What You Don't See Can't Hurt You: An Economic Analysis of Morality Laws

Philip A. Curry and Steeve Mongrain

May 2007
What You Don’t See Can’t Hurt You: An Economic Analysis of Morality Laws*

Philip A. Curry                     Steeve Mongrain
Simon Fraser University             Simon Fraser University

March 16, 2007

Abstract

This paper provides an efficiency explanation for regulation of sex, drugs and gambling (the so-called “morality laws”). The argument is motivated by the observation that the enforcement of these laws often promotes discretion. We propose that morality laws can be best explained by considering the proscribed activities to impose a negative externality on others when the activity is observed. Efficiency requires discretion by the individual who engages in such activities. When discretion is difficult to regulate directly, the activities can instead be proscribed thereby giving individuals incentive to hide their actions from others. We find conditions for the first-best levels of consumption and hiding to be implementable. In addition, since some level of activity is efficient, this paper provides another environment in which the optimal sanctions are not maximal.

Key Words: Crime; Externality; Laws; Morality; Enforcement

JEL: K42; K32; H32

*We would like to thank David Andolfatto for many interesting conversations that culminated in this paper. This paper has benefitted from comments by Doug Allen, Steve Easton, Ig Horstmann, Eric Rasmusen, Paul Rubin and Lior Strahilevitz as well as from participants at the American Law and Economics Association and Canadian Law and Economics Association meetings, as well as seminars at the University of Western Ontario, Queen’s University and the University of Calgary, plus two anonymous referees. We thank Scott Skjei for excellent research assistance. emails: mongrain@sfu.ca and pcurry@sfu.ca
“What, then, is the rightful limit to the sovereignty of the individual over himself? Where does the authority of society begin? How much of human life should be assigned to individuality, and how much to society?”


1 Introduction

There are parts of each of our lives that we view as private. Other aspects of our lives we view as public and subject to pressures of social responsibility and possibly regulation. The distinction between private and public life plays a central role in many political and philosophical debates. One point of view, often referred to as “liberalism”, maintains that it is important for certain decisions that the individual remain sovereign, i.e. that it belong to the private sphere. An example of this view is presented in former Canadian Prime Minister Pierre Elliott Trudeau’s famous quote that “the state has no business in the bedrooms of the nation”. While Trudeau meant “in the bedrooms” in a figurative sense to indicate that he was talking about sexual regulation, it was also meant in a very literal sense. A common formulation of the libertarian view is that what consenting adults do in private is nobody’s business but their own. This paper proposes that the linkage between private decisions and private locations is evident in many social norms and regulations and that it stems from the presence of negative externalities that are incurred when the activity is observed.

The idea that the observation of an activity could affect another’s utility is central to the analysis of this paper and worth expanding upon. For some externalities, one might prefer the source to be visible. Consider the example of toxic waste. Such waste may not be visible to the naked eye, and so if agents do not observe the act of pollution, they may be unaware of its existence and thus expose themselves to undue health risks. In this paper, we consider externalities that are exacerbated by visibility. For example, an individual may not like knowing that prostitution occurs in his/her neighborhood, but finds it more distasteful when it is overt. We use the term “psychic externality” to refer to any situation in which the harm caused by an activity can be
reduced through hiding behaviors. The other two cases (where visibility decreases or has no effect on the level of harm), we refer to as “real externalities”.

This paper is not the first to propose that psychic externalities can be important in explaining customs and regulations. With respect to morality laws, Rasmusen (1997) argues that the law need not differentiate between real and psychic externalities. For example, if person A is willing to pay person B to stop using drugs, and willing to pay more than B needs to be willing to stop, then efficiency requires that B stop using drugs. In the presence of transaction costs, regulation might be required to achieve efficient outcome. This is true whether the A’s willingness to pay stems from a real or psychic externality. The problem becomes more complex, however, if we consider the psychic externality to be influenced by the observability of the action. Consider an example in which A is willing to pay B to not use drugs in A’s sight. Suppose A is willing to pay $100 for B to stop using drugs altogether and $40 for B to stop using drugs in A’s presence. If B needs at least $120 to be compensated for not using drugs, and $30 to use drugs away from A, then efficiency requires that B use drugs, but only out of A’s sight. Enforcement of discretion may be difficult, however. This paper demonstrates that the first-best (i.e. efficient consumption and hiding) can be implemented even when it is impossible to legislate on discretion directly. Specifically, legislators can provide incentive for B to consume drugs discreetly by making drug use illegal but with a low penalty. Using the above example, as long as detection by the authorities is correlated with observation by others, B will be deterred from using drugs in public, where the probability of getting caught is relatively high, but not from doing them in private, which is efficient.

