What is a criminal organization and why does the law care?

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The Criminal Codes in both Canada and the United States allow for criminals to be penalized to a greater degree if they are a member of an organization. We draw on the economic theory of punishment, which states that expected penalty should be proportional to the social harm caused, to put a different perspective on such regulations. According to the economic theory, additional punishments are desirable if either: (1) the social harm from a criminal act is greater for a member of an organization than for an independent criminal; or (2) the probability of conviction is lower. We examine the extent to which both of these possibilities are true and use the findings to revisit the definition of a criminal organization.

Keywords: crime; criminal organization; enforcement; market power

Introduction

In the United States in 1967, a presidential report on organized crime was commissioned. In 1970, the Organized Crime Control Act was passed. A significant component of this act was the Racketeer Influenced and Corrupt Organizations Act (RICO). RICO was designed to target individuals or organizations engaged in a pattern of racketeering, defined as a minimum of two connected criminal acts within a ten-year period. It did so by allowing prosecutors to define a series of distinct crimes as a single offence, thereby avoiding many procedural, evidentiary and jurisdictional problems associated with prosecuting multiple offences together. RICO allows for rather severe penalties to be imposed. The maximum penalty for a single RICO conviction is twenty years imprisonment (which is increased to life imprisonment if any of the predicate charges permit it, such as murder) and a fine of $250,000 or twice the proceeds of the offence. In addition, RICO allows for the forfeiture of all the proceeds of crime.

The majority of states (45 at the time of writing) also have laws devoted to criminal organizations.[1] Of those 45, 25 have provisions to impose additional penalties for crimes committed by members of gangs.[2] Often, such provisions entail the automatic upgrading of the class of misdemeanor or felony.[3] A summary of the other types of legislation can be found in Appendix A.

The current legislation in Canada targeting criminal organizations was introduced in 1997 and revised in 2001. The Criminal Code of Canada defines a criminal organization as

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1. The exceptions are Alabama, Maine, Nebraska, West Virginia and Wyoming.
2. Most state legislation is targeted at 'street gangs'.
3. Taken from http://www.iir.com/nygc/gang-legis/.

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'a group, however organized, that (a) is composed of three or more persons in or outside Canada; and (b) has as one of its main purposes or main activities the facilitation or commission of one or more serious offences that, if committed, would likely result in the direct or indirect receipt of a material benefit, including a financial benefit, by the group or by any of the persons who constitute the group. It does not include a group of persons that forms randomly for the immediate commission of a single offence'.[4] The incremental penalty for being a member of a gang while committing a crime is no more than 14 years imprisonment.[5]

While prosecutors have had some success in convicting criminals under RICO, criticism of it is not hard to find. One particular criticism is that RICO is very vague in its definition of a criminal 'enterprise'.[6] In particular, legitimate organizations, such as corporations, labor unions and government offices come under the purview of RICO. While prosecutors have found this useful in combating white-collar crime, it is not obvious that RICO is the best tool for this venture.

RICO was influential in the design of Canadian legislation.[7] As is evident from the Canadian definition of a criminal organization above, Canada attempted to remove much of the vagueness found in RICO. One could argue that the Canadian definition has caused as many problems as it has solved, however. Currently, Canada has been unable to convict criminal members of the Hells Angels as members of a gang, primarily because they cannot prove that the commission of crimes is a primary reason for the group.[8]

How then, should the law define a criminal organization? It is perhaps not surprising that this has been a difficult issue to resolve given the many different types of criminal organizations that exist. Some are social institutions that also participate in crime, and may range in size from a small group of neighborhood youth to the Hells Angels. Some organizations are culture- or 'family'-based, which may be very loosely organized, or may exhibit many of the features of legitimate businesses, such as La Cosa Nostra or the Italian Mafia.[9] Should the law distinguish between these different types of organizations, perhaps punishing them differentially? Or should it take the stance that a criminal organization is a criminal organization, independent of its structure?

In order to answer these questions, we turn to the economic theory of punishment to establish why society would want to punish criminal organizations differently than independent criminals. We find that many of the reasons stem from the impact that criminal organizations have on markets (either illegal markets or metaphorical markets

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4. Criminal Code of Canada, subsection 467.1.
5. Criminal Code of Canada, subsection 467.12.
6. See, for example, C. Morselli and L. Kazemian, 'Scrutinizing RICO', *Critical Criminology* 12 (2004): 351–69; M.G. Urbina and S. Kreitzer, 'The Practical Utility and Ramifications of RICO: Thirty-Two Years after its Implementation', *Criminal Justice Policy Review* 15 (2004): 294–323; R.K. Rassmussen, 'Introductory Remarks and a Comment on civil RICO's Remedial Provisions', *Vanderbilt Law Review* 43 (1990): 623–37; and J. Dombrink. and J. W. Meeker, 'Racketeering Prosecution – The Use and Abuse of RICO', *Rutgers Law Journal* 18 (1985): 633–54.
7. See Freedman, D. 'The New Law of Criminal Organizations in Canada', *Canadian Bar Review* 85 (2006): 171–219.
8. See 'Hells Angels Member not in "Criminal Organization"', http://www.ctv.ca/servlet/ArticleNews/story/CTVNews/20080327/hellsangelsguilty080327/20080327?hub=TopStories.
9. See F. Allum and J. Sands 'Explaining Organized Crime in Europe: Are Economists Always Right?', *Crime, Law & Social Change* 41 (2004): 133–60 for detailed descriptions of the types of criminal organizations around the world.

from crime) and from the use of violence. In other words, we feel that criminal organizations should be defined according to their presence in illegal markets and *not* according to the structure of their network. Interestingly, these findings are very reminiscent of Schelling's work that was influential in the design of RICO.[10]

Schelling's work has been criticized in the criminological literature as promoting a misconception of criminal organizations.[11] The source of this criticism is Schelling's assumption that criminal organizations must necessarily be large-scale, highly organized groups that form in order to achieve monopoly power in the markets in which they operate. While this criticism is correct in that criminal organizations clearly come in all forms and so are not all large-scale or structured like a business, we feel it is misguided in that there does not appear to be any reason to treat those organizations that do not achieve market power or use excessive violence any differently than independent criminals. In other words, whether a criminal organization should receive enhanced sentencing *should* hinge on the attainment of market power, no matter how structured the organization is, and even if that was not an initial goal of the group.

