different sanctions.

8. Posner and Rasmusen (1999, pp. 376–77) distinguish between bilateral costly sanctions and multilateral costly sanctions. Both categories are costly to the stigmatizers; according to Posner (2000, p. 90), "The signal could be costly either because this individual values his interactions with the bad type, or because he discounts the future highly." Kahan and Posner (1999, p. 372) point out the costs of stigmatizing in the context of shaming penalties.

tizers—consists of individuals who refrain from interacting with offenders. The second group—the unwilling stigmatizers—consists of individuals who target not offenders but stigmatized individuals, for example, individuals who have been convicted of crimes or whose criminal record is available.[9]

Willing stigmatizers want to avoid interacting with individuals who have actually committed an offense (irrespective of whether they are detected). Their utility from interaction with a person (be it social or business interaction) is inversely correlated with the commission of an illegal act by that person. An interaction with an individual who committed an illegal act is less beneficial (or more costly) for a willing stigmatizer.

There are two types of willing stigmatizers: the instrumentally motivated willing stigmatizers and the morally motivated willing stigmatizers. Some people—the instrumentally motivated willing stigmatizers— may negatively react to the past commission of an offense when the commission of the offense is indicative that the goods or services that are likely to be provided by an offender are inferior to those that are likely to be provided by nonoffenders.[10] For example, people are less likely to hire a cabdriver who has driven while intoxicated, because driving with such a person is risky. Parents would typically not hire a babysitter who has committed sex offenses because of their belief that such behavior indicates a disposition to commit similar offenses in the future. In both cases, the services that are likely to be provided by offenders are of lesser quality or involve greater risks than the services provided by nonoffenders.

Other willing stigmatizers—the morally motivated willing stigmatizers—are motivated by internal norms rather than the fear of getting an

9. Although the precise distinction drawn by us has not been made in the literature, some advocates of shaming penalties have drawn attention to different categories of stigmatizers that constitute special cases of the categories of willing and unwilling stigmatizers. Thus, for instance, Kahan and Posner (1999, p. 370) argue, "People avoid the offender for two reasons (1) the offender has been revealed as a bad type, who is thus likely to be unreliable in cooperative endeavors; and (2) even to the extent that it might be profitable to continue to deal with the offender (because he has special skills, for example), by ostentatiously avoiding him, one shows that one belongs to the good type and thus reveals oneself to be an attractive partner to others." The first category described is a special case of a willing stigmatizer, whereas the second category is a special case of an unwilling stigmatizer.

10. Posner and Rasmusen (1999, p. 371) call the sanctioning by such stigmatizers "informational sanctions," where the violator's action conveys information about himself that he would rather others not know.

inferior product or service from the criminal.[11] These people detest interaction with criminals and choose to incur costs in order to avoid interacting with them. They wish to dissociate themselves from criminals and interact only with law-abiding individuals.

Unwilling stigmatizers refrain from interacting with individuals who are publicly and officially identified and labeled as offenders. They do not care whether the individuals they interact with are offenders. They are, however, reluctant to interact with stigmatized individuals. Such reluctance may be attributed to the unwillingness to be publicly observed interacting with stigmatized individuals. Interaction with the stigmatized might signal to third parties that those interacting with them are also bad types. This commonsense wisdom is often articulated by folk wisdom such as "tell me who your friends are, and I will tell you who you are," or "birds of a feather flock together," or "lie down with dogs, wake up with fleas." In contrast, refraining from interacting with the stigmatized may signal to third parties that those who refrain are good types who share their moral outlook and uphold moral values.

Evidently, the preferences not to interact with offenders and not to interact with the stigmatized do not preclude each other, and they can be present in the same person at the same time. A firm or a person may wish to shun offenders, yet their preference for doing so might be even more intense if the offenders have been publicly exposed and stigmatized. For the sake of expository clarity, we nevertheless separate the two types in the following discussion.

Criminal conviction is clearly relevant for both willing stigmatizers and unwilling stigmatizers. The willing stigmatizers use conviction as a proxy for identifying offenders even if their real intended targets are offenders rather than those who have been convicted and punished. In contrast, unwilling stigmatizers do not use stigmatization merely as a proxy; their primary targets are those who have been publicly identified and labeled as offenders—that is, the stigmatized. Hence, both groups would differentiate between stigmatized and unstigmatized individuals, and both types of enforcers would refrain from interacting with the stigmatized.

Yet there is a major factor differentiating the behavior of willing and unwilling stigmatizers. Although the propensity of the willing and the

---

11. Cooter (1997, p. 957) terms the internalized norm motivation of stigmatizers "righteousness": "By righteousness, I mean the willingness of someone who internalizes an obligation to punish other people for violating it."

unwilling stigmatizers to interact with the stigmatized is similar, it is their propensity to interact with the unstigmatized that is different. More particularly, willing stigmatizers bear costs when they interact with the unstigmatized—costs that are not borne by the unwilling stigmatizers.

Stigma is not attached to all offenders. All private enforcers know that some offenders are not detected or convicted, despite having committed an offense. Yet not all private enforcers react in a similar fashion to the imperfections of the enforcement system. The propensity of willing stigmatizers to interact with an unstigmatized individual is affected by the possibility that that person may after all be an unstigmatized offender. The potential gains that one may derive from the interaction with an unstigmatized individual are discounted given the nonnegligible probability that the unstigmatized individual is, in reality, an offender. The possibility that the cabdriver one hires is an alcoholic is a matter of concern to a potential customer, irrespective of whether the person has a DUI sign. In contrast, the unwilling stigmatizer is indifferent as to whether the person has committed an offense. His only concern is to identify the individuals who are known to have been convicted and to avoid interacting with them.