We construct a model in which an agent, called the injurer, chooses the level of consumption for a good which causes harm to another agent, called the victim. This harm is assumed to be reduced by costly hiding behaviors. Transaction costs

---

1 A law stipulating that drug consumption can only be done in private homes would be easy to enforce. However, it may not necessarily be the appropriate discretion level. It may be that B should be allowed to consume in some public places, as is often the case with alcohol. Similarly, it may be that legalized consumption at home does not offer enough discretion. It may be the case that family members are precisely the ones who are affected by the externality, and such legislation would force them to be in harm’s way. We thank Ig Horstmann for this last insight.
are assumed to prevent the injurer and the victim from efficient bargaining. The
government chooses an enforcement effort and a sanction for consuming the banned
good or activity. In addition of reducing the harm to the victim, hiding also reduces
the probability of detection.

When externalities are real, hiding by criminals is a socially wasteful allocation
of resources. Malik (1990) shows that when criminals can invest effort in hiding
their crimes, maximal sanctions may be sub-optimal. Higher sanctions increase the
incentive to hide, which is welfare reducing. In our case, some amount of hiding can
be welfare enhancing. If hiding cannot be legislated directly, an injurer chooses to
hide her consumption only if it is illegal. As a result, the government bans the good,
even though the efficient level of consumption is positive, but chooses sanctions and
enforcement such that the injurer still consumes a positive amount and engages in
socially beneficial hiding. Our model predicts that optimal fines are not maximal,
and that it is efficient for crime to be committed even though it may be costless to
deter it.2

Becker, Grossman and Murphy (2003) consider a social planner that does not
value drug consumption purely according to the utility of the agents in society. In
particular, the planner values utility derived from drug consumption less than other
forms of utility. We offer a model in which welfare is based purely on agents’ utilities
and yet regulation of drug use is optimal. Boylan (2004) considers the political
economy of drug legislation. He notes that drug offenses represent a larger proportion
of prosecutions at the federal level than they do at the state level. The explanation
offered is that drug use imposes a negative externality at a national level. As a result,
prosecution at a federal level is welfare improving. For Boylan, it does not matter
whether the externality is real or psychic. Finally, Miron and Zwiebel (1995) argue
that, while drug use is associated with increased violence and crime, it is actually
prohibition that is the cause, not consumption. This point is also raised by Pires
(2002). While we do not formally consider externalities caused by prohibition, their
argument is relevant to this paper and will be discussed in greater detail in the
following section and in the conclusion.

2For papers on sub-maximal sanctions see Andreoni (1991), Kaplow (1990), Malik (1990), Polinsky
1.1 Stylized Facts about Morality Laws

Arguments in favor of morality laws often claim that such activities can have deleterious effects for not only the individual committing the act(s) in question, but also others. Thaler and Sunstein (2003) propose that if agents are not fully aware of the consequences of their actions, then the provision of such information is generally preferred to restrictions.\(^3\) We assume that choices made by an agent are perfectly aligned with the maximization of his or her true welfare, so no form of paternalistic interventions are needed.

The presence of an externality, however, could certainly allow for legislation. Indeed, examples of real externalities have been put forward in order to explain these laws: prostitution leads to increased spread of sexually transmitted disease; drug use leads to an increase in accidents and, potentially, crime. While we would not dispute the existence of such externalities and others, regulations used to deter those type of activities often do little to reduce any real externalities and may in fact exacerbate them. Consider the argument that sexually activity should be regulated to decrease the spread of sexually transmitted diseases. Making prostitution illegal can reduce the exchange of services. However, driving prostitution underground may have the effect of increasing the practice of unsafe sex, by reducing the prostitute’s ability to require that her customers wear condoms, or by making regular checkups more costly, leading to a net increase in sexually transmitted diseases. In general, it seems unlikely that banning prostitution would be more effective at reducing STDs than legalizing it and imposing regulations surrounding the practice of safe sex.

