

THE ECONOMICS OF STIGMA: WHY MORE DETECTION OF CRIME MAY RESULT IN LESS STIGMATIZATION[†]

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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.

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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 wage) 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.[‡] In recent years criminal law experts 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.[§] These developments have inspired economists to investigate the usefulness of stigma as a tool in crime prevention.^{**}

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, e.g., in the context of shaming penalties, may undermine its deterrent effects. The effectiveness of stigma, so we argue, may be inversely related to the rate of detection of crimes.^{††} The more people are detected, the less effective stigma may become.^{‡‡}

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

[§] 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 shame penalties for white collar crimes.

^{**} Economists pointed 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).

^{††} Some previous accounts raised a similar conjecture in the context of shaming penalties. Thus, for instance, Massaro (1997, pp. 697-98) stated that: "But...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 rationality of individuals (both of law-abiding citizens and that of offenders) which dictates that shaming penalties lose their effectiveness if used extensively.

^{‡‡} The first to model stigma in a rational expectations model was Rasmusen (1996). In a paper based on Rasmusen's model, Funk (2004) showed that stigma has little effect on stigmatized ex-convicts and

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 relations between the number of stigmatized and the deterrent effect of stigma may translate into two distinctive and counter-intuitive 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 while 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 in the size of the 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 which 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

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

professional interaction with them as a result of their being subjected to a criminal penalty. This is particularly true in the context of shaming penalties.^{§§} Stigmatization effects of shaming penalties can be particularly harsh.^{***}

Stigma, under this explanation, presupposes the active cooperation of private individuals – individuals who incur costs in facilitating the stigmatization scheme.^{†††} 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 lesser the willingness of private enforcers to stigmatize and consequently the less effective stigma becomes. In order 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 the willingness of private enforcers to incur costs in stigmatizing differs from one group of enforcers to another. Stigmatizers can be usefully classified into two groups. Each one 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 stigmatizers* - consists of individuals who refrain from interacting with **offenders**. The second group – *the unwilling stigmatizers* -- consists of individuals who target not offenders but **stigmatized**

^{§§} 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".

^{***} 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 shaming penalties 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. 108-110) discusses the special communicative effects of different sanctions.

^{†††} Posner and Rasmusen (1999, pp. 376-377) 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.

individuals, e.g., individuals who have been convicted in crimes or individuals whose criminal record is available.^{†††}

Willing stigmatizers want to avoid interacting with individuals who have actually committed the offence (irrespective of whether they are detected or not). 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 the 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 offence when the commission of the offence 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 non-offenders.^{§§§} For example, people are less likely to hire a cab-driver who has driven before while being intoxicated, because driving with such a person is risky. Parents would typically not hire a babysitter who has committed sex-offences because of their belief that such behavior indicates dispositions to commit similar offences 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 non-offenders.

Other willing stigmatizers – the morally-motivated willing stigmatizers -- are motivated by internal norms rather than by the fear of getting an inferior product or service from the criminal.^{****} These people detest the interaction with criminals and

^{†††} While 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 which constitute special cases of the categories of willing and unwilling stigmatizers. Thus, for instance, Kahan and Posner (1999, p. 370) argued as follows:

"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 by Kahan and Posner is a special case of a willing stigmatizer while the second category is a special case of an unwilling stigmatizer.

^{§§§} 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 to know.

^{****} Robert Cooter (1997, p. 957) has termed 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").

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 or not. 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 common sense wisdom is often articulated by pieces of folk wisdom such as "tell me who your friends are, and I will tell you who you are", or "birds of the same feather flock together", or "lay 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 preference not to interact with offenders and the preference 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 these 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 for 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, i.e., 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. While the propensity of the willing and of the unwilling stigmatizers to interact with the stigmatized are 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 the offence. 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 non-negligible probability that the unstigmatized individual is, in reality, an offender. The possibility that the cab-driver 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 offence or not. 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 been convicted and consequently it decreases the costs of interacting with the unstigmatized.^{††††} 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 both with the stigmatized and the unstigmatized also do not change their behavior, irrespective of the rate of detection.^{††††}

Compare these effects to the effects that increasing the probability 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 increases inevitably the search

^{††††} Rasmusen (1996) makes a similar argument.