This difference between willing and unwilling stigmatizers has important unexpected ramifications. In particular, willing and unwilling stigmatizers react very differently to an increase in the probability of detection. An increase in the probability of detection increases the expected search costs of both willing and unwilling stigmatizers, as they would have to search more until they find someone who was not stigmatized. At the same time, increasing the probability of detection is beneficial for willing stigmatizers because it allows them to infer more reliably the innocence of a person from the fact that that person has not been convicted, and consequently it decreases the costs of interacting with the unstigmatized.[12] For reasons that are elaborated in our model, the striking result is that the behavior of willing stigmatizers is unaffected by the rate of detection. Those who prefer to search for an unstigmatized individual continue doing so, and those who ignore stigmatization and interact with both the stigmatized and the unstigmatized also do not change their behavior, irrespective of the rate of detection.[13]

Compare these effects to the effects that increasing the probability

12. Rasmusen (1996) made a similar argument.
13. As we explain in the model, the higher rate of detection may have secondary effects on the behavior of willing stigmatizers, because it increases deterrence and therefore changes the expected quality of being unstigmatized.

of detection has on the unwilling stigmatizer. Like willing stigmatizers, unwilling stigmatizers also face greater search costs resulting from an increase in the probability of detection. An increase in the rate of detection and stigmatization inevitably increases the search costs of all private enforcers. But, in contrast to the willing stigmatizers, the greater accuracy and reliability of the criminal law system in detecting criminals does not generate any benefit for the unwilling stigmatizers because their benefits and costs from interacting with the unstigmatized are unaffected. As a result, if the rate of detection is increased, an unwilling stigmatizer who was indifferent between searching for an unstigmatized person and interacting with the stigmatized would now strictly prefer not to search. The rate of private enforcement may therefore decline.[14]

To sum up, stigma operates by limiting and constraining both social and commercial opportunities. These constraints are the by-product of the willingness of individuals—private enforcers—to punish the perpetrators of crime by limiting social or professional interactions with them. Yet this willingness on the part of individuals to stigmatize may be costly, and its costs depend upon the number of stigmatized individuals. Furthermore, private enforcers' costs and benefits would depend on their motivation for shunning the stigmatized. In particular, willing stigmatizers would benefit from the greater accuracy a higher rate of detection and stigmatization provides. Unwilling stigmatizers, on the other hand, would not enjoy such benefits. Because increasing the rate of detection increases the expected costs of search for the unwilling stigmatizers, these differences would translate into different levels of private enforcement.

3. WHY MORE STIGMATIZATION MAY DETER LESS

3.1. The Search Model

Assume two disjoint sets of risk-neutral individuals, buyers and sellers. The ratio between the number of buyers and the number of sellers is $r \ll 1$. Sellers and buyers play the following two-stage game. In stage 1, each seller contemplates whether to commit an illegal act. Seller i's utility from committing the illegal act, u_i, is uniformly distributed on [0, 1]. Only seller i knows his utility and whether he committed the illegal act.

14. Kahan and Posner (1999, p. 372) raise a similar conjecture: "If a lot of people are caught and shamed, then we might have no choice about whether to cooperate with the offender."

Each seller is audited by the state with probability $q < 1$.[15] If a seller is found to have committed the illegal act, then this is made publicly known. Thus, at the end of stage 1 the seller population is divided into sellers who are stigmatized and sellers who are unstigmatized.

In stage 2, buyers are searching for some service that only sellers can perform. Buyers know only if a seller was stigmatized. Each buyer has a unit demand for that service, whose price is fixed at $v < 1$ ($v \geqslant 0$).[16] A buyer's net benefit (net of v) from a service performed by a seller is equal to B_G if the seller committed the offense (and is therefore guilty), and B_I if she did not commit the offense (and is therefore innocent). It is assumed that $B_I \geqslant B_G$. That is, the buyer's benefit from hiring an innocent seller is (weakly) higher than his benefit from hiring a guilty seller.[17]

If the buyer hires a stigmatized seller, he also bears an external penalty, denoted $P \geqslant 0$. This penalty stands for any external cost imposed on the buyer, either by the state or by other members in society.[18] It is assumed that $B_G > P$, so the buyer derives a positive net benefit even if the service is provided by a guilty seller.

Stage 2 is a multiple-period stage. In every period, each of the buyers picks a random seller and decides whether to hire her to perform a service. If and only if the buyer does not hire that seller, he continues his search and picks another seller during the next period. Search costs vary among buyers. Buyer j's search costs are k_j. Sellers know only that k_j is drawn from a continuous distribution function $F(\cdot)$ on $[0, K]$ for some $K > P$.[19] We assume that production costs of the service are zero,

---

15. We discuss the case in which $q = 1$ in note 23.

16. Under this assumption, there are sellers who would commit the illegal act even if they were certain to be caught. We make this assumption only to assure an interior equilibrium—that is, an equilibrium in which some, but not all, individuals commit the illegal act. See note 21.