Posner (1992) notes that the arguments for laws against drugs based on real externalities are often unconvincing. He argues that the fact that drug use leads to crime is primarily due to the monopoly pricing of drugs that stems from the illegality of the drugs. Legalizing drugs increases competition, leading to lower prices, and less crime. Miron and Zwiebel (1995) present strong evidence that current legislation does little to reduce such externalities associated with drugs. For example, they compare modern rates of addiction to drugs such as opium, heroin and cocaine to rates before 1914, when such drugs were legal. They note that, before prohibition, addiction was

---

\(^3\)As long as the provision of such information is not too costly.
quite rare and that society did not seem to suffer from high crime rates as a result of prevalent drug use. They argue that creating an illegal market for drugs lowers the marginal cost of violent crimes while increasing the marginal benefits. When the sale of drugs is illegal, individuals do not have legal recourse to enforce contracts and property rights, thus the benefits to violence increase.

If hiding is efficient, however, then there should exist a body of legislation that makes only the public aspect of an activity illegal. Indeed, there exist many such laws. Alcohol is legal in all Western countries, but is subject to many restrictions. While these restrictions vary somewhat from country to country, they all entail keeping consumption of alcohol to specific areas and preventing public drunkenness. In addition, in Canada and much of Western Europe, prostitution is legal, but solicitation is not. In other words, it is legal to exchange money for sexual favors, it is just not legal to discuss it in public. In addition, brothels, or “bawdy houses”, are illegal in Canada, Italy, Luxembourg, the UK and parts of Spain. Where they are not illegal, brothels are often relegated to “red-light districts”, as in the Netherlands, Germany and Belgium. As such, anyone wishing to engage in prostitution must do so discreetly.

Another prediction of the model is that when the harm is greater (i.e. there are either more victims, or the victims are harmed to a greater degree), efficiency would require less consumption and more hiding. In countries where the puritan ethic is stronger, therefore, we should expect to see more prohibition, as well as stronger penalties. Canada and Western Europe have less regulation on sexual activity than

---

4 In Europe, only Ireland and Sweden prohibit prostitution. European countries that allow prostitution but not solicitation (sometimes written as legal as long as it “does not disturb public order”) include the UK, Germany, Belgium, Finland, France, and Italy. A summary of the various prostitution laws in Europe can be found in Galiana (2000).

5 The Canadian Criminal Code states that “every person who in a public place or in any place open to public view (a) stops or attempts to stop any motor vehicle, (b) impedes the free flow of pedestrian or vehicular traffic or ingress to or egress from premises adjacent to that place, or (c) stops or attempts to stop any person or in any manner communicates or attempts to communicate with any person for the purpose of engaging in prostitution or of obtaining the sexual services of a prostitute is guilty of an offense punishable on summary conviction”. This particular part of the Canadian Criminal Code can be found at http://laws.justice.gc.ca/en/C-46/267334.html#rid-267359.
the US, which would be consistent with this hypothesis. With regards to drugs, the United States has the strongest penalties; in 2002 the median sentence for drug possession in the US was 12 months\textsuperscript{6} while in the United Kingdom in 1998, the average sentence for drug possession was 3.4 months\textsuperscript{7}, and in Canada over the years 1999 and 2000, the average sentence was 50 days\textsuperscript{8}. Recall that our paper suggests that illegal consumption is optimal, and these penalties do not seem to deter use to a great degree. An estimated 5.7 million Americans used cocaine in 2000 and in 1990, Americans consumed $69.9 billion (US), or 447 metric tons worth of cocaine (Office of National Drug Control Policy (2003)). In Britain, an estimated 10\% of adults under 35 have tried cocaine (\textit{BBC News} report, Nov. 25, 2005). The Alcohol and Other Drugs Survey of 1994 found that 23\% of Canadians had tried marijuana and that in 2000 there were an estimated 2 million Canadians who smoked marijuana in the previous 12 months (Senate Canada (2002)). Easton (2004) estimates that there may be as many as 17,500 “grow-ops” currently in British Columbia.\textsuperscript{9}

