

Economic Analysis of Deterrence through Criminal Law

1. Introduction

Economic analysis of crime and punishment has emerged as a subject area with important implications for the fields of law, governance and public policy, *inter alia*. The Economic theory of Criminal Law states that in some cases injurers cannot internalize all costs that they have imposed. Accordingly, there is a need for criminal law and punishments, which are more severe than tort liability. Punishment is often necessary for the purposes of deterrence.¹ The deterrence effect that can be reached through punishment typically requires material and human resources, rendering it an important subject of study for the Law and Economics field with its emphasis on rationality, maximization and efficiency.²

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¹ Cooter R., Introduction to Law and Economics, Berkeley Law, 2007, p. 493.

² Ibid, p. 16.

This paper analyzes the concept of deterrence and its relationship with economic analysis of criminal law. Problems of marginal deterrence are analyzed based on real cases occurring in Georgia during a period of transformation in the fields of criminal policy and criminology. The paper also addresses the deterrence effect of optimal, monetary and non-monetary sanctions. The final section of the paper concerns the deterrent effect of capital punishment while presenting conclusions drawn from the issues discussed.

2. The Concept of Deterrence

Deterrence can be described as the prevention of crime through fear or actual experience of criminal sanction. The deterrence effect is one of the key objectives of criminal law. Punishments typically aim to deter future crimes, rehabilitate criminals or achieve other goals. General deterrence is designed to prevent instances of crime among the general population. Thus, the punishment of offenders by the state is intended to serve as an example to others in the general population who have not yet participated in criminal events.³ It was thought that death penalties and other particular severe punishments had greater deterrence effects than less severe punishments. This discussion requires comparison of the concepts of severity and certainty. The severity of punishment does not have a deterrence effect if criminals know the likelihood of detection, i.e., certainty, is low. Here is a simple equation demonstrating how increasing probability of detection leads to greater deterrence effects:

$$\begin{aligned} 10 \text{ percent chance of 2 years in jail} &= .1 (2 \text{ years in jail} + 1 \text{ year in other costs}) \\ &= .3 \text{ years;} \\ 20 \text{ percent chance of 1 year in jail} &= .2 (1 \text{ year in jail} + 1 \text{ year in other costs}) \\ &= .4 \text{ years.}^4 \end{aligned}$$

Contrary to general deterrence, individual deterrence aims to reduce crime by applying a sanction to a specific offender in order to dissuade him

³ Dilulio, John J., *Deterrence Theory*, p. 233, (<https://marisluste.files.wordpress.com/2010/11/deterrence-theory.pdf>).

⁴ Friedman David D., *Law's Order*, Princeton University Press, 2000, p. 236.

or her from reoffending.⁵ For example, if a person has already been penalized for speeding and injuring another person, the punishment he receives is intended to deter him from speeding again in the future and injuring someone else. In theory he will be more deterred than would another person who has not received the same punishment for the same crime. The rationality of individual deterrence does not apply when the parties involved know the probability and magnitude of the sanctions for their illegal act. For instance, if a person knows that in case of speeding and injuring others there is 50 percent chance of being caught and the penalty is 200\$, in this case it does not matter to him whether or not he was detected for the same crime. Following the same case, individual deterrence matters if the magnitude of the sanctions increase as a result of infraction⁶ – in this case, the individual is presented with incentives not to commit the same crime even if the probability of being caught is the same. In the latter case, an individual is more deterred because the magnitude of sanction increases the deterrence effect. Individual deterrence also applies when the individual overestimates the chances of being detected and the magnitude of sanctions. If a person thinks the probability of being caught is 60 or 70 percent instead of 50 percent, he is more deterred since he has an incentive to avoid committing the crime. There is an inverse situation when an individual thinks the chance of being detected is 20 percent instead of 50 percent. Individual deterrence plays a role if an individual overestimates the probability of being caught or of the magnitude of sanction. When an individual is fully aware of these components, rational decision-making is a more important factor.

In addition to the stated above, when sanctions increase according to the severity of the act, the deterrence effect is stronger. Deterrence is stronger for a more harmful act because its expected sanction exceeds that of a less harmful act; this concept is referred to as marginal deterrence.⁷

⁵ Ritchie D., *Does Imprisonment Deter? A review of the Evidence*, 2011, p. 1. (<https://www.sentencingcouncil.vic.gov.au/sites/default/files/publication-documents/Does%20Imprisonment%20Deter%20A%20Review%20of%20the%20Evidence.pdf>).