17. The model thus assumes that willing stigmatizing buyers are morally driven. That is, they are motivated by internal norms that are offended by the seller's illegal act rather than by the fear of getting an inferior product or service from the seller. Harel and Klement (2005) presented a different version of the model in which willing stigmatizing buyers are instrumentally driven. The results in both versions are essentially the same.

18. This framework follows Akerlof (1976, pp. 611–13).

19. Some people may enjoy shunning others. Their benefit from avoiding interaction with the stigmatized should therefore be deducted from their costs of searching for the unstigmatized. The distribution of search costs may therefore account for such benefits as well.

so each seller's net utility from providing the service is v.[20] An outcome of this two-stage game is given by the decision of each seller whether to commit the illegal act and the decision of each buyer whether to search in each period for an unstigmatized seller.

Two points are worth notice. First, our early discussion of stigmatization and private enforcement has distinguished between willing and unwilling stigmatizers. In the model, willing stigmatizers would have higher benefit from hiring an innocent seller than from hiring a guilty seller, $B_I > B_G$, whereas unwilling stigmatizers would feature a constant benefit function, $B_I = B_G$.

Second, it is assumed that a buyer's search and hiring decisions do not depend on his previous search history. His decision whether to search for an unstigmatized seller is stationary. Buyers are therefore partitioned to those who search and those who do not search, given their beliefs about the rate of law compliance among sellers.

3.2. Analysis

Because buyers can recognize only whether a seller is stigmatized, there are two possible probabilities of being hired: that of a stigmatized seller, denoted h_S, and that of an unstigmatized seller, denoted h_N. Therefore, the expected utility of a seller who commits the illegal act, denoted U_i^G, is

$$U_i^G = u_i + v[qh_S + (1-q)h_N], \tag{1}$$

whereas the expected utility of a seller who does not commit the illegal act, denoted U_i^I, is

$$U_i^I = vh_N. \tag{2}$$

20. We assume a fixed and equal price for stigmatized and unstigmatized sellers above their reservation value. This would be the case if buyers have all the bargaining power yet the price is bounded from below, above sellers' reservation value. If sellers had full bargaining power, then they could fully extract buyers' premium despite excess supply (see Diamond 1971). Thus, assuming that stigmatizers are willing, for example, innocent sellers would charge a price B, whereas stigmatized sellers would charge $B - P$. This would be invariant to the rate of stigmatization. Because bargaining power would usually be distributed between sellers and buyers, we would expect our results to carry through. Notice that we also assume no entry into or exit out of the sellers' market. If entry and exit were possible, we would expect stigmatized sellers to cluster in certain markets, given that such markets would feature lower expected sanctions, as we explain below.

A seller would commit the illegal act if and only if his expected utility would be higher than if he does not commit it:

$$U_i^G > U_i^I. \tag{3}$$

Thus, define a threshold u_T such that all sellers whose utility is higher commit the illegal act and all sellers whose utility is lower refrain from doing so. Substituting (1) and (2) into (3) and rearranging, we get

$$u_T = vq(h_N - h_S). \tag{4}$$

Examine now the decision of buyer j whether to search for a unstigmatized seller, for any given $u_T < 1$.[21] The buyer's expected utility from hiring a stigmatized seller is

$$B_G - P,$$

and his expected (conditional) utility from hiring a unstigmatized seller is

$$\frac{u_T B_I + (1 - u_T)(1 - q)B_G}{1 - q(1 - u_T)}.$$

A buyer's expected utility from searching in each period, given his search costs k_j, is denoted $V(k_j)$. With probability $[1 - q(1 - u_T)]$, the buyer would find a unstigmatized seller and hire her, and with the complementary probability, $q(1 - u_T)$, he would pick a stigmatized seller and would continue searching, thus deriving again an expected utility $V(k_j)$. A buyer's expected utility from searching is therefore given by the following recursive condition

$$V(k_j) = [1 - q(1 - u_T)]\frac{u_T B_I + (1 - u_T)(1 - q)B_G}{1 - q(1 - u_T)} + q(1 - u_T)V(k_j) - k_j. \tag{5}$$

Rearranging, we get

$$V(k_j) = \frac{u_T B_I + (1 - u_T)(1 - q)B_G - k_j}{1 - q(1 - u_T)}. \tag{6}$$

Because the alternative is to hire a stigmatized (guilty) seller, the buyer would choose to search for an unstigmatized seller if and only if

$$V(k_j) \geqslant B_G - P. \tag{7}$$

---

21. Because $v < 1$, in equilibrium it must be that $u_T < 1$.

Substituting from (5) and rearranging, we get

$$k_j \leqslant u_{\mathrm{T}}(B_{\mathrm{I}} - B_{\mathrm{G}}) + P[1 - q(1 - u_{\mathrm{T}})] \equiv k_{\mathrm{T}}(u_{\mathrm{T}}, q) \equiv k_{\mathrm{T}}. \qquad (8)$$

Thus, k_{T} is a threshold cost of search. A buyer would hire a stigmatized seller if and only if his search costs are higher than k_{T}.

Observe that the threshold buyer type, whose search costs are k_{T}, is indifferent between hiring a stigmatized seller and searching for an unstigmatized one. His payoff from hiring a stigmatized seller in some period t therefore equals his payoff from waiting 1 period and hiring any seller in the next period (because, during that period, he would also be indifferent between searching and not searching if he would happen to pick a stigmatized seller).