An interesting example of an increase in harm occurred during the WWI era. While drunkenness (or even just a hangover) on the job is always detrimental to productivity, the harm is magnified when a country is in the midst of a war effort. While this type of harm may not seem psychic in nature, note that it is reduced by hiding. That is, as long as an individual does not let their alcohol consumption affect their work (part of an individual’s public life), it does not matter how much one consumes in their leisure time. In 1917, it was determined in the United States that people were not taking proper care to prevent the effects of their enjoyment of alcohol from spilling over into their workday. As such, the production and sale of alcohol became illegal. In 1920, the 18th amendment made prohibition permanent\textsuperscript{10}. It is worth noting prohibition actually had very little effect on the amount of alcohol consumed, although it did have the desired effect on production (see Thornton (1991)).

\textsuperscript{6}See Pastore and Maguire (2005).
\textsuperscript{7}See Corkery (2000).
\textsuperscript{8}Taken from Statistics Canada (2001).
\textsuperscript{9}Easton also notes that penalties for running a grow-op are very low. In Vancouver, 55\% of grow-op “busts” led to no jail time and only 13\% received jail time greater than 90 days. Further, only 35\% of cases led to a fine, and the average fine meted out was a paltry C$1,200.
The following section outlines the model and the results. Section 3 concludes and discusses some issues not addressed by the model. All proofs are in the appendix.

2 The Model

2.1 The Environment

We consider a simple economy with two agents and a government. The first agent, who we call the injurer, $I$, derives utility from the consumption of a single good or activity. Denote the injurer’s consumption by $\theta$, and let $B(\theta)$ be the benefit derived from consumption, where $B(\cdot)$ is continuous, differentiable, strictly concave, and $B'(0) > 0$. We also normalize $B(0)$ to be 0 for notational simplicity later on. The injurer can also choose to hide her consumption. Let $h$ denote the level of hiding, which has a per-unit cost of 1 so that the injurer’s utility from consumption $\theta$ and hiding $h$ is given by $U^I(\theta, h) = B(\theta) - h$. The second agent we call the victim, $V$.

The victim suffers some disutility from the injurer’s consumption. This disutility is reduced by the injurer’s hiding. Denote the harm incurred by the continuous and differentiable function $C(\theta, h)$, where $C_\theta(\theta, h) > 0$ and $C_h(\theta, h) \leq 0$, with the last condition satisfied with inequality when $\theta > 0$. Note that the victim does not make any decisions in this simple model. It is assumed that transaction costs are such that bargaining cannot take place.

2.2 Efficiency

In the absence of transaction costs, the injurer and victim would be able to bargain to maximize the sum of the injurer’s and the victim’s utilities. That is, the efficient levels of consumption and hiding, denoted by $\theta^o$ and $h^o$ respectively, solve the following problem:

$$\max_{\theta, h} B(\theta) - C(\theta, h) - h$$

Suppose that a solution exists, i.e. that the first-best levels of consumption and hiding are finite. Denote these efficient levels by $\theta^o$ and $h^o$, respectively. Assuming
that $B'(0) > C_0(0, h)$ and that $-C_h(\theta, 0) > 1$, both $\theta^o$ and $h^o$ are positive. This social optimum is characterized by the system of equations

\begin{align}
B'(\theta^o) &= C_0(\theta^o, h^o) \\
-C_h(\theta^o, h^o) &= 1
\end{align}

Figure 1 depicts the efficient levels of consumption and hiding. It should be noted that it is possible for the efficient level of hiding to be zero. For example, this occurs when hiding does not affect the harm incurred by victim. Such cases correspond to the traditional environment of externalities and regulation. In addition, if the first-best level of consumption is zero, then the traditional analysis of crime applies.

Figure 1: On the left, the marginal benefit of consumption is equal to the marginal cost, given the efficient level of hiding. On the right, the marginal benefit of hiding, given the efficient level of consumption, is equal to the per unit cost of one.

The following section considers how a central planner could promote efficiency when it has the instruments of the courts available to it.