^{††††} As we explain in the model, the higher rate of detection may have secondary effects on the behavior of willing stigmatizers, as it increases deterrence, and therefore changes the expected 'quality' of unstigmatized.

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 is unaffected. As a result, if the rate of detection is increased, an unwilling stigmatizer who was indifferent between searching for a unstigmatized and interacting with the stigmatized would now strictly prefer not to search. The rate of private enforcement may therefore decline.^{§§§§}

To sum up, stigma operates by limiting and constraining both social and commercial opportunities. These constraints are the byproduct of the willingness of individuals – private enforcers - to "punish" the perpetrators of crime by limiting their 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. Since 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

A. 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. Each seller is audited by the state with probability $q < 1$.^{*****} 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*.

^{§§§§} Kahan & Posner (1999, p. 372) raised 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.").

^{*****} We discuss the case where $q=1$ in note ***** below.

In stage 2 buyers are searching for some service which only sellers can perform. Buyers only know whether a seller was stigmatized or not. Each buyer has a unit demand for that service, whose price is fixed at $v < 1$ ($v=0$).^{†††††} 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 $B_I = B_G$. That is, the buyer's benefit from hiring an innocent seller is (weakly) higher than her benefit from hiring a guilty seller.^{†††††}

If the buyer hires a stigmatized seller he also bears an external penalty, denoted $P \geq 0$. This penalty stands for any external cost imposed on the buyer, either by the state or by other members in society.^{§§§§§} 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 him to perform the service or not. If and only if the buyer does not hire that seller, she continues her search and picks another seller in the next period. Search costs vary among buyers. Buyer j 's search costs are k_j . Sellers only know that k_j is drawn from a continuous distribution function $F(\cdot)$ on $[0, K]$ for some $K > P$.^{*****} We assume that production costs of the service are 0, so each seller's net utility from providing the service is v .^{†††††}

^{†††††} 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 ^{‡‡‡‡‡‡} below.

^{†††††} 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) present a different version of the model, in which willing stigmatizing buyers are instrumentally-driven. The results in both versions are essentially the same.

^{§§§§§} This framework follows George Akerlof (1976, p. 611-613).

^{*****} 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.

^{†††††} 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 Peter Diamond (1971). Thus, assuming stigmatizers are *willing*, for example, innocent sellers would charge a price B whereas shamed would charge $B-P$. This would be invariant to the rate of stigmatization. Since bargaining power would usually be distributed between sellers and buyers we would expect our results to carry through. Notice we also assume no entry into and exit out of the sellers' market. If entry and exit were possible, we would expect stigmatized sellers to clutter in certain markets, since such markets would feature lower expected sanctions, as we explain below.

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 her previous search history. Her 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.

B. Analysis

Since buyers can only recognize whether a seller is stigmatized or not 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

$$U_i^G = u_i + v(qh_S + (1-q)h_N), \quad (1)$$

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

$$U_i^I = vh_N. \quad (2)$$

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

$$U_i^G > U_i^I. \quad (3)$$

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

$$u_T = vq(h_N - h_S). \quad (4)$$

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

$$B_G - P,$$

and her 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 her 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 him, and with the complementary probability, $q(1 - u_T)$, she 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

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

Rearranging, we get

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

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

$$V(k_j) \geq B_G - P. \quad (7)$$

Substituting from (5) and rearranging, we get

$$k_j \leq u_T (B_I - B_G) + P(1 - q(1 - u_T)) \equiv k_T(u_T, q) \equiv k_T. \quad (8)$$

Thus, k_T is a threshold cost of search. A buyer would hire a stigmatized seller if and only if her 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. Her payoff from hiring a stigmatized seller in some period t therefore equals her payoff from waiting one period and hiring *any* seller in the next period (since in that period

^{*****} Since $v < 1$, in equilibrium it must be that $u_T < 1$.

she would also be indifferent between searching and not searching if she would happen to pick a stigmatized seller).

Since a stigmatized seller is necessarily guilty, a buyer's payoff from hiring him does not depend on the number of guilty sellers who are stigmatized. However, her payoff from hiring *any* seller in the next period does depend on both the number of guilty sellers and on 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, since 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, $B_G = B_I$. Then the direct effect of stigmatizing more guilty buyers would simply render search less beneficial for buyers, as the probability they would encounter another stigmatized seller in the next period, increases.