The rest of this paper is organized as follows. In the next section, we examine the economic theory of punishments and highlight the finding that punishment should depend on the social harm imposed and the probability of conviction. We then examine how criminal organizations may differ from independent criminals in these regards. In the final section, we consider how these differences can be used to construct a definition of a criminal organization and conclude.

Economic analysis of punishment

There exists a large literature within economics focusing on crime and deterrence.[12] In particular, much attention has been paid to the choice of punishment. To begin with, it is not socially optimal to have all punishments set at the maximum possible (such as the death penalty). If rape, say, were punished with the death penalty, then rapists would have incentive to kill their victims in order to reduce their chance of being caught. Further, if punishments were the same for all crimes, then criminals might have incentive to switch out of less serious crimes to more serious ones. This is known as the concept of marginal deterrence.[13] From this standpoint, and given that there are many possible crimes,

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10. T.C. Schelling, 'Economic Analysis and Organized Crime', in The President's Commission on Law Enforcement and the Administration of Justice, *Task Force Report: Organized Crime* (Washington, DC: US Government Printing Office, 1967): 114–26.
11. See Morselli and Kazemian 'Scrutinizing RICO' and Allum and Sands 'Explaining Organized Crime in Europe'.
12. Early writings on the subject include C.-L. Montesquieu, *De l'esprit des lois*, ed. J.P. Mayer and A.P. Kerr (1748 [1793]); C. Bonesana, marquis Beccaria, *An Essay on Crimes and Punishments*, trans. from the Italian (Philadelphia, PA: William Young, 1767 [1793]); and J. Bentham, *Principles of Morals and Legislation* (Oxford: Clarendon Press, 1789). Specifically within the law and economics literature, G.S. Becker, 'Crime and Punishment: An Economic Approach', *Journal of Political Economy* 76 (1968): 169–217 is very influential.
13. See, for example, G.J. Stigler, 'The Optimum Enforcement of Laws', *Journal of Political Economy* 78 (1970): 526–36; D.D. Friedman and W. Sjostrom, 'Hanged For a Sheep – The Economics of Marginal Deterrence', *Journal of Legal Studies* 22 (1993): 345–66; or D. Mookherjee and I.P.L. Png, 'Marginal Deterrence in Enforcement of Law', *Journal of Political Economy* 102 (1994): 1039–106.

economic theory states that expected punishments[14] should be an increasing function of the social harm caused by the criminal act.

Further, there may be some crimes that enhance economic efficiency when committed. Polinsky and Shavell[15] consider a social welfare function that includes the benefits to criminals. In this case, efficiency requires that crimes be committed only when the criminal's benefit outweighs the social harm (which includes the cost of policing and punishment). They argue that optimal punishments entail setting the expected punishment exactly equal to the harm caused. When this is done, rational individuals choose to commit an illegal act if and only if their benefit outweighs the social harm.

Although the main focus of our analysis, deterrence should not be the only consideration in the design of punishments, particularly in the case of imprisonment. The incapacitation of likely offenders, their potential rehabilitation and retributive justice (or 'just desert') are three other important factors.[16] Interestingly, the inclusion of incapacitation concerns has little impact on our analysis. For example, offence severity has been shown to be a useful predictor of recidivism.[17] Consequently, offences that cause greater social harm should also be given longer sentences when incapacitation is the objective. Moreover, there exist many practical considerations over and above these 'idealistic concerns'. Laws are generally the outcome of very complex and messy political processes that can often lead to distortions away from what is socially optimal. While these factors are very important in the real world, we wish to abstract from them in order to consider the normative question of whether criminal organizations *should* receive greater penalties than individual criminals and under what circumstances.

To this end, consider the following simple model of optimal punishment, with deterrence as the objective.[18] First, denote by g the benefit to an individual (or to a group of individuals) from an illegal act. Let this benefit be randomly drawn (and be known to the potential criminal before the act is committed) from the probability density function $z(g)$ with associated cumulative density function $Z(g)$. Let the penalty associated with this illegal activity be denoted by s,[19] and let π denote the probability of detection and conviction. Let the cost of sanctioning be given by $c(s)$, where $c'(s) > 0$. While π is presumably a function of many things, most notably government expenditure on policing, we shall consider it to be exogenously fixed. This is not an unreasonable assumption if, for example, policing efforts are general in the sense that a large police force affects the probability of conviction for a multitude of different crimes simultaneously. Since our

14. Note that the expected punishment is the penalty times the probability of being caught.

15. See A.M. Polinsky and S. Shavell, 'The Economic Theory of Public Enforcement of Law', *Journal of Economic Literature* 38 (2000): 45–76.

16. While the economic literature on these other aspects is not large, it is growing. See, for example E.L. Glaeser and B. Sacerdote 'The Determinants of Punishment: Deterrence, Incapacitation and Vengeance', NBER Working Paper 7676 (2000); and I. Ehrlich, 'On the Usefulness of Controlling Individuals: An Economic Analysis of Rehabilitation, Incapacitation, and Deterrence', in *The Economics of Crime*, vol. 1. International Library of Critical Writings in Economics series, vol. 195. An Elgar Reference Collection (Cheltenham: Edward Elgar, 2006).

17. See M.R. Pogrebin, E.D. Poole and R.M. Regoli, 'Parole Decision Making in Colorado', *Journal of Criminal Justice* 14 (1986): 147–55.

18. For more a complete discussion, see Polinsky and Shavell 'The Economic Theory of Public Enforcement of Law'.

19. Given that our model focuses exclusively on deterrence, the swiftness of punishment can be thought of as a determinant of s. However, it is possible that this may not still be true if we were to include incapacitation objectives.

simple model considers only a single criminal act, and since the determination of the size of the police force should depend on consideration of all crimes, one can consider π as simply fixed.[20] However, we will later consider how the probability of conviction can be influenced by criminal organizations. Finally, h represents the social harm caused by a given offence.

If criminals are risk neutral, they will commit a crime when $g \geq \pi s$. The probability that this is the case is $1 - Z(\pi s)$. While the assumption of risk neutrality may seem extreme, it actually has little effect on our results. The introduction of either risk preference or risk aversion certainly affects the optimal *level* of punishment, but not the result that it is increasing in social harm. Interestingly, there appears to be evidence that criminals are on average less concerned with risk.[21] If social welfare does *not* include the benefits to criminal,[22] the social optimum is found by solving:

$$\max_{\{s\}} - [1 - z(\pi s)]h - c(s) \qquad (1)$$

The solution thus entails setting the punishment $s*$ such that $\pi z(\pi s*)h = c'(s*)$. Punishment is used to the point that the marginal benefit of a reduction in criminal activity equals the marginal cost of punishment. Some illegal acts (those for which the criminal's gains are very high) are simply not worth deterring because it is too costly to do so. Further, as π decreases, one can see that the optimal punishment increases.