⁶ Shavell S., *Economic Analysis of Public Enforcement and Criminal Law*, 2003, p. 17. (<http://www.nber.org/papers/w9698.pdf>).

⁷ The notion of marginal deterrence is addressed in some of the earliest writing on enforcement, see: Beccaria [1767] 1995, p. 21; and Bentham [1789] 1973, p. 171. The term “marginal deterrence” apparently was first used by Stigler in 1970.

3. Hanged for a Sheep – Economic Analysis of Marginal Deterrence

The concept of marginal deterrence is applicable in various hypothetical cases; for instance, if an individual is faced with only two alternative crimes – to steal a sheep or a lamb. If we suppose the sanction for these two crimes is the same, a potential criminal has greater incentive to steal the sheep rather than the lamb. This hypothetical situation is represented by the following proverb: “As good to be hanged for a sheep as a lamb.”⁸ If we assume that the probability of being caught is the same for stealing a sheep as for stealing a lamb, and the damage done to the animal’s owner is greater in case of the sheep than in case of the lamb, one can conclude that identical punishments would have a stronger deterrent effect in the case of stealing a sheep. To further clarify this concept, I will discuss the criminal policy present in Georgia some years ago. At that time, offenders received the same sanction for stealing a camel as for stealing a needle. In any case, the possibility of being caught was 25–30 percent⁹ and the sanction ranged from three to seven years of imprisonment.¹⁰ The stated fact suggests that the economic analysis of law was not taken into account. Moreover, that situation reduces the incentive of someone who stole a camel to also steal a needle, but needle thieves have an incentive to obtain the more valuable item; i.e., the camel. Marginal deterrence in this case suggests applying more severe punishments to the theft of more valuable goods, as their theft does more damage to the victim.

Another interesting case related to marginal deterrence is that when a criminal is presented with multiple choices of crimes to commit. If armed robbery and armed robbery plus murder are punished equally, then the criminal is incentivized to kill the victim of the robbery.¹¹ According to Cesare Bec-

⁸ Friedman D., Sjostrom W., Hanged for a Sheep – The Economics of Marginal Deterrence, *Journal of Legal Studies*, 1993, p. 346.

⁹ Crime Statistics, Ministry of Internal Affairs of Georgia, 2013., (http://police.ge/files/pdf/statistika%20da%20kvelebi_new/geo/danashaulis%20statistika/2013/Crime_Statistics_Registered_in_Georgia_January-March-GEO%282%29.pdf)

¹⁰ Article 177, Criminal Code of Georgia., (<https://matsne.gov.ge/ka/document/view/16426>).

¹¹ Friedman D., Sjostrom W., Hanged for a Sheep – The Economics of Marginal Deterrence., *Journal of Legal Studies*, 1993, p. 346.

caria, criminals will commit additional crimes in order to avoid punishment for the first crime. The concept of marginal deterrence states that punishments should increase in case additional crimes are committed:

Punishment for armed robbery \neq punishment for armed robbery + murder;
Punishment for armed robbery $<$ punishment for armed robbery + murder.

According to this logic, the Georgian law that states that in cases of cumulative crimes the more severe punishment supersedes the less severe punishment¹², is inefficient. Suppose that individual X commits armed robbery and the most severe punishment for this crime in case of recidivism is 11-15 years imprisonment.¹³ Individual Y commits armed robbery and murder with a sanction of 7-15 years imprisonment.¹⁴ Individual X gets 15 years imprisonment for armed robbery while Y gets 11 years for robbery and 13 years for murder, but because the more severe punishment supersedes the less severe one, Y gets 13 only years of imprisonment. If the marginal deterrence concept is applied, this law is inefficient.

Marginal deterrence also states that punishments for attempted crimes should be punished less severely than completed crimes. If not, potential criminals have incentives to complete their attempted crime, and to plan their crimes more diligently.

4. Criticism of Deterrence Theory

Deterrence theory is based on classic rational choice theory, which states that people measure the costs and benefits of action before making a decision. According to deterrence theory, people have knowledge of punishments for a particular act and accordingly make a rational choice to commit or not to commit a crime. In this scenario, the rational, amoral criminal chooses the

¹² Article 59 Criminal Code of Georgia., (http://www.vertic.org/media/National%20Legislation/Georgia/GE_Criminal_Code.pdf).