C. The Effects of Probability of Detection 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.

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

$$h_S = r \left[1 - F \left(k_T \left(u_T, q \right) \right) \right], \quad (9)$$

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

$$h_N = r \left[1 - F \left(k_T \left(u_T, q \right) \right) + \frac{F \left(k_T \left(u_T, q \right) \right)}{\left(1 - q \left(1 - u_T \right) \right)} \right], \quad (10)$$

where the first term in the parenthesis 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 she therefore searches for an unstigmatized seller.^{§§§§§§} It is assumed for simplicity that r is sufficiently low, so $h_N=1$.

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

$$u_T^* = \frac{rvqF(k_T^*(u_T^*, q))}{1 - q(1 - u_T^*)} = \frac{rvqF(u_T^*(B_I - B_G) + P(1 - q(1 - u_T^*)))}{1 - q(1 - u_T^*)}. \quad (11)$$

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 obtains if and only if the actual cutoff equals the expected cutoff. By the intermediate value theorem, there exists at least one solution – equilibrium - to (11).

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

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 probability of being sanctioned, thus enhancing deterrence. The second effect is more refined. As more guilty sellers are detected, the probability of innocent sellers to be hired by buyers who search for unstigmatized sellers increases, as their proportion in the unstigmatized population becomes larger. This, too, improves deterrence of sellers from committing the illegal act, since it makes the alternative of not committing it

^{§§§§§§} It may be verified that $q(1-u_T)h_S + (1-q(1-u_T))h_N = r$.

^{*****} If $q=1$ then one possible equilibrium is $u_T^*=0$, that is, a no deterrence equilibrium. Since $q=1$ is not realistic, this case is not analyzed further. Note, though, that $q=1$ requires a separate mathematical model, as the contingent Bayesian probability of finding an unstigmatized seller (following condition (4)) is not well defined there.

more attractive. The third effect is the one discussed in the previous section, diluting the incentives of buyers to search for unstigmatized sellers, thus diluting deterrence.

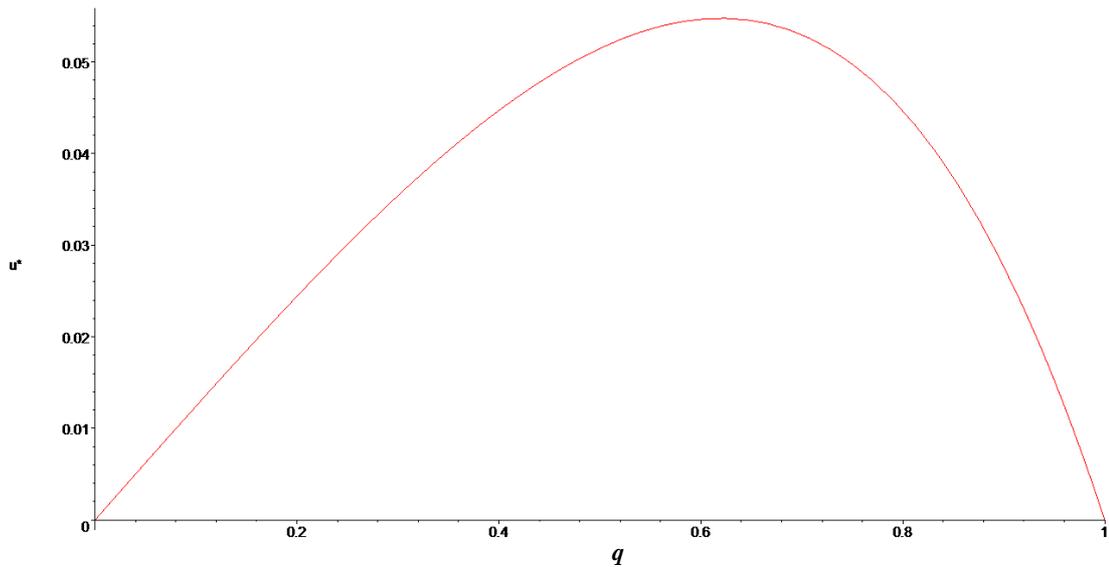
As explained above, the third effect relies on the external penalty imposed on buyers who do not shun stigmatized sellers, P . If $P > 0$ this effect may dominate, and seller compliance with the law would decline. A direct implication of this result is that maximal compliance with the law may require that the rate of detection and shaming be lower than 1. 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 the Appendix. The rest of the proposition is proved by the following example. Suppose $B_I = B_G$, $P = 1$, $r = 0.25$, $v = 1$ and $F(k) = \frac{k^2}{k^2 + 1}$.^{††††††††} 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 following.