Because a stigmatized seller is necessarily guilty, a buyer's payoff from hiring her does not depend on the number of guilty sellers who are stigmatized. However, his payoff from hiring any seller in the next period does depend on both the number of guilty sellers and the number of those stigmatized, as follows.

If the external penalty on buyers who hire a stigmatized seller is positive ($P > 0$), increasing the probability of detection, p, would lower the expected payoff from hiring any seller in the next period, because it would increase the probability of incurring P. A threshold seller would therefore strictly prefer not to search after the probability of detection is increased, and threshold costs would thus decrease. Consequently, an increase in the probability of detection would adversely affect the willingness of buyers to shun the stigmatized seller.

To understand this effect on a more intuitive level, suppose that all buyers are unwilling stigmatizers—that is, $B_{\mathrm{G}} = B_{\mathrm{I}}$. Then the direct effect of stigmatizing more guilty buyers would simply render the search less beneficial for buyers, because the probability they would encounter another stigmatized seller during the next period increases.

3.3. The Effects of Detection Probability and Sanction Magnitude on Deterrence

We now turn to analyze sellers' stage 1 strategies in equilibrium. As we show, the rate of stigmatization, q, may be negatively correlated with the expected sanction for buyers and, consequently, with the equilibrium level of deterrence. We then examine the implications of this possible inverse relation with respect to the two policy instruments that are used to enhance deterrence—the probability of detection and the magnitude of sanction.

The stage 1 decision of all sellers whether to commit the illegal act is fully characterized by u_T. The probability a stigmatized seller is chosen by a buyer is

$$h_\mathrm{S} = r\{1 - F[k_\mathrm{T}(u_\mathrm{T}, q)]\}, \tag{9}$$

and the probability an unstigmatized seller is chosen by a buyer is

$$h_\mathrm{N} = r\left[\{1 - F(k_\mathrm{T}(u_\mathrm{T}, q))\} + \frac{F(k_\mathrm{T}(u_\mathrm{T}, q))}{(1 - q(1 - u_\mathrm{T}))}\right], \tag{10}$$

where the first term in the brackets is the probability of being chosen by a buyer whose search costs are too high to search and the second term is the probability of being hired by a buyer whose search costs are sufficiently low and who therefore searches for an unstigmatized seller.[22] It is assumed for simplicity that r is sufficiently low, so $h_\mathrm{N} \leqslant 1$.

Substituting into (4), we get the equilibrium condition (where u_T^* and k_T^* are the equilibrium thresholds),

$$u_\mathrm{T}^* = \frac{rvqF[k_\mathrm{T}(u_\mathrm{T}^*, q)]}{1 - q(1 - u_\mathrm{T}^*)} = \frac{rvqF\{u_\mathrm{T}^*(B_\mathrm{I} - B_\mathrm{G}) + P[1 - q(1 - u_\mathrm{T}^*)]\}}{1 - q(1 - u_\mathrm{T}^*)}. \tag{11}$$

On the right-hand side of condition (11), we have the actual cutoff type, assuming a belief that the cutoff would be u_T^*. A perfect Bayesian (or rational expectation) equilibrium is obtained if and only if the actual cutoff equals the expected cutoff. By the intermediate-value theorem, there exists at least one solution—equilibrium—to condition (11).

In fact, condition (11) may have multiple solutions. We are interested, however, in marginal changes in stable equilibria, which we define in Appendix A, and not in possible shifts between equilibria. The solution would be interior ($u_\mathrm{T}^* \in (0, 1)$), as long as $q < 1$.[23] We now show that an increase in q may translate to lower deterrence whenever $P > 0$.

3.3.1. Probability of Detection. To analyze the effect of an increase in the probability of detection on the level of crime, examine the equilibrium condition (11). For any fixed expected level of crime, the actual level of crime is affected by an increase in the probability of detection in three ways. The first and most obvious effect is an increase in the

22. It may be verified that $q(1 - u_\mathrm{T})h_\mathrm{S} + [1 - q(1 - u_\mathrm{T})]h_\mathrm{N} = r$.

23. If $q = 1$, then one possible equilibrium is $u_\mathrm{T}^* = 0$—that is, a no-deterrence equilibrium. Because $q = 1$ is not realistic, this case is not analyzed further. Note, however, that $q = 1$ requires a separate mathematical model, because the contingent Bayesian probability of finding an unstigmatized seller (following condition [4]) is not well defined there.

probability of being sanctioned, which thus enhances deterrence. The second effect is more refined. As more guilty sellers are detected, the probability of innocent sellers being hired by buyers who search for unstigmatized sellers increases as their proportion in the unstigmatized population becomes larger. This, too, improves the deterrence of sellers from committing the illegal act, because it makes the alternative of not committing it more attractive. The third effect is the one discussed in the previous section: diluting the incentives of buyers to search for unstigmatized sellers, which thus dilutes deterrence.