¹³ Article 179(4) Criminal Code of Georgia., (<https://matsne.gov.ge/ka/document/view/16426>).

¹⁴ Article 108 Criminal Code of Georgia., (<https://matsne.gov.ge/ka/document/view/16426>).

seriousness of crime x to maximize his or her net payoff, which equals the payoff $y(x)$ minus the expected punishment: $\max y(x) - p(x)f(x)$.¹⁵ This is a theoretical model in which the criminal calculates gains and consequences. Critics of this theory, however, believe that it is difficult to prove the effectiveness of deterrence as punishments are only applied to those people who are not deterred. Accordingly, those who do not offend are not studied. Moreover, it can be argued that there are various other factors that deter an individual from committing a crime.

5. Deterrence through Monetary Sanctions

This section starts with discussion of the basic theory of liability and then assumes that all parties bear the intended sanctions and all sanctions are based on probability. Maximizing social welfare has much to do with the concept of liability.

5.1. Strict Liability for Harm

According to the concept of liability, the criminal pays for the harm caused by his act, with the expected sanction equal to the expected harm. The criminal will commit a crime if the expected benefit is more than the expected sanction. If the sanction is less than the harm, individuals will sometimes act in ways that create greater net harm than net benefit. And if the sanction is greater than the harm, there will be a chilling effect on desirable acts; parties will be discouraged from acts that create greater benefits than harm.¹⁶ The only information necessary to know in this case is the level of harm. The assets of a party must be sufficient to pay for the harm; otherwise, the party will not generally be induced to act optimally and may engage excessively in harmful acts.¹⁷

¹⁵ Cooter R., *Introduction to Law and Economics*, Berkeley Law, 2007, p. 489.

¹⁶ Shavell S., *Economic Analysis of Public Enforcement and Criminal Law*, 2003, p. 2. (<http://www.nber.org/papers/w9698.pdf>).

¹⁷ *Ibid.*, p. 475.

The case of risk aversion case constitutes a situation in which benefits are high enough for an individual to commit a crime and willingly bear the sanction. In this case, it is important for the sanction to be less than the harm of the act.

5.2. Fault-based Liability

According to this concept, the criminal should bear the sanction that is equal to the harm caused. If the sanction is less than the harm caused, criminals may choose to commit more crimes when benefits exceed the sanction.¹⁸

5.3. Act-Based Liability

According to this concept, the criminal is responsible for the expected harm regardless of whether it actually occurs or not. Thus, if a party attempts an act that could cause harm of \$1,000 with a 10 percent probability of being completed, he will be liable for \$100 for having committed the act.¹⁹ This suggests that it is important to know the amount of harm imposed by the wrongful act, and sanctions sometimes need to be made more or less severe in order to reach a situation where benefits to the criminal do not exceed the sanction that serves as a deterrent.

This paper mentioned that optimal probability and magnitude of sanctions constitute major elements of deterrence effects through criminal law. A risk-neutral person commits a crime if the gain is more than the harm. A risk-averse person is differently deterred according to the differing magnitude of sanction and optimal probability. For example, a risk-averse person will be more deterred by a sanction of \$1,000 with a probability of 20 percent than by a sanction of \$500 with a probability of 40 percent, even though their expected values, \$200, are equal. The reason is that for a risk-averse person, the disutility of sanctions rises more than the proportion of their size; i.e., when

¹⁸ Polinsky M., Shavell S., Public Enforcement of Law, (http://www.law.harvard.edu/faculty/shavell/pdf/Public_enforcement_307.pdf).

¹⁹ Shavell S., Economic Analysis of Public Enforcement and Criminal Law., Harvard University Press, 2003, p. 476.

the sanction rises from \$500 to \$1,000, its disutility more than doubles.²⁰ Optimal probability and the magnitude of sanctions both impact the deterrent effect. Optimal probability can increase the deterrence effect, but it is believed that the increasing magnitude of sanction creates more deterrence for the risk-averse person. If there is a 20 percent probability of imposition of a sanction of \$500, and the probability doubles to 40 percent, the expected sanction will double from \$100 to \$200. Likewise, if the sanction doubles to \$1,000 (and the probability remains at 20 percent), the expected sanction will double to \$200. Thus, a risk-neutral party will be affected equally by either type of change.²¹