Figure 1

^{††††††††} See Appendix **A2** for a graph of the pdf of $f(k)$. We take $v = 1$ to simplify the example. Clearly, any v sufficiently close to 1 would feature similar results.



Clearly, the maximum compliance (highest u_T^*) is obtained where $q < 1$, and compliance decreases beyond that point. ¶¶¶¶¶¶

To sum up, increasing the rate of detection has several results which 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 since it increases the number of stigmatized individuals in the society. Such an increase decreases the expected costs of stigmatization due to the larger search costs it imposes on law-abiding individuals. Conflicting effects may of course outweigh this effect. The overall effect of increasing the rate of detection depends upon the relative intensity of this effect vis a vis other effects.

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 offence. 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

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

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. §§§§§§§§

To examine the sanction's magnitude's effect 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 each buyer is aware of. 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 to be

§§§§§§§§ Analyzing the consequences of the second way of influencing the magnitude of the sanction requires extending the model to a multi-stage 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.

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 only interact with willing stigmatizers would increase due to the first two effects. Yet, if the stigmatized individual expects interaction with unwilling stigmatizers as well, the third (and opposite) effect would kick in. Which of these effects would dominate is difficult to predict absent a concrete specification of the way the offender and stigmatizer populations are distributed (according to their utility from committing the offence and their search costs, respectively) and the ratio of willing and unwilling stigmatizers. †††††††† In order 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 stigmatizers, 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 the expressive function of shaming penalties.

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", i.e., the highest ecclesiastical censure (excommunication) of offenders, was well developed in the middle Ages. The Rabbis have established that "whoever supports the ex-communicated and is lenient

***** As we show in our model there is actually an additional effect, which is more refined: as the rate of shaming increases, the probability of social or business interaction for those who were not shamed increases, thus rendering committing the offense relatively more costly. See section 3.C.1 above.

†††††††† 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 the 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". Bar-Gill and Harel (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 is not founded on the premise that the effectiveness of shaming penalties depend on the beliefs concerning the *rate of crime*; instead, it is founded on the claim that the effectiveness of shaming penalties depend on the *rate of the infliction of shaming penalties (i.e., on the number of shamed individuals)* in the society. The more people are subject to shaming penalties the less effective shaming penalties are. Our model is based on the rate of **stigmatization** and not on the rate of crime.

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 note the fact 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 due to 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.*", as stated in *John Doe I, Jane Doe II v. Ronald O. Otte and Bruce M. Botelho* (259 F.3d 979, 988) (Emphasis added).

Research by Sen, Gurhan-Canli and Morwitz (2001, p. 400-401), investigating the effectiveness of consumer boycotts, has 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" (Emphasis ours). Among other historical examples, it was pointed out by Friedman (1999, p. 136) that the Jewish boycott on German goods during World War II was rigorously enforced, and, as described by Muraskin (1972, p. 364), the photographs of boycotts violators in labor-union conflicts in Harlem were published in a local newspaper. It is these observations which 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 homosexuality. 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 towards 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. Since 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, less members of the community follow suit, thus questioning whether the violated norm is indeed shared by the community. ***** 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 stigma 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 the 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.

***** 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.

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 showed that at least in the context of penalties which 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. 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 which 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. §§§§§§§§

While 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 is 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.

§§§§§§§§ 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 is 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 larger 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.

Appendix

A1.