As explained above, the third effect relies on the external penalty imposed on buyers who do not shun stigmatized sellers, P. If $P > 0$, this effect may dominate, and seller compliance with the law would decline. A direct implication of this result is that maximal compliance with the law may require that the rate of detection and shaming be lower than one. Proposition 1 summarizes these findings:
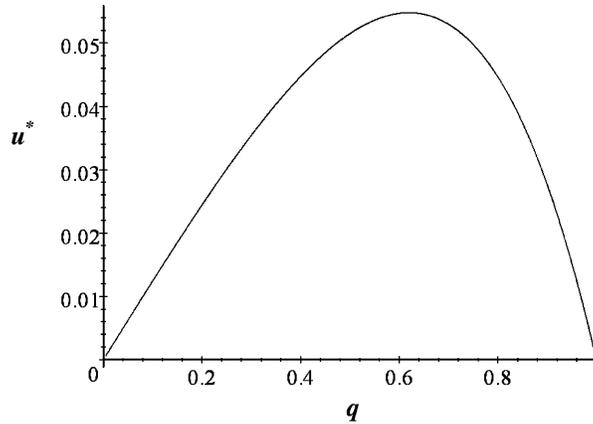
Proposition 1. Increasing the probability of detection, q, may decrease the rate of sellers' compliance with the law if $P > 0$. If $P = 0$, then the rate of sellers' compliance in any stable equilibrium would increase.

The last part is proved in Appendix A. The rest of the proposition is proved by the following example. Suppose that $B_I = B_G$, $P = 1$, $r = .25$, $v = 1$, and $F(k) = k^2/(k^2 + 1)$.[24] Substituting in (11) and using a mathematical software to solve, we find only one positive solution for each q. Graphing u_T^* as a function of q, we get the result shown in Figure 1. Clearly, the maximum compliance (highest u_T^*) is obtained where $q < 1$, and compliance decreases beyond that point.[25]

To sum up, increasing the rate of detection has several results that go in different directions. For our purposes, it is particularly important to notice that increasing the rate of detection may decrease the deterrent effects of stigmatization because it increases the number of stigmatized individuals in the society. Such an increase reduces the expected costs of stigmatization becauase of the larger search costs it imposes on law-abiding individuals. Conflicting effects may of course outweigh this effect. The

24. See Figure B1 for a graph of the probability distribution function of $f(k)$. We set v equal to one to simplify the example. Clearly, any value of v sufficiently close to one would feature similar results.

25. The rate of compliance in this example is very low (maximum compliance below 10 percent). This, however, is a specific feature of the simple distribution function $F(\cdot)$ chosen.

Figure 1. Rate of compliance as a function of probability of detection

overall effect of increasing the rate of detection depends on the relative intensity of this effect vis-à-vis other effects.

3.3.2. Magnitude of Sanction. Stigmatization requires the authorities to disseminate information regarding a person who was convicted of a crime. It is often claimed that it is difficult to disseminate such information in a way that is proportional to the severity of the offense. It is also difficult to measure and control the degree of stigma associated with shaming or other penalties (Kahan and Posner 1999, pp. 384–85; Garvey 1998, p. 748; Massaro 1997, p. 693).

Yet, despite this difficulty, there are ways in which the severity of stigmatization can be controlled or manipulated. The authorities can increase stigmatization either by increasing the number of people to whom the relevant information is disseminated (by using more effective means of communication) or by increasing the length of time during which the information is disseminated (Kahan and Posner 1999, p. 386). In one case, the information concerning any instance of stigmatization is better disseminated, and, consequently, a larger percentage of law-abiding persons are aware of more stigmatized individuals. In the second case, the information concerning every instance of stigmatization remains longer in the public sphere, and, consequently, there are more people stigmatized at any point in time. Our analysis is limited to the

first case in which the magnitude of the sanction can be increased, namely, by facilitating better dissemination of information.[26]

To examine the effect of the sanction's magnitude on deterrence, assume that all guilty sellers are stigmatized, yet each buyer's (independent) probability of identifying a stigmatized seller is q. This case is equivalent to the one analyzed in our model. Similar conclusions therefore follow.

Improving the availability of information concerning guilt would increase the number of stigmatized sellers of which each buyer is aware. Therefore, the probability of providing the service after committing the illegal act would increase when information is made more publicly available, whenever the external penalty for hiring a stigmatized seller is positive. In equilibrium, however, better publicity of each seller's guilt would also make her more prone to be identified and would render not committing the illegal act more valuable. Which of these conflicting effects would dominate depends on the parameters of the population.

4. FROM THEORY TO PRACTICE: EXISTING LEGISLATION AND THE SEARCH MODEL

The discussion above specified several effects that an increase in the probability of detection would inevitably have. First, an increase in the rate of detection would have a direct effect, increasing the expected sanction for those who commit the illegal act by increasing the probability they would be detected and stigmatized. Second, refraining from crime would become more valuable because, as the rate of detection increases, the proportion of innocent sellers among the unstigmatized increases. This would increase the probability of innocent sellers being hired by buyers who search for unstigmatized sellers. Third, as a result of such an increase, the rate of enforcement by unwilling stigmatizers would decline.

Thus, the sanction a stigmatized individual expects if he were to interact only with willing stigmatizers would increase owing to the first two effects. Yet if the stigmatized individual expects interaction with

26. Analyzing the consequences of the second way of influencing the magnitude of the sanction requires extending the model to a multistage setting, which is beyond the scope of this paper. We conjecture, however, that extending stigmatization time would result in more publicly known stigmatized individuals per period and would therefore have similar effects to the ones analyzed above.

unwilling stigmatizers as well, the third (and opposite) effect would kick in. Which of these effects would dominate is difficult to predict without a concrete specification of the way the offender and stigmatizer populations are distributed (according to their utility from committing the offense and their search costs, respectively) and the ratio of willing and unwilling stigmatizers.[27] To establish that increasing the rate of detection may, in reality, lead to an actual decrease in deterrence, it is important to identify those contexts in which stigmatizing penalties rely heavily on the cooperation of unwilling stigamtizers, thus rendering them problematic.