In order to calculate optimal sanctions for deterrence, the sanction must equal the harm multiplied by the inverse of the probability of its imposition. If the harm is \$100 and the probability of being deterred is 50 percent, the sanction should be multiplied by $1/0.5=2$, so the sanction equals \$200.²² The social advantage associated with a low probability, high sanction enforcement strategy is the following: low probability means that the state conserves enforcement resources, and the high magnitude of sanctions prevents dilution of the desired deterrence. The optimal strategy involves maximal sanctions if the parties are risk-neutral, but lesser sanctions if the parties are risk-averse.²³

6. Deterrence with Non-Monetary Sanctions

Non-monetary sanctions such as imprisonment, community service and other sanctions differ from monetary sanctions as long as they impose other social costs, such as the costs of building and operating prisons. For example, if a criminal act incurs \$1,000 harm and the social cost of enforcement of the non-monetary sanction is \$1,500, not only the consequences of the harmful

²⁰ Shepherd J., Rubin P., *Economic Analysis of Criminal Law*, p. 13, (http://economics.emory.edu/home/documents/workingpapers/rubin_13_04_paper.pdf).

²¹ Shavell S., *Economic Analysis of Public Enforcement and Criminal Law*, Harvard University Press, 2003, p. 478.

²² *Ibid*, 487.

²³ *Ibid*, 490.

acts but also the social costs should be borne. The strict liability concept states that the criminal would commit the crime if the benefits of the crime exceed \$1,000 and if social costs will also be generated in case of imprisonment. Fault-based liability, according to Shavell, has a stronger deterrent effect because it deters undesirable crimes when the punishment is sufficiently high and does not punish desirable crimes. Moreover, non-monetary sanctions can be severe according to the harm done for reaching the desired deterrence effect. The magnitude of sanctions and the probability of being caught also have significant deterrence effects through monetary sanctions. An individual may be risk-averse with regard to imprisonment and accordingly be more deterred by a 50 percent probability of a two-year sentence than by a 100 percent probability of a one-year sentence.²⁴ There is also the problem of a low probability of apprehension; in this case there is choice between: 1) possibility of apprehension and conviction with a ten-year prison term; or 2) probability of apprehension and conviction with a five-year prison term.²⁵ According to Posner, the second choice is costlier because half of the criminals will reoffend, so the first choice is rational because it results in reduced social costs such as policing and court proceedings.

Deterrence follows a simple mathematical formula: expected punishment = damage to victim – cost of deterring one more offense.²⁶ If the deterrence effect can be reached through monetary sanctions, it is rational to use this method since it does not generate social costs. However, there are cases where using monetary sanctions cannot be viewed as appropriate deterrence. In the field of criminology, it is usually believed that the most severe and inefficient crimes such as murder or armed robbery cannot be deterred through monetary sanctions since the costs cannot be internalized by the criminal that are imposed on the victims, state or society. It is also true that cases of first-time offenses need special attention.

Recent studies in the field of criminology suggest that imprisonment can increase the rate of recidivism. Imposing incarceration instead of non-custo-

²⁴ Shavell S., *Economic Analysis of Public Enforcement and Criminal Law*, Harvard University Press, 2003, Chapter 21, p. 8.

²⁵ Posner R., *An Economic Theory of Criminal Law*, *Columbia Law Review*, 1985, p. 1,213.

²⁶ Friedman David D., *Law's Order*, Princeton University Press, 2000, p. 228.

dial sanctions when possible can have an adverse effect on general deterrence. In the short-term, if all criminals who commit crimes are imprisoned, general deterrence will work because criminals are not able to reoffend. But from the perspective of special deterrence, this arrangement can lead to recidivism because: criminals might come to think that crime is socially acceptable; and criminals can make connections with other criminals and increase their rate of reoffending. The great majority of [competently carried out] studies point to a null or criminogenic effect of the prison experience on recidivism. This insight should caution against claims – at times found in ‘get tough’ rhetoric voiced by advocates of incarceration – that prisons have special powers to scare offenders straight.²⁷

Community service attaches less social cost than imprisonment. Following this logic, criminologists state that it is more rational to use long-term community service sentences than short-term imprisonment, especially in the case of first offenses. First offenders who are sent to prison are more likely to reoffend than those who are sentenced to community service.