This simple model, as well as the above story of marginal deterrence, gives rise to two key results of the economic theory of punishment: criminal acts committed by an organized group *should* be penalized to a greater degree if either: (1) the social harm from the act is greater; or (2) the probability of conviction is lower. We now examine these two possibilities.

Social harm

We first examine the social harm stemming from criminal acts and consider if and when such harm may be greater when said acts are committed by criminal organizations rather than independent criminals. It is worth mentioning that this analysis holds such things as the act itself and criminal history constant. If members of criminal organizations committed different criminal acts from independent criminals, there should be no need for the law to impose additional penalties because that would already be incorporated into the punishment for those different acts themselves. For example, if only criminal organizations can commit extortion or smuggle large quantities of drugs across borders, then the penalties for those crimes would reflect the fact that they are being committed by a criminal organization. In addition, penalties are often increasing in the convicted party's criminal history, so there would be no need to penalize members of criminal organizations further because they tend to have committed more crimes in the past.[23] Under what

20. This assumption is consistent with the analysis in Polinsky and Shavell, 'The Economic Theory of Public Enforcement of Law'. It is worth mentioning that allowing for π to be a choice variable does not change our main result that punishments should be increasing in social harm.
21. For a physiological study examining individuals who engage in criminal activity, see M. Krakowski, 'Violence and Serotonin: Influence of Impulse Control, Affect Regulation, and Social Functioning', *Journal of Neuropsychiatry and Clinical Neuroscience* 15 (2003): 294–305.
22. Including the gains to criminals in the welfare function lowers the optimal *level* of punishment without changing the result that optimal punishments are increasing in social harm.
23. From the standpoint of incapacitation, there is similarly no need to have an additional penalty for

circumstances, then, would the criminal acts of members of criminal organizations cause more social harm than the same acts committed by independent criminals?

We first consider some specific criminal acts: those associated with illegal markets. This is a logical starting point since the provision of illegal goods and services (for example, drugs and prostitution) is a common association with criminal organizations. Criminal organizations of many different types, from as local street gangs to international criminal organizations such as the Triads, are involved in such markets. Let us first consider, however, what these markets would look like if the only players were independent, unorganized criminals. Such markets would presumably be quite competitive, with the marginal criminal earning zero economic profits (after accounting for the costs associated with risk). There would be little incentive for violence, as it is costly and the returns in a competitive market small. If a collection of criminals attempted to organize, however, the incentives for violence would increase as they attempted to attain market power and increased profits.

Many economists have argued that drug markets are somewhat non-competitive. For example, Fiorentini and Peltzman[24] argue that organized crime is more likely to flourish when there are economies of scale and monopolistic power. They also suggest that organized crime uses violence against other firms in the legal and illegal sectors. Gambetta and Reuter[25] also point out that criminal organizations can use violence to maintain their market power. Similarly, Levitt and Venkatesh[26] argue for the presence of market power in the illicit drug sector by looking at actual data on a Chicago gang. They note that the use of violence plays a major role in sustaining market power.

Does increased market power mean increased social harm? There are actually arguments to be made both for and against such a hypothesis. One might feel that society should be trying to minimize the amount of consumption in these markets. Since market power is often associated with a *reduction* in sales, it may actually be preferable to have a few criminal organizations with market power in charge of production, importation or distribution rather than facing a competitive market.[27] An organization with market power would restrict sales in order to charge higher prices and attain more profit. Imposing additional penalties for criminal organizations might seem to be counterproductive in this case. By penalizing criminal organizations more than independent criminals, the law would be encouraging competition in the market, thereby leading to greater consumption. However, this argument only holds when sellers are not able to price discriminate. When they do, sellers are able to sell more and still increase profits. As we will discuss in more detail later on, one common feature of drug markets is their high degree of price dispersion, an indication that price discrimination may be the norm.

(*Footnote 23 continued*)

members of criminal organizations based on an increased probability of offending in the future since the likelihood of recidivism can already be factored into the sentencing.

24. G. Fiorentini and S. Peltzman, 'Introduction', in *The Economics Of Organised Crime*, ed. G. Fiorentini and S. Peltzman (Cambridge, NY: Cambridge University Press, 1995): 1–26.

25. D. Gambetta and P. Reuter, 'Conspiracy Among the Many: The Mafia in Legitimate Industries', in *The Economics Of Organised Crime*, ed. G. Fiorentini and S. Peltzman (Cambridge, NY: Cambridge University Press, 1995): 116–36.

26. S.D. Levitt and S.A. Venkatesh, 'An Economic Analysis of a Drug Selling Gang's Finances', *Quarterly Journal of Economics* 115 (2000): 755–89.

27. See A. Mansour, N. Marceau and S. Mongrain, 'Gangs and Crime Deterrence', *Journal of Law, Economics & Organization* 22 (2006): 315–39 as well as Schelling, 'Economic Analysis and Organized Crime'.

Further, minimizing consumption may not be the appropriate objective. In contrast to property or violent crimes, it is not obvious that illegal trades impose any direct costs.[28] Many arguments as to why any markets should be illegal often turn on the presence of externalities; for example, in the case of prostitution, the market could lead to an increased transmission of sexually transmitted infections. In the case of drugs, addicts may resort to property crime in order to support their habit. Drugs are expensive; Caulkins and Reuter compare the price of drugs to the price of gold.[29] In 1997, marijuana was worth as much as gold, while cocaine and heroin were respectively 10 and 100 times more expensive than gold. Some argue that it is the high price that leads addicts to commit crimes in order to support their habits.[30] Indeed, some estimates of expenditures run as high as $12,000 a year for hardcore cocaine and heroin users.[31] Would prices be as high if drugs were legal? When drugs are illegal, prices tend to be high due to the direct and indirect costs imposed by law enforcement. Market power only pushes those prices up further, whether it occurs in production or in distribution. Moreover, if price discrimination is possible, as suggested by data on price dispersion,[32] then this is the worst of all worlds. Quantities sold are high, and so is the average price. Laws aimed at criminal organizations could thus be effective at reducing property crimes by controlling prices through the promotion of more competitive markets. In general, however, while the presence of market power almost certainly has an impact on the price and quantity of illegal goods and services, there does not appear to be a strong argument that social harm is increased through these avenues.