This section first provides anecdotal evidence indicating the significance of unwilling stigmatizers in various contexts. It then notes that unwilling stigmatizers are likely to disrupt one of the most significant functions attributed to shame penalties, namely, their expressive function.

There is anecdotal evidence documenting the use of social and legal sanctions against members of society who decline to stigmatize defectors. This suggests that social sanctions inflicted on defectors rely, at least to some extent, on unwilling stigmatizers who must be threatened with sanctions themselves if they decline to shun the defectors. In the legal Jewish tradition, the *Cherem*—that is, the highest ecclesiastical censure (excommunication) of offenders—was well developed in the Middle Ages. Rabbis have established that "whoever supports the ex-communicated and is lenient with him, should also be ex-communicated and punished in the same manner" (Assaf 1921, p. 136).

Contemporary practices seem to support a similar conclusion. In *Doe v. Pataki* (940 F. Supp. 603, 610 [S.D.N.Y. 1996]), for example, the court notes the fact that employers who employed sex offenders were subjected to boycotts. In another case, an employer reacted to public outcry by rescinding a job offer to a released sex offender because of

---

27. To better understand our claim, it must be distinguished from another related but distinct argument—that there is an inverse relationship between beliefs concerning the rate of crime in a society and the effectiveness of stigmatization. As argued by Kahan (1997, p. 357), "The more prevalent criminal activity is in a particular community the less likely someone is to be condemned for it by either those with criminal records or those without." Harel and Bar-Gill (2001, p. 492) claim that the rate of crime can influence the size of the social sanction: "The more frequent the crime, the lesser the stigma attached to the crime." In contrast, our argument does not assume that the effectiveness of stigmatization depends on the beliefs concerning the rate of crime. Instead, it is founded on the claim that the effectiveness of such stigmatization depends on the number of stigmatized individuals in society. Thus, in the context of shaming penalties, the more people are subject to shaming penalties, the less effective they are. Our model is based on the rate of stigmatization and not on the rate of crime.

negative public reaction (Gallagher 1997, p. 53). Courts have observed that the imposition of certain shame penalties "are likely to make the plaintiffs completely unemployable" because these laws create "a substantial probability that registrants will not be able to find work, because employers will not want to risk loss of business when the public learns that they have hired sex offenders" (*Doe and Doe v. Otte and Botelho* [259 F.3d 979, 988]).

Sen, Gurhan-Canli, and Morwitz (2001, p. 400–401), investigating the effectiveness of consumer boycotts, noticed that "a key factor affecting consumers' consideration of collective interests in their boycott decision is the social pressure they are likely to feel, both internally and from external sources, to act in the boycotting group's interests." Among other historical examples, Friedman (1999, p. 136) pointed out that the Jewish boycott of German goods during World War II was rigorously enforced, and, as described in Muraskin (1972, p. 364), the photographs of boycott violators in labor union conflicts in Harlem were published in a local newspaper. It is these observations that led Teichman (2005, pp. 360) to conclude that "[p]articipating in acts of sanctioning can induce positive reactions from others, and conversely, refraining from such participation may trigger negative reactions. In other words, social norms enforced by a completely separate set of non-legal sanctions encourage the sanctioning of wrongdoers in certain circumstances."

Unwilling stigmatizers are likely to become particularly significant in cases of a moral conflict in the society. Assume that there is conflict over the legitimacy of homosexuality. Assume that opponents of homosexuality prevail in the legislature and succeed in banning it. Yet, despite their legal victory, disagreement concerning the justifiability of the restrictions persists. Some of those who oppose the restrictive legislation are subjected to social pressure to conform. This is particularly true with respect to those who provide services or sell goods in the community. These potential employers would not wish to alienate any of the opposing groups. It will only be natural under these circumstances that they decide not to hire individuals who have been convicted and stigmatized in order not to alienate potential customers and that the fear of such a pressure would induce individuals to stigmatize against their will.

Cases of moral conflict are often cases in which shaming penalties are used for expressive purposes, namely, to convey the community's moral disapproval. As described by Kahan (1996, p. 636), they "denounce the wrongdoer and his conduct as contrary to shared moral

norms; and they ritualistically separate the wrongdoer from those who subscribe to such norms."

But if the repugnance is not shared by all and if, in fact, some individuals feel sympathy toward the wrongdoer, the expressive function could be successfully realized only if pressure is imposed on individuals who do not share the moral convictions to participate in stigmatization. The cooperation of unwilling stigmatizers is particularly important in these contexts. Because increasing the rate of detection increases the proportion of unwilling stigmatizers who fail to cooperate with the shaming-penalties scheme, the normative message conveyed may be diluted. Although the law denounces the offender, fewer members of the community follow suit, which thus raises the question of whether the violated norm is indeed shared by the community.[28] A dissonance is produced between the law's disapproval of the illegal act and the willingness of individuals to overlook it. Thus, an increased rate of detection may paradoxically undermine the law's expressive value.

One of the important policy implications is that the efficacy of using shaming penalties depends to a large extent on the ratio of willing and unwilling stigmatizers. The reliance on unwilling stigmatization may be ineffective and counterproductive. In particular, it may constrain law enforcement authorities and limit their ability to combat crime by increasing the rate of detection. In such cases, one should resort to traditional penalties.