7. The Economics of Capital Punishment

The death penalty as a form of capital punishment is banned in various countries. According to the constitutions of various democratic countries, the death penalty is impermissible since it constitutes cruel and inhuman punishment. The constitution of my country, Georgia, prohibits capital punishment on grounds that it violates one’s right to life.²⁸ The deterrence effect of the death penalty warrants discussion, as it represents the highest punishment in various US states. The recent execution by the State of California of the multiple murderer Stanley “Tookie” Williams has sparked renewed controversy about the practice of capital punishment, which has been abol-

²⁷ Nagin, Daniel S., Francis T. Cullen, and Cheryl Lero Jonson, Imprisonment and Reoffending. In *Crime and Justice: A Review of Research* (Tonry, Michael, ed.), Volume 38, University of Chicago Press, 2009.

²⁸ Article 15., Constitution of Georgia (http://www.parliament.ge/files/68_1944_951190_CONSTIT_27_12.06.pdf).

ished in roughly one-third of US states and in most of the nations which the United States considers its peers; e.g., the European Union will not admit to membership any nation that retains capital punishment.²⁹ From an economic standpoint, capital punishment has an incremental deterrence effect when used against murderers. The most feasible alternative to capital punishment is life imprisonment. In order to choose one of them, one must take into account the social costs of both life imprisonment and capital punishment. One must also consider the rate of false convictions³⁰ resulting in execution of the innocent, the utility of friends and family members of the victims and the disutility of friends and family members of the executed. Posner argues that utility and disutility rates are of minor importance. Earlier studies, such as the work of Isaac Ehrlich, suggest that capital punishment has an incremental deterrent effect. This approach does not take into account situations where a person has a choice between execution or a life sentence, which has led to criticism of Ehrlich's approach. Other economists such as Paul Rubin and Joanna Shepherd find that one execution can deter 18 other criminals from committing the same offense. Although this ratio may seem implausible given the probability of being executed for committing murder is less than 1 percent (most executions occur in southern states – 50 of the 59 total in 2004 – while a total of almost 7,000 murders occurred that year), the probability is misleading because only a subset of murderers are eligible for execution. Moreover, even a 1 percent or one-half of 1 percent probability of death is hardly trivial; most people would pay a substantial amount of money to eliminate such a probability.³¹ The risk of executing the innocent is very small, but it bears mentioning that executing a person takes on average 10 years, during which time the convict remains imprisoned. Accordingly, imprisonment costs and endless appeal procedures impose additional financial costs. However, time spent on death row exerts a deterrent effect as well. It also provides the opportunity to avoid execution of innocent people. The increase in de-

²⁹ Posner A., *The Economics of Capital Punishment* (<http://www.becker-posner-blog.com/2005/12/the-economics-of-capital-punishment--posner.html>).

³⁰ Posner A., *The Economics of Capital Punishment* (<http://www.becker-posner-blog.com/2005/12/the-economics-of-capital-punishment--posner.html>).

³¹ Posner A., *The Economics of Capital Punishment* (<http://www.becker-posner-blog.com/2005/12/the-economics-of-capital-punishment--posner.html>).

terrence and reduction in associated costs are likely to exceed any increase in the very slight probability of executing an innocent person.³² However, sometimes capital punishment costs exceed imprisonment costs. As a public policy choice, execution faces state legislators and local prosecutors with tradeoffs regarding public resources and investments. The costs of administering capital punishment are prohibitive. Even in states where prosecutors infrequently seek the death penalty, the cost of obtaining a conviction and execution ranges from \$2.5 million to \$5 million per case (in current dollars), compared to less than \$1 million for each killer sentenced to life without parole. These costs create clear public policy choices. If the state is going to spend \$5 million on law enforcement over the next few decades, that money could be used in other ways that better ensure deterrence.³³

Justice Byron White, writing in *Furman v. Georgia* (1972) in which the Supreme Court outlawed capital punishment, noted that when only a tiny proportion of individuals who commit murder are executed, the penalty is unconstitutionally irrational. The lessons of *Furman* once again haunt the present-day reality of most states, where execution is used so rarely as to defy the logic of deterrence. As states across the country adopt reforms to reduce the pandemic of errors in capital punishment, one wonders whether such necessary and admirable efforts to avoid errors and the horror of executing innocent will not – after many hundreds of millions of dollars are spent trying – burden the country with a death penalty that is ineffective, unreasonably expensive and politically corrosive to the broader search for justice.³⁴

Furthermore, the process of sitting on death row dilutes the deterrent effect of death penalty. According to the National Academy of Sciences, “research on the deterrent effect of capital punishment is uninformative about whether capital punishment increases, decreases, or has no effect on homicide rates.”³⁵

³² Posner A., The Economics of Capital Punishment (<http://www.becker-posner-blog.com/2005/12/the-economics-of-capital-punishment--posner.html>).