Another feature of market power, however, is increased profits. As alluded to above, with increased profits comes increased incentive to use violence in order to protect them. Such violence may be directed at members of other organizations, within an organization or against customers that try to default on payments.[33] Innocent bystanders may also be victims. The costs associated with the use of violence in drug markets are considerable. Caulkins estimates that compensation for physical risk accounts for more than 30% of the price of cocaine.[34] Bookkeeping information about a gang in Chicago collected by Levitt and Venkatesh[35] indicates that members of this particular gang faced up to a 30% chance of death over a three year period.

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28. This observation is probably less objectionable to economists, who generally hold that trade makes all parties involved better off and that the law does not need to protect people from themselves.
29. J.P. Caulkins and P. Reuter, 'What Price Data Tell Us About Drug Markets', *Journal of Drug Issues* 28 (1998): 593–613.
30. See R.A. Posner, *Economic Analysis of Law*, 7th edn (Austin, TX: Aspen Publishers, 2007), at p. 242.
31. These estimates are for 1995 in the United States by W. Rhodes, P. Scheiman, T. Pittayathikhun, L. Collins and V. Tsarfaty, 'What America's Users Spend on Illegal Drugs, 1988–1995' (Washington, DC: Office of National Drug Control Policy, 1997).
32. See M. Galenianos, R. Pacula and N. Persico, 'A Search-Theoretic Model of the Retail Market for Illicit Drugs', mimeo (2008).
33. See, for example S.H. Decker, C.M. Katz and V.J. Webb, 'Understanding the Black Box of Gang Organization: Implications for Involvement in Violent Crime, Drug Sales, and Violent Victimization', *Crime & Delinquency* 54 (2008): 153–71; and C. Morselli, D. Tanguay and A.-M. Labalette, 'Criminal Conflicts and Collective Violence: Biker-Related Account Settlements in Quebec, 1994–2001', in *Organized Crime: Culture, Markets and Policies*, ed. D. Siegel and H. Nelen (New York: Springer Science + Business Media, LLC, 2008).
34. Caulkins and Reuter, 'What Price Data Tell Us About Drug Markets'.
35. Levitt and Venkatesh, 'An Economic Analysis of a Drug Selling Gang's Finances'.

The threat of violence is also integral to extortion as well as other crimes against the population. Recall, however, that the economic theory of punishments states that, if criminal organizations should be subjected to higher penalties because they cause greater social harm, it must be on a per act basis, not because they use violence or commit other crimes to a greater degree.[36] Why should there be greater social harm associated with the violent acts of criminal organizations as compared with the same crimes committed by an individual? The answer may be that there is more harm per act because gangs are better organized in their attempts to commit those crimes. The key to this insight lies in a proper definition of the harm caused by a criminal act. Note that the social harm must be greater than the loss to the victim, for many reasons: goods may be destroyed in the act of theft, or physical injury may accompany property crimes. Perhaps more importantly, the threat of crime causes individuals to take precautions to avoid being victimized as well as causing stress and fear among the population. Precautions could involve monetary expenditures, such as the purchase of an alarm system, or they could involve changes to one's lifestyle, such as avoiding certain parts of town.

Consider the following adaptation of the simple model outlined above.[37] As before, gains to criminals are given by g, so that a criminal would like to commit an illegal act if $g \geq \pi s$. Potential victims, however, can take precautions to prevent the act from occurring. Suppose that expenditures, e, by the potential victim reduce the probability of a successful crime by $\alpha(e)$, where $\alpha'(e) > 0$ and $\alpha''(e) < 0$. Potential victims thus choose e to minimize their expected losses (comprising losses to criminals and expenditures e). As the threat of crime increases, potential victims spend more in order to avoid encounters with criminals. If criminal organizations represent a greater threat to potential victims, then victims will spend more, thereby increasing the social harm per act. In this case, it would be socially optimal to have higher penalties for crimes committed by members of criminal organizations.

Probability of detection

Another reason to penalize criminal organizations more than independent criminals is because they face lower probabilities of arrest and conviction. We now consider how this might be the case. In particular, we consider how market power can have important implications for the probability of detecting a criminal act. Recall the hypothetical case of a perfectly competitive market for an illegal good, such as drugs. It would be characterized by free entry with a large number of small suppliers making zero economic profits. For a given quality, the price of the drug would be set equal to the marginal cost of production and distribution, which includes all expected costs related to enforcement. The presence of market power brings two important features: lower quantity supplied and higher profits or surplus. Each of these two features influences the probability of detection.

Fewer offences

In a market dominated by a small number of suppliers, output tends to be smaller. In the case of a legal and homogeneous good, fewer transactions imply that the marginal

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36. It is possible that they engage in these activities to a greater degree than independent criminals because they have a lower chance of being caught. This is discussed in the next section.
37. Taken from P.A. Curry, 'Malice Aforethought', mimeo (2008).

transaction is done at a higher price and with individuals who have a higher valuation for the product. In other words, with fewer transactions, each transaction is more profitable solely due to higher prices. Illegal markets, and those for addictive goods in particular, operate very differently.[38] With illegal markets the goods traded, and even the actual transactions themselves, are rarely homogenous. Caulkins gives a clean example to support this affirmation: 'The amount of heroin in a "dime bag" might change over time and location, but by definition a dime bag always costs $10 ("dime" being street argot for $10)'.[39] In the same article, Caulkins also gives many examples where purity varies from one transaction to another instead of quantity. Negotiation on prices is time consuming, and so it increases the risk. Dealers sell at a fixed price, but ultimately it is the quantity and the quality that determine their per unit profits. For the point of view of the consumers, however, the benefit of every transaction is difficult to evaluate *a priori* because of asymmetric information problems. Drug markets also often exhibit quantity discounting, where per unit prices on larger transactions are significantly lower. While such price discrimination is also common in legal markets, the magnitude of the discount seems to be more drastic for illegal markets, in the order of 40% for cocaine.[40] These facts suggest that a higher price is not the only way by which suppliers earn greater surplus. Drug traders may increase the surplus they extract from a transaction by cheating on quantity, by diluting their product, or by even by concentrating on transactions that are less risky. It is on this last point that we wish to focus.