### 2.3 The Government’s Problem

The government is assumed to maximize the sum of agents’ utilities derived from the injurer’s consumption less enforcement costs. It should be noted that the set of
instruments available to the government could vary depending on the particular good or activity being regulated. In particular, the government may or may not be able to regulate hiding behavior directly. If the government is able to regulate hiding, then the optimal policy would be to set a quota equal to $\theta^o$ and to require that the injurer choose $h^o$. This would be accompanied by minimal enforcement and penalties for deviating from $\theta^o$ and $h^o$ sufficiently high to ensure that the injurer complies. As noted above, examples of such regulation on hiding behavior can be readily found.

Regulation on hiding behavior may not always be possible, as mentioned above. Furthermore, quotas on consumption may also be difficult to enforce. In this case, the government is limited to choosing enforcement, the penalty and amount of monitoring, for consumption only. If the injurer decides to consume the good, she will be fined with some probability. The probability that illegal consumption is detected is given by $p(e, h)$, where $e$ is the enforcement effort chosen by the government. The larger the effort by the government, the larger is the probability of being detected, $p_e(\cdot) > 0$. The cost of enforcement effort is given by $\kappa(e)$ where $\kappa'(e) > 0$ and $\kappa''(e) \geq 0$. It is also assumed that $\kappa'(0) = 0$. The injurer’s hiding behavior decreases the probability of being caught, $p_h(\cdot) < 0$. Finally, we assume that there exists a small chance that the injurer is caught even if the government does not expend any enforcement effort. That is, we assume $p(0, h) > 0, \forall h^{11}$.

An injurer who is caught consuming the banned good receives a sanction $S(\theta)$. It is assumed that these sanctions can be collected without cost. As such, any sanction levied acts as a transfer between individuals and does not appear in the government’s objective function. The government’s maximization problem is given by

$$\max_{e, S(\theta)} B(\theta) - C(\theta, h) - h - \kappa(e)$$

In order to examine the government’s optimal policy, it is necessary to examine how the injurer’s decisions of $\theta$ and $h$ depend on $(e, S(\theta))$. We begin by considering sanction schedules that are continuous and differentiable. Of course, the government is not restricted to such schedules. As will be seen below, however, we find conditions

11This assumption has no bearing on the results. Without this assumption, attention would be restricted to suprema of the government’s objective function as opposed to maxima.
for such sanction schedules to be optimal. We then consider optimal sanctions that are discontinuous, as it turns out that they are easier to analyze when the first best is not implementable. The following section examines the behavior of the injurer.

2.4 The Injurer’s Behavior

Given a governmental policy, \((e, S(\theta))\), the injurer can decide to commit crime (choose \(\theta > 0\)), or comply with the law. If the injurer does not consume the good, her utility is given by

\[
U^I = B(0) - h = -h
\]

If the injurer chooses to consume the good, then her (expected) utility is given by

\[
U^I = B(\theta) - p(e, h)S(\theta) - h
\]

First, note that when the injurer complies with the law, her utility is strictly decreasing in \(h\). Thus one possible solution to the injurer’s maximization problem is given by \(\theta = 0\) and \(h = 0\). We shall refer to this solution as compliance. Another possible solution is for the injurer to choose \(\theta > 0\). An injurer who decides to consume a positive amount of the good \(\theta\), also chooses an optimal hiding effort \(h^*(\theta)\). This optimal hiding effort is characterized by the following first order condition:\(^{12}\)

\[
- p_h(e, h^*) S'(\theta^*) = 1
\]  

(2.3)

The injurer chooses the level of hiding to equalize the marginal reduction in the expected sanction with its marginal cost of one. The higher the sanction is, the more hiding is chosen. This implies that if the sanction is an increasing function of consumption \(\theta\), higher consumption is coupled with higher hiding. In other words, consumption and hiding decision are complements. The injurer also chooses how much to consume. If we consider hiding to be a function of consumption, the optimal