³³ Fagan J., Capital Punishment: Deterrent Effects & Capital Costs., (https://www.law.columbia.edu/law_school/communications/reports/summer06/capitalpunish).

³⁴ Fagan J., Capital Punishment: Deterrent Effects & Capital Costs., (https://www.law.columbia.edu/law_school/communications/reports/summer06/capitalpunish).

³⁵ Nagin D., Deterrence in the 21st Century, Crime and Justice in America, University of Chicago Press, 2013.

8. Deterrence Effect of the Norwegian Model of Restorative Justice

The American justice system, like others in the Western world, is based on the concept of retributive justice; the punishment should be proportionate to the crime committed. In contrast, the Norwegian model is based on the idea of restorative justice, which aims to repair the harm caused by the crime rather than to punish the offender for punishment's sake. The Norwegian system focuses on rehabilitating prisoners³⁶ and aims to deter criminals from committing additional crimes. Deterrence through restorative justice is assumed to be more efficient than are traditional concepts of retributive justice. Despite the fact that extremely dangerous criminals such as Anders Breivik receive 21 years' imprisonment (considered very low in consideration of the severity of the crime committed), surveys show that Norway has one of the lowest recidivism rates in the world at 20%. The US, by contrast, has one of the highest: 76.6% of prisoners are rearrested within five years.³⁷ Individual deterrence is best achieved through restorative justice, a model which can be applied to various countries.

9. Conclusion

The deterrence effect of criminal law is based on two main elements – the magnitude of the sanction and the certainty of being caught. Punishments do not always serve as the best deterrent for offenders – where is a slight risk of being caught, the potential criminal usually has an incentive to commit a crime even when the most severe punishments apply.

Economic analysis of marginal deterrence suggests that severe crimes should be punished severely. People should not be hanged for a stealing a sheep as they would a lamb. Applying the same punishment to crimes of different severity creates distorted incentives and does not serve the aim of deterrence. Moreover, committing two crimes simultaneously should be

³⁶ Why Norway's Prison System is so Successful? (<http://www.businessinsider.com/why-norways-prison-system-is-so-successful-2014-12>).

³⁷ Why Norway's Prison System is so Successful? (<http://www.businessinsider.com/why-norways-prison-system-is-so-successful-2014-12>).

punished more severely than committing one, and attempted and completed crimes should be punished differently. The case of armed robbery and murder being committed together, for example, lead to the conclusion that the overlapping sanction rule in the Criminal Code of Georgia is inefficient.

Sending an offender to prison is not always the best way to deter crime. Monetary sanctions can be used when social costs are relatively low compared to imprisonment. Imprisonment can have an adverse effect on special deterrence if the offender establishes relationships with other criminals while in prison and resultantly organizes future criminal activity.

Increasing the perception that criminals will be caught is the best way to deter crimes, as it establishes effective incentives for individuals to make rational choices after weighing the costs and benefits of the crime they intend to commit. Increasing the severity of punishment also influences the deterrent effect. Criminals usually are not aware of specific sanctions and, for them, the perceived probability of being caught is more influential than the sanctions written down in criminal codes.

Economic analysis of capital punishment suggests that the death penalty cannot be the most effective available deterrent because it imposes great social costs – i.e., costs of imprisonment, appeals procedures and execution. In some cases, it is more beneficial for the state to apply a life sentence than capital punishment. Currently, economists such as Posner argue that the processes inherent to capital punishment dilute the deterrence effect. Recent surveys in the field of social science suggest that there is no proof the death penalty is effective in preventing crimes.

This insight leads us to general criticism of deterrence theory, which follows from the argument that we will never know who is effectively deterred from offending, since we can only study the behavior of those people who are not deterred.

However, economic analysis of crime and punishment and deterrence theory states that we should always punish crimes. Punishments should impose reduced social costs and effective deterrence effects to prevent others from committing the same crime, while also preventing the same individual from re-offending. The deterrence effect can be sufficiently increased by increasing the perception that criminals will be caught. Severe punishments usually impose more social costs and do not have a significant deterrence effect. ■