5. CONCLUSION

In a traditional sentencing scheme based on imprisonment and fines, an increase in the rate of detection of criminals inevitably leads to an increase in the expected costs of the sanction. Similarly, increasing the sentence inevitably leads to an increase in the deterrent effects of the sanctions. These two observations provide the basis for the economic analysis of crime and law enforcement (Becker 1968). This paper shows that, at least in the context of penalties that derive most of their power from publicizing the criminals' conviction and from the resulting isolation and alienation of criminals, these traditional claims may be false.

28. Mahoney and Sanchirico (2003, p. 1286) make a somewhat similar point, claiming that violation of a norm shakes the confidence of potential stigmatizers that they too would be punished if they do not stigmatize the offender, thus diluting their incentives to stigmatize.

Increasing the rate of detection and the magnitude of the stigmatizing sanction may decrease rather than increase stigma-based deterrence. Shaming penalties are perhaps the prime example of penalties that acquire their deterrent effects from the publicity resulting from their imposition. Hence, these perverse effects are most likely to occur in the context of shaming penalties.[29]

Although this paper does not directly take sides in the debate between advocates and opponents of using stigma in general (and shaming penalties in particular), its conclusions are ones that suggest that the use of stigma be restricted. If the deterrence resulting from using stigma is insufficient, it ought to be complemented by greater use of regular sanctions rather than, for instance, greater use of shaming penalties. Stigma can be self-destructive, as an extensive use of stigma may erode its effectiveness.

APPENDIX A

To prove the last part of proposition 1, let $P = 0$. Then condition (11) is simplified to

$$u_T^* - \frac{rvqF[u_T^*(B_I - B_G)]}{1 - q(1 - u_T^*)} = 0. \tag{A1}$$

A stable equilibrium requires that $[\partial(\{rvqF[u_T^*(B_I - B_G)]\}/[1 - q(1 - u_T^*)])]/\partial u_T^* < 1$. To see this, observe that if we plot u_T^* and $\{rvqF[u_T^*(B_I - B_G)]\}/[1 - q(1 - u_T^*)]$, an equilibrium is any intersection of both. It would be stable only if the derivative of $\{rvqF[u_T^*(B_I - B_G)]\}/[1 - q(1 - u_T^*)]$ is lower than one (in absolute value) (Stokey and Lucas 1998, pp. 49–55). Otherwise, a small perturbation in the expectation of u_T^* would result in a dynamic progress away from the starting equilibrium. See Figure A1.

---

29. Search costs provide but one mechanism to explain the inverse relations between the rate of detection and the deterrent effects of stigma. There are at least two other mechanisms that may have similar effects. One is a bounded information model grounded in the cognitive limitations of stigmatizers; the other is a group formation model that features a possible constraint on the number of stigmatized individuals who are socially sanctioned. Under the bounded information model, the more people are stigmatized, the less the social isolation of the stigmatized, since the ability of law-abiding individuals to identify the stigmatized and isolate them decreases. Under the group formation model, the more people stigmatized, the greater the ability of the stigmatized to form alternative communities and, consequently, the lesser the expected costs of being stigmatized. Moreover, the more people stigmatized, the lesser the ability of law-abiding individuals to form law-abiding communities. Further research is called for to examine the implications of these two models.
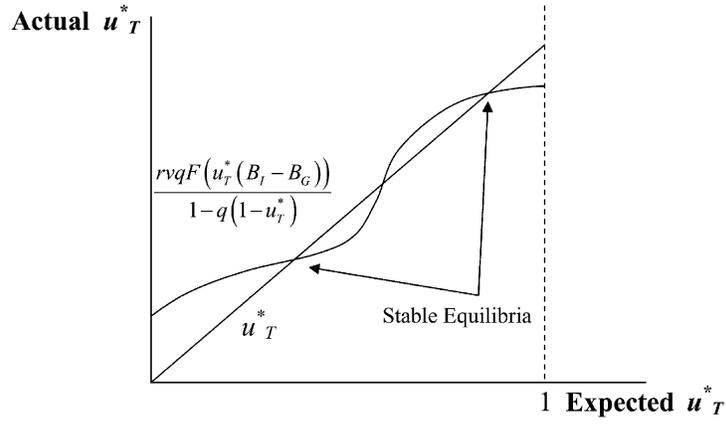
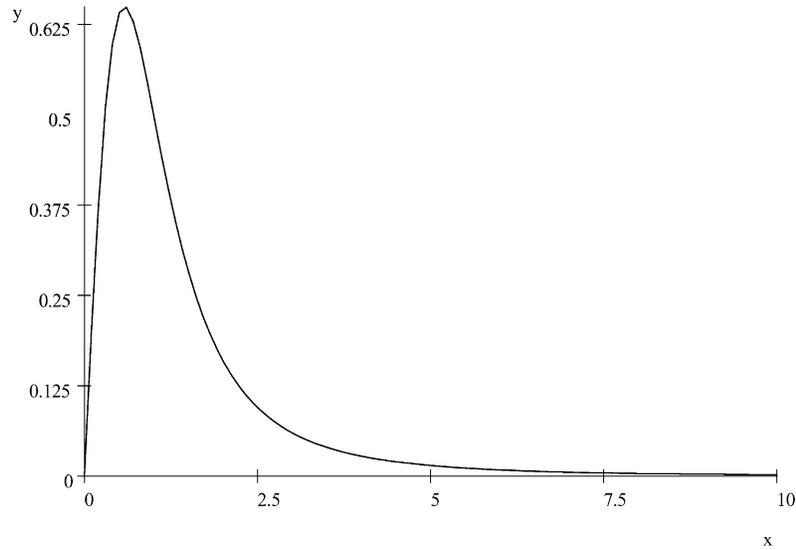**Figure A1.** Expected and actual compliance levels