---

\(^{12}\)For the second order condition to be satisfied, it requires that the marginal benefit of hiding be decreasing (\(-p_{hh}(\cdot) < 0\)), which we assume. Note that this implies a unique solution for \(h^*(\theta)\).
consumption $\theta^*$, is characterized by:\footnote{The second order condition requires that $B''(\theta) - p(\cdot) S''(\theta) - P_h(e, h^*(\theta)) \frac{\partial h^*(\theta)}{\partial \theta} < 0$. In general, as long as the marginal benefit of consumption decreases fast enough this condition will be satisfied. However, if hiding is very productive ($-P_h(\cdot)$ is very large); infinite consumption could be coupled with very high hiding. Note that sanctions that increase at an increasing rate, $S''(\theta) > 0$, help ensure that the second order conditions will be satisfied. This is consistent with penalties for possession of large amounts of drugs being significantly higher than for small amounts. Again, we assume the second order condition is satisfied and so a unique solution for $\theta^*$ is guaranteed.}

\begin{equation}
B'(\theta^*) = p(e, h^*) S'(\theta^*)
\end{equation}

Equation 2.4 states that when the injurer chooses her level of consumption, she equalizes the marginal benefit of consumption with its marginal cost, which is given by the probability of being detected times the marginal sanction.

Let $\theta^*$ and $h^*$ denote this solution, depicted in Figure 2. For simplicity, it is assumed that in the case that the injurer is indifferent between committing crime and complying ($B(\theta^*) - p(e, h^*) S(\theta^*) - h^* = B(0)$), the injurer chooses to commit crime.

Figure 2: On the left, we show the injurer’s optimal choice of consumption, given $h^*$. On the right, we show the injurer’s optimal choice of hiding, given $\theta^*$.

We now consider the government’s optimal policy, given the injurer’s behavior as described above.
2.5 Optimal Policy

It may seem at first that the government has as many instruments as the injurer has choice variables (two), and that one of these instruments, monitoring effort, is costly. In general, the government would not be able to implement the first best in such situations. However, the sanction affects the injurer’s behavior both through the level, \( S(\theta) \), and the rate of increase, \( S'(\theta) \). Thus the government actually has three instruments available to it, one of which is costly. As such, the first best is in fact implementable without cost. The government chooses monitoring to be equal to zero, so that no costs are incurred, the level of the sanction is chosen so that the marginal benefit to hiding is equal to its marginal cost of one, and the rate of increase of the sanction is chosen so that the marginal expected penalty is equal to the marginal harm. The only condition that may prevent the first best from being implemented is that the level of the sanction must be such that the injurer chooses to commit crime as opposed to complying. This is demonstrated formally in the following theorem.

**Result 1:** If the government chooses \( e = 0, S(\theta^o) = \frac{1}{-p_h(0,h_0)} \) and \( S'(\theta^o) = \frac{B'(\theta^o)}{p(0,h_0)} > 0 \), the first best is implementable if and only if \( B(\theta^o) \geq p(0,h_0)S(\theta^o) \).

Figure 3 depicts the implementation of the first best. The government uses \( S(\theta) \) and \( S'(\theta) \) to emulate the marginal social costs at the efficient levels of consumption and hiding. This leads the injurer to internalize the costs imposed on the victim. Specifically, \( S'(\theta) \) is set such that the marginal expected penalty to illegal consumption is equal to the marginal cost to the victim at the efficient level. At the same time, \( S(\theta) \) is set so that the marginal benefit of hiding to the injurer is equal to the marginal benefit of hiding to the victim, again at the efficient level.

An interesting corollary to this theorem is that the optimal sanction is not maximal. Since the solution involves the injurer choosing to commit crime, the sanction \( S(\theta^o) \) has to be set to a finite value even though it is costless. It is also worth commenting on the assumption that victims do not make any decisions. If there exist parts of a city in which activities such as prostitution or drug use are permitted, then efficiency may require effort from the victim to avoid such areas. This would explain why, for example, pay-per-view channels that show explicit adult films are not part of regular cable packages and why they have been allowed to persist. The logic here is
that people who don’t like the programming of these channels shouldn’t order them. Victim precaution can create a problem for tort law, as the solution often entails conditional negligence rules or the doctrine of “coming to the nuisance”. The reason it is problematic for torts is that victims have incentive to take less than efficient level of precaution because they receive damages. For criminal charges, however, victims do not receive any compensation. As such, it is privately optimal for victims to take the efficient level of precaution when the injurer hides efficiently\(^{14}\). Thus we do not need to modify our model in order to incorporate the idea of victim precaution.