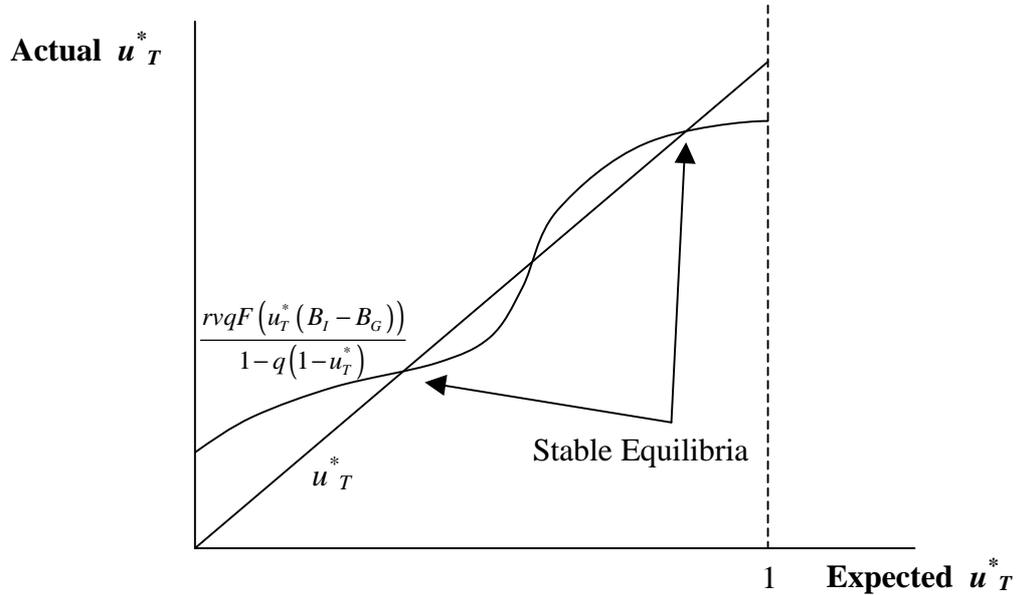
To prove the last part of Proposition 1, let $P=0$. Then condition (11) is simplified to

$$u_T^* - \frac{rvqF(u_T^*(B_I - B_G))}{1 - q(1 - u_T^*)} = 0. \quad (\text{A11})$$

A stable equilibrium requires that $\frac{\partial \left[\frac{rvqF(u_T^*(B_I - B_G))}{1 - q(1 - u_T^*)} \right]}{\partial u_T^*} < 1$. To see this observe

that if we plot u_T^* and $\frac{rvqF(u_T^*(B_I - B_G))}{1 - q(1 - u_T^*)}$ an equilibrium is any intersection of both.

It would be stable only if the derivative of $\frac{rvqF(u_T^*(B_I - B_G))}{1 - q(1 - u_T^*)}$ is lower than 1 (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.

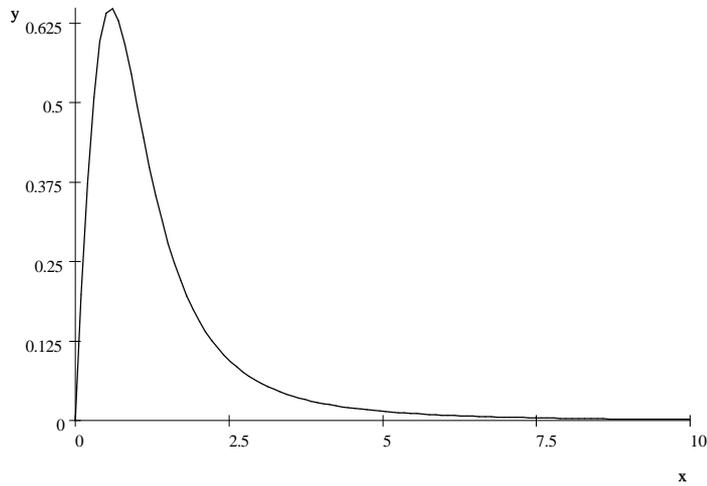


Differentiating condition (A11) with respect to q and rearranging we get

$$\frac{\partial u_T^*}{\partial q} = \frac{\frac{rvF(u_T^*(B_I - B_G))}{[1 - q(1 - u_T^*)]^2}}{1 - \frac{\frac{\partial}{\partial u_T^*} \left[\frac{rvqF(u_T^*(B_I - B_G))}{1 - q(1 - u_T^*)} \right]}{\partial u_T^*}} > 0. \quad (\text{A12})$$

A2.

If $F(k) = \frac{k^2}{k^2 + 1}$ then $f(k) = F'(k) = \frac{2k}{(k^2 + 1)^2}$, whose graph is



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