Differentiating condition (A1) with respect to q and rearranging, we get

$$\frac{\partial u_T^*}{\partial q} = \left\{\frac{rvF[u_T^*(B_I - B_G)]}{[1 - q(1 - u_T^*)]^2}\right\} \bigg/ \left\{1 - \left[\left(\partial\{\frac{rvqF[u_T^*(B_I - B_G)]}{1 - q(1 - u_T^*)}\}\right)\bigg/\partial u_T^*\right]\right\} > 0. \qquad (A2)$$

Q.E.D.

APPENDIX B

If $F(k) = k^2/(k^2 + 1)$, then $f(k) = F'(k) = 2^k/(k^2 + 1)^2$, whose graph is Figure B1.

Figure B1. Probability distribution function of $f(k)$

REFERENCES

Akerlof, George. 1976. The Economics of Caste and of the Rat Race and Other Woeful Tales. *Quarterly Journal of Economics* 90:599–617.

Assaf, Simcha. 1921. *Sanctions after the Completion of Talmud* (in Hebrew). Jerusalem: Ha-Poel Hatzair Press.

Becker, Gary S.. 1968. Crime and Punishment: An Economic Approach. *Journal of Political Economy* 76:169–217.

Blume, Lawrence E. 2003. Stigma and Social Control. Game Theory and Information. Working paper. Cornell University, Department of Economics. http://ideas.repec.org/p/wpa/wuwpga/0312002.html.

Braudway, Bonnie. 2004. Comment: Scarlet Letter Punishments for Juveniles: Rehabilitation through Humiliation? *Campbell Law Review* 27:63–90.

Cooter, Robert. 1997. Normative Failure Theory of Law. *Cornell Law Review* 82:947–79.

Diamond, Peter. 1971. A Model of Price Adjustment. *Journal of Economic Theory* 3:156–68.

Friedman, Monroe. 1999. *Consumer Boycotts: Effecting Change through the Marketplace and Media.* New York: Routledge.

Funk, Patricia. 2004. On the Effective Use of Stigma as a Crime Deterrent. *European Economic Review* 48:715–28.

Gallagher, Brian D. 1997. Now that We Know Where They Are, What Do We Do with Them? The Placement of Sex Offenders in the Age of Megan's Law. *Widener Journal of Public Law* 7:39–85.

Garvey, Stephen P. 1998. Can Shaming Punishments Educate? *University of Chicago Law Review* 65:733–94.

Harel, Alon, and Oren Bar-Gill. 2001. Crime Rates and Expected Sanctions: The Economics of Deterrence Revisited. *Journal of Legal Studies* 30:485–501.

Harel, Alon, and Alon Klement. 2005. The Economics of Shame: Why More Shaming May Deter Less. Discussion Paper 401. Hebrew University, Center for the Study of Rationality. http://ratio.huji.ac.il/dp/dp401.pdf.

Kahan, Dan. 1996. What Do Alternative Sanctions Mean? *Chicago Law Review* 63:591–653.

———. 1997. Social Influence, Social Meaning and Deterrence. *Virginia Law Review* 83:349–95.

Kahan, Dan M., and Eric A. Posner. 1999. Shaming White-Collar Criminals: A Proposal for Reform of the Federal Sentencing Guidelines. *Journal of Law and Economics* 42:365–91.

Mahoney Paul G., and Chris William Sanchirico. 2003. Norms, Repeated Games, and the Role of the Law. *California Law Review* 91:1281–1329.

Massaro, Toni M. 1997. The Meanings of Shame: Implications for Legal Reform. *Psychology, Public Policy and Law* 3:645–704.

Muraskin, W. 1972. The Harlem Boycott of 1934: Black Nationalism and the Rise of Labor-Union Consciousness. *Labor History* 13:361–73.

Posner, Eric A. 2000. *Law and Social Norms.* Cambridge, Mass.: Harvard University Press.

Posner, Richard A., and Eric B. Rasmusen. 1999. Creating and Enforcing Norms, with Special Reference to Sanctions. *International Review of Law and Economics* 19:369–82.

Rasmusen, Eric. 1996. Stigma and Self-Fulfilling Expectations of Criminality. *Journal of Law and Economics* 29:519–43.

Sen, Sankar, Zeynep Gürhan-Canli, and Vicki Morwitz. 2001. Withholding Consumption: A Social Dilemma Perspective on Consumer Boycotts. *Journal of Consumer Research* 28:399–417.

Stokey, Nancy L., and Robert E. Lucas, Jr. 1989. *Recursive Methods in Economic Dynamics.* Cambridge, Mass.: Harvard University Press.

Teichman, Doron. 2005. Sex, Shame, and the Law: An Economic Perspective on Megan's Laws. *Harvard Journal on Legislation* 42:355–415.