At this point, it should also be noted that there exist discontinuous sanction schedules that implement the same outcome. Consider the following penalty scheme.

\[
S(\theta) = \begin{cases} 
\frac{1}{-p_h(0,h)} & \theta \leq \theta^o \\
\infty & \theta > \theta^o 
\end{cases}
\]

Such a sanction schedule would also lead the injurer to choose \(\theta^o\) and \(h^o\). Note that the arbitrarily high penalty above \(\theta^o\) (which acts as a threshold), leads the injurer to choose the efficient level of consumption, while the level of the sanction at the threshold, call it \(S^*\), is what leads the injurer to choose the efficient level of

\(^{14}\)This is because the only social benefit to victim precaution is the victim’s private benefit in the reduction in harm.
hiding. With such a sanction schedule, the government’s two costless instruments are the threshold and the level of the sanction at (and also below) the threshold. Since the penalty is prohibitively high above the schedule, the government is in effect choosing the injurer’s consumption and the penalty paid (which sets the hiding). The remainder of the analysis considers the use of such a sanction schedule.

Recall that Result 1 requires that the injurer prefer to consume and hide at the efficient levels than comply. Suppose that this were not the case. That is, suppose that the sanction that would induce the injurer to consume and hide at the efficient levels is such that \( 0 > B(\theta^o) - p(0, h^o) S^* \). In this case, the government must drop the sanction so that the injurer chooses to consume the illegal good. However, if \( S^* \) decreases, the injurer would reduce her hiding as the marginal benefit to hiding becomes too low.

Also recall that hiding and consumption are complements for the injurer. Thus if the government were to increase the threshold above \( \theta^o \), then the injurer would increase both consumption and hiding. The government could thus tradeoff social costs arising from too much consumption with costs from too little hiding. In addition, if monitoring on behalf of the government increases the marginal benefit to hiding, i.e. \( p_{eh}(\cdot) < 0 \), then the government could also tradeoff the costs of insufficient hiding with enforcement costs. The following result formalizes the above intuitions.

**Result 2:** When \( B(\theta^o) < \frac{p(0, h^o)}{p_{he}(0, h^o)} \), the government will tradeoff social costs of excessive consumption with costs of too little hiding. In addition, the government will monitor with \( e > 0 \) if and only if \( p_{he}(\cdot) < 0 \).

The above model does not consider differential enforcement of the law. That is, the above model assumes no discretion by authorities when it comes to making arrests or where to monitor. If police have such discretion, then this model suggests that police would enforce the law in such a way as to keep the activity less conspicuous in parts in which there are relatively more people that are offended, or “injured”, by the activity. In particular, the police might allow these activities to take place as long as there are no complaints. This also suggests that, when it is possible to regulate hiding behavior directly, this legislation would often take things like location into consideration. For example, the activity could be legal with a license, but licenses
are restricted to certain parts of town.

3 Conclusion

This paper demonstrates that the existing body of laws surrounding sex, drugs and gambling can be efficiency promoting. As noted by Rasmusen (1997), if these activities impose a negative externality on others, then there exists the potential for welfare improvements through regulation. This paper demonstrates that if this externality is diminished through costly hiding by the injurer, then the socially optimal legislation closely resembles what we observe. In particular, we observe a large body of legislation directed at the public aspect of these activities. This paper does not presume to have considered all the factors behind such laws, however. In particular, it does not consider the problems caused by prohibition as suggested by Miron and Zwiebel (1995). However, it is worth mentioning that when governments do legislate on the visibility of an activity rather than the activity itself, many of these problems are lessened. For example, individuals would have legal recourse if a transaction did not go as advertised. Many of these problems may also be solved if quotas are implemented. Whether this is the case is, to a large extent, an empirical issue and further research in this area would be helpful.

If externalities stemming from prohibition are not an issue, and regulating the public aspect is difficult, then granting discretion to law enforcers can also be beneficial. For example, we observe that the enforcement of such activities often depends on the conspicuousness of the activity and the number of people in the area that might be bothered by it. For example, police often do not make any attempts to shut down brothels or grow-ops until they receive a sufficient number of complaints from people in the area. If the police could enforce the law in such a way as to keep the activity less conspicuous in parts in which there are relatively more people that are offended, or “injured”, by the activity, then this would be equivalent to an increase in hiding.
4 Appendix

Proof to Result 1:

If the government chooses the policy $e = 0$, $S(\theta^o) = \frac{1}{-p_h(0,h^o)}$ and $S'(\theta^o) = \frac{B'(\theta^o)}{p(0,h^o)}$ and the injurer chooses to commit crime, her optimal choice is $\theta = \theta^o$ and $h = h^o$. This can be seen as follows. Recall that the injurer chooses $\theta$ and $h$ to solve equations 2.4 and 2.3. The injurer will choose $\theta = \theta^o$ and $h = h^o$ when $e = 0$ if $\bar{\theta}$ and $s$ are such that

\[ B'(\theta^o) = p(0,h^o) S'(\theta^o) \]
\[ -p_h(0,h^o) S(\theta^o) = 1 \]

The first equation yields $S'(\theta^o) = \frac{B'(\theta^o)}{p(0,h^o)}$. The second equation yields $S(\theta^o) = \frac{1}{-p_h(0,h^o)}$. Note that in order for the injurer to choose to commit crime, it must be that $B(\theta^o) - p(e,h^o) S(\theta^o) \geq 0$.

Since the injurer is choosing the efficient levels of consumption and hiding and the government is not incurring any costs, this must be the optimal policy. \blacksquare

Proof to Result 2:

Recall the government’s maximization problem. Using a sanction schedule that sets an arbitrarily high penalty above a threshold level, the government in effect chooses $\theta$, $S^*$ (the penalty associated with consuming $\theta$, which affects $h$), and $e$ (which also affects $h$) to maximize the sum of utilities. In order to get the injurer to commit crime, however, there exists a constraint that $B(\theta) \geq p(e,h) S^* - h$. If we write the injurer’s choice of hiding as $h^*$, to denote that it is a function of $S^*$ and $e$, the maximization problem is given by

\[
\max_{\theta,S^*,e} B(\theta) - C(\theta,h^*) - h^* - \kappa(e) + \lambda [B(\theta) - p(e,h^*) S^* - h^*]
\]

The necessary first order conditions for the government’s problem are therefore

\[
[B'(\theta) - C_{\theta}(\theta,h^*)] + \lambda B(\theta) = 0 \quad (4.1)
\]
\[
[-C_h(\theta,h^*) - 1] \frac{\partial h^*}{\partial S^*} - \lambda p(e,h^*) = 0 \quad (4.2)
\]
\[
[-C_h(\theta,h^*) - 1] \frac{\partial h^*}{\partial e} - \kappa'(e) - \lambda p_e(e,h^*) S^* \leq 0 \quad (4.3)
\]

where the inequality in 4.3 holds with equality if the optimal monitoring effort is positive.
When the government uses such a sanction schedule, the injurer’s first order condition for hiding is

\[-p_h (e, h^*) S^* - 1 = 0\]

Using the Implicit Function theorem, we find that

\[\frac{\partial h^*}{\partial S^*} = -\frac{p_h (e, h^*)}{p_{hh} (e, h^*) S^*} > 0\]
\[\frac{\partial h^*}{\partial e} = \frac{p_{eh} (e, h^*) S^*}{p_{hh} (e, h^*) S^*}\]

where \(\frac{\partial h^*}{\partial e} > 0\) if and only if \(p_{eh} < 0\), which states that government monitoring increases the marginal return to hiding.

Returning to the first order conditions, we see from 4.1 that when the constraint does not bind, then \(\lambda = 0\) and it is optimal to choose the efficient level of hiding. When the constraint does bind, however, \(\lambda > 0\) and so the optimal policy must entail \([B' (\theta) - C_\theta (\theta, h^*)] < 0\), which occurs when consumption is greater than the efficient level. Examining 4.2, we see that when the constraint does not bind, the efficient level of hiding is implementable, but when \(\lambda > 0\), the optimum has \([-C_h (\theta, h^*) - 1] \frac{\partial h^*}{\partial S^*} > 0\). Since \(\frac{\partial h^*}{\partial S^*} > 0\), it must be that \([-C_h (\theta, h^*) - 1] > 0\), which occurs with hiding less than the efficient level. Finally, when the constraint binds, the government will use monitoring only when \(\frac{\partial h^*}{\partial e} > 0\), which occurs when \(p_{eh} (\cdot) < 0\). ■
5 Bibliography