Consider first the example of quantity discounting. Imagine an individual with 100 grams of an illegal substance to distribute. Suppose for simplicity that the probability of detection π does not depend on the size of a transaction, but the penalty might. We also assume that, once caught, a dealer loses the rest of his supply. If p is the price per gram of the illegal substance, then the expected profit from a single (1 gram) transaction is $p - \pi s$, where s is the sanction for selling 1 gram. The expected profit from trying to sell 100 grams in a hundred transactions is:[41]

$$\sum_t (1 - \pi)^t [p - \pi s]$$

Alternatively, the dealer could sell the entire 100 grams in a single transaction at a total price P, and make an expected profit of $P - \pi S$, where S is the sanction for selling a full 100 grams of the substance. Thus the dealer would be willing to offer a single transaction price of

$$P = \left[\sum_t (1 - \pi)^t\right] p + \pi \left[S - \sum_t (1 - \pi)^t S\right]$$

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38. See J.P. Caulkins and P. Reuter 'Illicit Drug Markets and Economic Irregularities', *Socio-Economic Planning Sciences* 40 (2006): 1–14.
39. From J.P. Caulkins, 'Price and Purity Analysis for Illicit Drugs: Data and Conceptual Issues', *Drug and Alcohol Dependence* 90 (2007): 61–8.
40. Estimations for cocaine can be found in J.P. Caulkins, 'What is the Average Price of an Illicit Drug?', *Addiction* 89 (1994): 815–19. Significant quantity discounts are also found for the case of marijuana by K.W. Clements, 'Pricing and Packaging: the Case of Marijuana', *Journal of Business* 79 (2006): 2019–44.
41. Note that we do not consider the price of the illegal substance itself. This is because we assume that it has already been purchased, and therefore a sunk cost. There would therefore be no marginal cost to selling an additional 1 gram.

Consider the following parameterization: let the probability of arrest be 7%, as approximated by Bouchard and Tremblay.[42] While it is common to normalize the price to 1, it is more difficult to determine the appropriate values for s and S, since the penalties are generally in terms of prison time. In Canada, the maximum penalty for possession of cocaine or heroin (first conviction) is 6 months in prison and a $1000 fine. The maximum penalty for possession for the purpose of trafficking is life imprisonment.[43] Suppose that when dealing a single gram, the dealer receives the former penalty but life imprisonment when dealing all 100 grams. Given that 1 gram of cocaine retails for just under $100, s would be approximately 10. The appropriate value for S is difficult to ascertain, but suppose that life imprisonment is 1000 times worse than 6 months in prison and a $1000 fine. In that case, S would be 10,000. Using these parameter values, we find that $P = 704$, or approximately a 30% discount.

The reason dealers are willing to discount so heavily is because they like to reduce risk, and quantity discounting is one way in which they can select less risky transactions. The presence of market power can have similar effects. A simple supply and demand model can demonstrate how a reduction in the number of transactions can lead to lower probabilities of arrest. Figure 1 displays the demand for an illegal good (or service). Curve D is the standard downward-sloping demand curve, while curve MC represents the marginal cost of supplying an additional unit of the illegal good. This marginal cost is made up of two components: the actual cost of production and distribution, which is assumed to be equal to a constant c, and the additional expected cost due to law enforcement. This additional expected cost may be increasing even when the actual sanction remains constant.

Consider an environment in which times and locations for transactions vary in their discreetness (visibility to the police, perhaps). If a dealer makes a low number of deals in a month, he would choose to transact in the more discreet locations/times. As the number of deals increases, they will have to occur in more visible places, thus increasing the probability of detection. This yields the upward sloping MC curve depicted in Figure 1.

Imagine that a given transaction carries a probability π of being detected, where π is between 0 and 1. Dealers who are detected receive a sanction s. If those probabilities of detection are observable, suppliers will select less risky transactions first. The marginal cost is then given by $MC = c + \pi(Q)s$, where $\pi(Q)$ is the probability of detection attached to transaction Q. Hence, π is an increasing function of Q.

Now consider the two extreme forms of market structure: perfect competition and monopoly. Perfect competition is characterized by free entry, so the number of transactions is determined through a zero profit condition. In a competitive market, dealers enter (transacting in riskier and riskier locations) until the price is equal to marginal cost. This yields a number of transactions q^{c} and a market price p^{c}. A monopolist, however, maximizes profits by setting marginal revenue equal to marginal costs. In Figure 1, curve MR represents marginal revenue, while p^{m} and q^{m} represent the monopoly price and quantity. Obviously, in a monopolized market the price is higher and the quantity distributed is lower. More importantly, the total marginal cost of the last transaction is lower, meaning that the probability of detection is lower.

While this simple supply and demand model may capture some features of the market for illegal goods and services, there are other characteristics particularly relevant to the

42. M. Bouchard and P. Tremblay 'Risks of Arrest Across Drug Markets: A Capture–Recapture Analysis of 'Hidden' Dealer and User Populations', *Journal of Drug Issues* 35 (2005): 733–54.
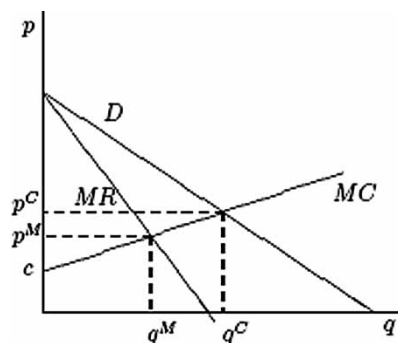43. Taken from http://www.defencelaw.com/printversion-chart-contents.html.

Figure 1.   Marlet power reduces output, leading to less risky transactions on average.

market for illegal drugs that are worth examining. Drugs can be described as experience goods, in the sense that quality is difficult to observe prior to consumption. As mentioned above, a 'dime bag' always costs $10, but it is not always the same 'dime bag'. With unobservable quality, a uniform price can prevail, even though quality varies as suppliers dilute their product. This environment can perhaps be best described using a search model in which consumers and drug dealers are matched at random, and trade only if both side agree.[44] In such an environment, agents make separate decisions on price, quality and other characteristics such as the riskiness associated with the transaction. Reputation and the prospect of future transactions provide the supplier with the incentive to maintain some level of quality. However, there could be heterogeneity in quality and even in price in equilibrium. More importantly for this paper, more market power allows suppliers to be more selective when accepting or declining a transaction. Since the riskiness of each transaction contributes to the overall expected surplus, one can expect that, with an increase in market power, suppliers will move away from more risky transactions. Building a complete search model describing a drug market is beyond the scope of this paper, but some important implications can be stated without a formal model.

Greater surplus

Criminals, or criminal organizations, have incentive to expend resources (financial or otherwise) in order to reduce the probability of detection and conviction (or even potentially reduce the sanction). Malik discusses expenditures that directly reduce the probability of apprehension,[45] while Lott argues that wealthier individuals (or

44. For example see Galenianos et al., 'A Search-Theoretic Model of the Retail Market for Illicit Drugs'.
45. A.S. Malik, 'Avoidance, Screening, and Optimum Enforcement', *RAND Journal of Economics* 21 (1990): 341–53.
46. Lott, J. Jr, 'Should the Wealthy Be Able to "Buy Justice"?', *Journal of Political Economy* 95 (1987): 1307–16.
47. P.J. Beck and M. W. Maher, 'Competition, Regulation and Bribery', *Managerial and Decision Economics* 10 (1989): 1–12.
48. See the DEA web site at http://www.usdoj.gov/dea/pubs/states/newsrel/2002/nyc100902.html and http://www.usdoj.gov/dea/statistics.html#seizures for more information.
49. See Caulkins and Reuter 'What Price Data Tell Us About Drug Markets' for estimates using 1990 data.

organizations) are harder to convict because they can hire more costly and potentially better lawyers.[46] Finally, Beck and Maher examine the case of bribery to suggest that competition can reduce the incentive to take bribes (thereby increasing enforcement).[47]

When a criminal organization is able to create barriers to entry, and therefore able to enjoy a degree of market power, additional profits are generated. With greater profit comes higher costs of seeing inventory being confiscated by the authorities. For example, on 7 October 2007, in what was the third biggest seizure of ecstasy in the United States, the DEA confiscated 1.4 million tablets worth an estimated US$42 million. In 2005, a record year for cocaine seizures, the DEA confiscated more than 118,000 kg.[48] Some studies clearly show that costs associated with seizure are surely non-negligible. For example, costs associated with seizure account for about 10% of the final price of cocaine in the United States.[49] In some cases, the loss of revenue is almost the only cost incurred by the supplier. Easton[50] highlighted the following facts: in a sample of Vancouver marijuana-growing operations 'busted' by the police, most (55%) of those who were convicted received no jail time. Five per cent were sentenced to a single day or less and another 8% received sentences of between one day and 31 days. Of those who received longer sentences, 8% received 60 days and 11% were sentenced to 90 days. Of those who were repeat offenders, half were re-apprehended within the year. Of the 55% who were fined, the average fine amounted to less than $1200: a small amount considering the size of most marijuana operations. Thus the major component of the penalty associated with conviction is the loss of product: police destroy nearly 3000 marijuana-growing operations a year.

In summary, since organizations with market power are able to command a higher price than competitive agents, they forego more profit from seizure. As such, one should expect that they expend more resources to avoid detection and conviction. Whether criminal organizations should receive greater penalties thus seems closely tied to the question of whether they have market power. The analysis thus far suggests that there is little reason to have additional punishments for criminal organizations without market power, such as a typical street gang. Since violence is still associated with such gangs, we now consider the use of violence in a more in-depth manner.

The use of violence

While all means by which an organization tries to reduce the probability of detection are socially wasteful activities, some can impose serious costs on others. The use of violence is the best example. Criminal organizations can use the threat of violence on their victims (and other witnesses) in order to reduce the probability of being caught. If an independent criminal threatens to kill a person if they testify against him, that person still may do so, knowing that they will be safe at least for the duration that the criminal is in jail. If a gang member makes such a threat, however, then it is much more immediate, as it may be carried by another gang member while the offender is in prison. Consider the 1996 indictment of Clarence (Preacher) Heatley, a gang leader from Harlem.[51] Mary Jo White,

(*Footnote 50 continued*)
50. S. Easton, 'Marijuana Growth in British Columbia', in *Public Policy Sources*, vol. 74 (Vancouver: The Fraser Institute, 2004).
51. '18 Indicted on Murder and Drug Charges,' *New York Times*, November 15, 1996.
52. This point was also made in Levitt and Venkatesh, 'An Economic Analysis of a Drug Selling Gang's Finances'.
53. 'Parole a Step Closer for Hells Angel', *Montreal Gazette*, October 16, 2007.

the United States Attorney in Manhattan, gave the following explanation for why it had taken a long time to get to Heatley: 'They were careful. They were smart and they intimidated all those around them, drug dealers and citizens alike'. Further, in 1989, another member of Heatley's gang had been acquitted of a killing in Baltimore after witnesses changed their testimony. Thus it would appear that gang members are better able to commit violence in order to reduce their probability of conviction.

Criminal organizations can also use violence to keep their members in line. Such organizations may suffer from an agency problem in that the incentives of its members individually may not be perfectly aligned with the incentives of the gang as a whole.[52] As such, violence is an instrument that may be used in order to overcome the moral hazard problem. While such violence is a quintessential feature of many movies and books, there are many real examples as well: in 1985, the internal purge done by the Quebec chapter of the Hells Angels resulted in the murder of five of their own members.[53] Note that one aspect of the agency problem that gangs try to overcome is the incentive for members to provide evidence against each other in exchange for reduced sentences for themselves. Thus violence, or its threat, may be a key instrument in controlling the flow of information and preventing, for example, testimonies in order to reduce the probability of conviction.

In general, violence may be used to try to either obtain or maintain market power, or it may be used simply to reduce the probability of conviction. The use of violence (or the threat of violence) would thus seem linked to many of the reasons why criminal organizations should receive greater penalties. We therefore propose that the demonstration of violence beyond levels commensurate with those of independent criminals be a key part of obtaining enhanced sentencing.

So how should the law define a criminal organization?

We have thus far considered reasons for the law to penalize crimes committed by members of an organization more severely than those committed by independent criminals. It is worth noting that all arguments entail that the organization perpetrate multiple crimes. Thus it would seem sensible to somehow include the permanence of the group in the definition of a gang, as per the Canadian Criminal Code.

Also of note is that many of these arguments centre on the presence of market power in an illegal market (either in the market for crimes within a defined area, or in a market for a specific illegal good or service, or both). None of the arguments require a particular structure on behalf of the organization. Laws that require demonstration of a particular structure to the organization would thus seem to exclude some organizations that should receive additional punishment and perhaps even include some that do not. Figure 2 presents the type of information required in Canada to have a group classified as a 'criminal organization'.[54]

Note that all of the reasons discussed above fall into the category of 'Indicators of Benefit'. Requiring prosecutors to provide evidence for 'Indicators of Membership' and 'Indicators of Organization' would thus seem to merely increase the costs of prosecution while reducing the effectiveness of the legislation. As such, we propose that the definition of a criminal organization be linked to the demonstration of market power and/or the use of

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54. Courtesy of the Combined Forces Special Enforcement Unit of the Lower Mainland in British Columbia.
55. See 'Hells Angel Says he Feels Shunned', http://www.cbc.ca/canada/british-columbia/story/2006/10/17/bc-hells-angels.html.

PROVING THE CRIMINAL ORGANIZATION

Section 467.1 - Canada Criminal Code

"Criminal Organization": Composed of three or more persons, involved in the **facilitation or commission of serious offences**, and results in the **receipt of a material benefit**, by the **group** or **persons who constitute the group.**

CRIMINAL ORGANIZATION

- **GROUP**
- **PERSONS WHO CONSTITUTE THE GROUP**
- **FACILITATION OR COMMISSION OF OFFENCES**
- **RECEIPT OF MATERIAL BENEFIT**

INDICATORS OF ORGANIZATION

a. A group of three or more people.

b. Division of Labour:
  1) Vertical: Top-down driven, delegation, command/control approach.
  2) Horizontal: Flat in nature, interdependence, more independent.

c. Coordination:
  1) Mutual Adjustment: The process of informal communication.
    (Based on experience, collaboration, adaptability)
  2) Direct Supervision: One person takes responsibility for the work of others.
    (Decision making, direct, monitor, evaluate, train, discipline subordinates)
  3) Standardized Procedures: When contents of work are specified.
    (Best practice approach, organization of tasks, step by step instructions)
  4) Standardized Output: The results of work are specified.
    (Describe dimension, or level of acceptance of product, service or performance)
  5) Standardized Skills: When training to perform the work is specified.
    (Level of training, knowledge and skill are specified or expected)

(Note: Not all indicators need to present to prove Organization)

INDICATORS OF CRIMINALITY

a. State of mind:
  1) Behavior: Nervous around, paranoid about, or avoid law enforcement.
  2) Practices: Dumping phones, heat checks, security, coded/guarded conversation.

b. Criminal offences, convictions.

(Note: Not all indicators need to present to prove Criminality)

INDICATORS OF MEMBERSHIP

a. Organization has control over actions of the "employees".
b. "Employees" being accountable to the organization or the "boss".
c. "Employees" doing things on behalf of the organization.
d. "Employees" conform with organizational rules and regulations.
e. Facilitate and/or enhance the ability of the organization.
f. A chance of profit, getting paid a wage.
g. Risk of loss absorbed by the organization.
h. Ownership of tools, equipment by the organization.

(Note: Not all indicators need to present to prove Membership)

INDICATORS OF BENEFIT

a. Power, reputation and/or protection derived from organization.
b. Profit and risk sharing.
c. Connection, network.
d. Economy of scale.
e. Control, influence or monopoly over market or territory.
f. Taxation on threat of violence.

(Note: Not all indicators need to present to prove Benefit)

Prepared by: Policy & Strategic Directions
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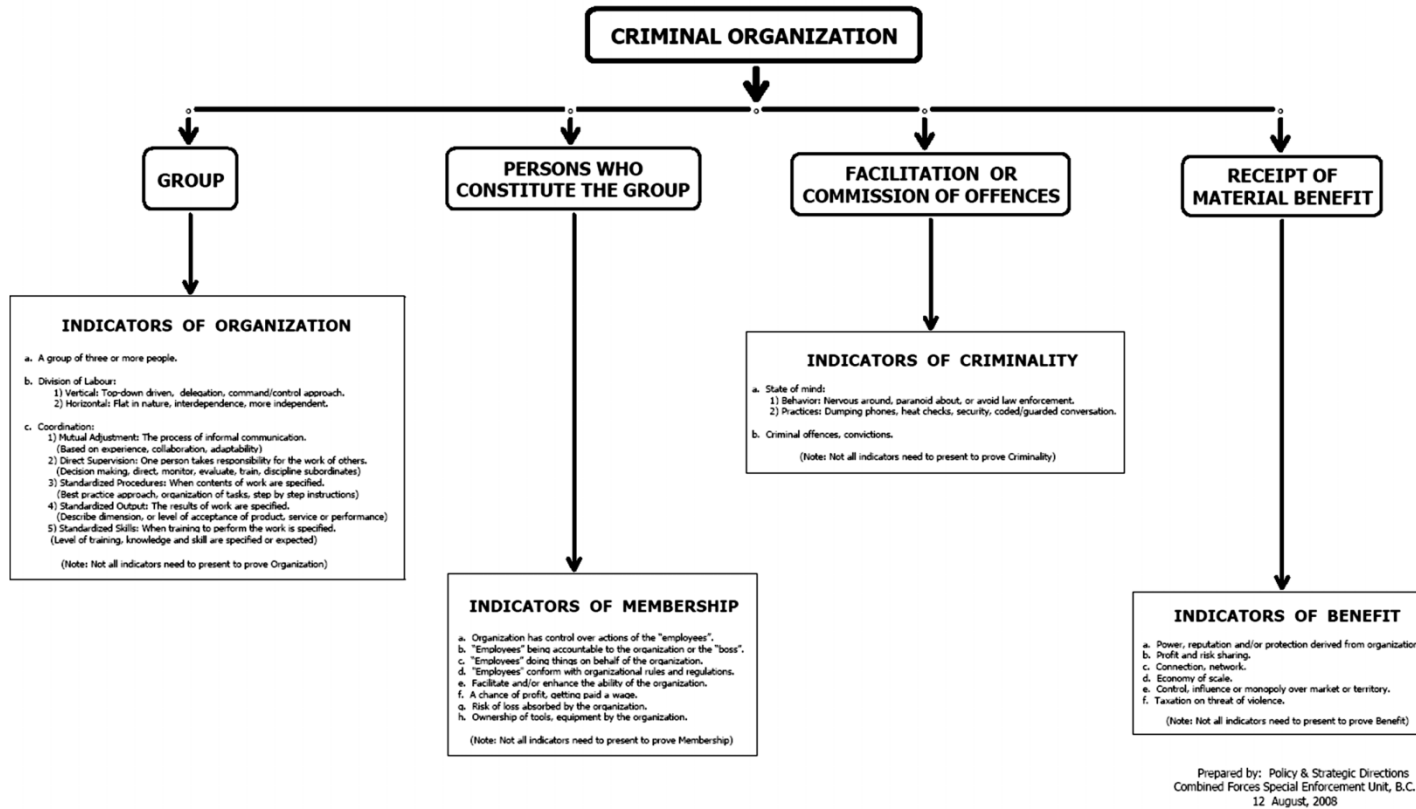12 August, 2008

Figure 2.   The requirements faced by Canadian prosecutors.

violence. Prosecutors should *not* have to demonstrate a particular structure or internal organization. In addition, it should be possible to prove the presence of market power *without* having to establish the extent of the organization. That is, if a subset of a greater organization can be proved to have committed crimes while enjoying the benefits of market power, or to have used violence beyond what one would expect from independent criminals, then they should receive greater punishment.

There are both advantages and disadvantages to this proposal. One advantage is that fewer costs need be incurred demonstrating membership and organization. A disadvantage is that, if some members of an organization are convicted, other members are no longer necessarily liable. Thus additional costs may be necessary to convict the entire organization. It is not clear that this disadvantage is severe, however. The idea that other members of an organization would be guilty by association if some members are convicted has presented problems in obtaining convictions in Canada with the Hells Angels.[55] Indeed, it is not obvious that one would want to implicate other members of an organization when some have been found to have committed a series of crimes. For example, if a subset of a social group were to commit crimes (and exercise market power in doing so), they should receive enhanced sentencing without implicating the rest of the social group as members. Automatic implication the rest of the group may lead to inefficiently few people joining social groups.

We recognize that the demonstration of market power is not an easy exercise, particularly for illegal markets. Market power may differ widely depending on where you stand in the production and distribution chain. It would be wrong to imagine the drug market as being populated by vertically integrated organizations that produce, import and distribute their products. Even if being sheltered from antitrust regulations could push for integration, the risks associated with enforcement strongly promote independence. Just by the nature of the activity, one expects to see more market power at the import stage compared with street retailing, for example. Market power may also vary from product to product, and from one location to another; this may partly explain the extreme dispersion in prices that we observe.[56] While prosecutors are currently attempting to demonstrate market power as well as violence and intimidation, as indicated by Figure 2, there are undoubtedly cases where this proves to be excessively difficult. As such, it may be helpful for the law to employ a two-pronged approach in which it is sufficient to demonstrate *either* market power (or the use of intimidation) *or* that the group exhibits a certain organizational structure. Note that our proposal has the effect of reducing the number of things required to be shown while actually targeting those organizations that *should* receive greater penalties more accurately.

Notes on contributors

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Appendix A

Table 1.   Anti-gang legislation by state.

	DB	ES	FP	PAR	RTI	CBS	FS	GRA	RM	PN	CJ	DBS	LD	PRO
Alaska		Y	Y		Y							Y		
Arizona	Y	Y		Y	Y		Y	Y	Y			Y		Y
Arkansas		Y			Y					Y		Y	Y	
California		Y		Y	Y	Y	Y	Y		Y	Y	Y	Y	Y
Colorado	Y						Y	Y		Y		Y	Y	
Connecticut							Y							Y
Delaware		Y		Y			Y	Y			Y			
D.C.				Y	Y			Y			Y			
Florida	Y	Y	Y		Y				Y	Y	Y		Y	
Georgia		Y		Y	Y		Y	Y		Y	Y	Y	Y	Y
Hawaii								Y						
Idaho		Y			Y			Y						
Illinois	Y		Y	Y	Y		Y	Y					Y	Y
Indiana		Y		Y	Y		Y	Y	Y		Y			Y
Iowa				Y	Y	Y	Y		Y	Y				
Kansas		Y			Y				Y	Y				
Kentucky					Y				Y					
Louisiana		Y	Y	Y	Y			Y	Y	Y	Y	Y	Y	Y
Maryland				Y	Y		Y	Y			Y			
Massachusetts					Y						Y			
Michigan							Y				Y			
Minnesota	Y	Y		Y				Y		Y		Y		
Mississippi		Y	Y				Y			Y	Y	Y	Y	Y
Missouri		Y		Y		Y	Y		Y	Y		Y		
Montana		Y			Y									
Nevada		Y	Y			Y	Y	Y				Y		
New Hampshire					Y			Y						
New Jersey		Y			Y	Y	Y	Y			Y			
New Mexico			Y					Y		Y	Y	Y		
New York								Y						
Noith Carolina		Y												
North Dakota	Y	Y			Y									

Table 1 – *continued*

	DB	ES	FP	PAR	RTI	CBS	FS	GRA	RM	PN	CJ	DBS	LD	PRO
Ohio		Y		Y						Y		Y		
Oklahoma					Y		Y	Y				Y	Y	Y
Oregon								Y				Y		
Pennsylvania								Y						
Rhode Island							Y	Y				Y		Y
South Carolina	Y		Y		Y			Y			Y		Y	
South Dakota		Y												
Tennessee		Y				Y		Y	Y		Y			
Texas	Y	Y		Y	Y	Y	Y	Y		Y				Y
Utah		Y				Y	Y	Y				Y		
Vermont					Y									
Virginia	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y		
Washington					Y	Y	Y		Y	Y		Y	Y	
Wisconsin			Y					Y		Y				

Notes: Database (DB), the state administers and maintains a computerized criminal gang investigative data system. Enhanced sentencing (ES), gang members receive additional penalties. Forfeiture of property (FP), property used in the commission of an offence is confiscated. Participation (PAR), membership in a street gang is punishable in and of itself. Recrutiment, threats, intimidation (RTI), recruiting and coercing others to join is an offence. Clothing ban at school (CBS). Regarding schools (RS), gang members that commit an offence on school grounds may be suspended or expelled. Graffiti (GRA). Regarding minors (RM), recruitment of minors is an offence. Public nuisance (PN), property used for the criminal purposes of a gang member constitutes a public nuisance. Carjacking (CJ). Drive-by shooting (DBS). Legislative declarations (LD), the Legislature has made a public declaration concerning gangs. Programmes (PRO), there exist state committees or programmes devoted to the deterrence of gangs.