



Jacek Czabański

Estimates of Cost of Crime

History, Methodologies, and Implications

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For Kasia, Marta, and Olga

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Chapter 1

Introduction

The mental suffering and agony, the ruined lives, the broken homes and hearts, the desolation and yearning and despair – who can measure the cost of crime?

Eugene Smith, 1901

The anxiety people feel towards another people – the fear of crime – lies at the foundations of human society. The enormous burden that crime imposes on societies calls for efficient social arrangements and institutions. While intuitively obvious, the exact scope of this burden for a long time eluded measurement. With the emergence and development of quantitative methods in economics and statistics, the exercise of calculating costs of crime became possible, and indeed has been undertaken.

The emerging field of assessing costs of crime is still a controversial one, both in its methodology and applications. Many people would feel it absurd to calculate costs of crimes, particularly violent ones. What is a cost of murder, rape, or assault? Can any number meaningfully represent the villainous nature of such acts? These questions are undoubtedly good ones. In this book, I will argue that we can estimate costs of different crimes, and that such estimates are relevant for criminal law and crime policy. Notwithstanding the incommensurability of many consequences of crime, society every day makes numerous decisions how to tackle crime, and at least implicitly assesses the relative importance of the problem. Properly done costs of crime estimates make people's evaluation more visible, and allow for more coherent public policy.

This book discusses the importance of costs of crime research for criminal law and crime policy. I will argue that the present state of the art allows for the extensive use of costs of crime estimates in drafting criminal codes, and in assessing crime policies. The book is organized as follows:

In Chapter 2, I briefly present the qualitative effects of crime on human behavior. It is true that crime is a social construct, not a natural one. The notion of crime stems from the social convention that forms the institutional structure of a given society. Notwithstanding its conventional features, fear in anticipation of crime and long lasting consequences of crime for people are psychological facts that shape people's behavior. Many of the numerous consequences of crime are of non-monetary nature, like loss of life, health consequences, and psychological impact, while the value of property losses and economic consequences may be quite easily calculated, as well as the costs of operating a criminal justice system, costs of police, prisons and many other expenditures that are borne in order to minimize crime. A review of all possible

effects of crime forms a background for the survey of methodologies for assessing costs of crime.

Chapter 3 studies the existing research on costs of crime and discusses the techniques that have been used to calculate costs of crime. These techniques have developed from the very crude, used at the beginning of the twentieth Century, to the more sophisticated, and better grounded in the economic theory, which are now in use. Early techniques involved calculation of tangible consequences of crime, and deliberately ignored non tangible effects. Such approach, although the only possible at the moment, could not generate any useful recommendations. Subsequent development in cost of crime methodologies allowed for more comprehensive approach, and I will argue that the results of modern studies are relevant to crime policy. Yet, many controversial points remain: the main question being whether it is at all possible to monetize loss of life and psychological costs. But there are also many other important issues to be solved, for example whether total or incremental costs of crime should be investigated, whether *ex ante* or *ex post* perspective should be accepted, and whether transfers to criminals should count as a cost. In my critical review of existing research on costs of crime, I discuss these points, and suggest which techniques may produce meaningful results.

Chapter 4 discusses possible applications of costs of crime estimates to criminal law and crime policy. In the first part, I argue that costs of crime estimates may guide legislators when they draft criminal law provisions regardless of the theory of punishment that they follow. Both retributive and consequentialist theories of punishment require the measurement of the seriousness of crime, and I claim that costs of crime estimates do provide such a scale in a better way than those techniques which are already employed. I also discuss the importance of the amount of harm in criminal responsibility, and show that accepting costs of crime estimates as the basis for punishment does not lead to objective liability for the results.

In the second part of Chap. 4, I claim that costs of crime estimates provide more coherent measurements of the seriousness of crime than previous research has been able to deliver. I claim that people's preferences should guide criminal law provisions, and that some costs of crime measurement techniques do indeed provide a valid instrument for revealing such preferences. Moreover, empirical data on sentencing patterns confirm that estimates of costs of crime not only should, but also do, guide criminal sentencing.

The third part of Chap. 4 shows that the full advantages of using costs of crime estimates accrue in their assessment and control power. Consistent use of costs of crime estimates helps public policy to stay in line with public preferences, and eliminates clearly unjustified projects. Several applications of costs of crime estimates in cost-benefit analyses of different crime policies have proved the necessity of such estimates in any rational crime policy.

Chapter 5 concludes this book. The review of methodologies and their applications made in previous chapters leads to the conclusions that the contingent valuation methods may be usefully applied in criminal law and crime policy. A preferences-based method of valuation is a valid measure of people's willingness to pay for crime protection and should guide both legislators and practitioners

involved in the criminal justice system. The use of costs of crime estimates helps criminal justice agencies to conform to the preferences of society, and therefore the application of costs of crime estimates as broadly as possible is recommended.

The growing body of costs of crime research indicates the rising public attention to the question of rational policy toward crime. Such a policy must conform to the public preferences, and may not ignore people's evaluation of many adverse consequences of crime. It is worth noticing that estimates of costs of crime are becoming a standard assessment tool in the US, and will probably become such in Europe. In 2007, the European Commission financed a project titled "Mainstreaming Methodology for the Estimation of the Costs of Crime", which should extend awareness of methodologies for estimating the costs of crime. This project, founded under the sixth Framework Programme, will have been completed until 2009, and hopefully will bring more attention in Europe to the question of estimating costs of crime.

As I argue in this book, it is definitely worth it.

Chapter 2

What Are Costs of Crime?

Crime is a social phenomenon that has assisted human activity since the very beginning (remember Cain and Abel). It is also a very frequent activity. Victimization surveys show that approximately every one in five to six persons becomes a victim each year (see Kesteren et al. 2000). One can expect that such high victimization rates influence human behavior and by extension the economy. The notion that crime is burdensome is nothing new (see, for example, Smith 1901). However, the attempt to calculate its costs is of rather recent provenance.

Before engaging in a closer examination of the costs of crime, one must first clarify the concept of crime itself. The next section will shortly discuss and delimit the relevant subgroup of crimes in order to facilitate the subsequent analysis.

2.1 What is Crime

Crime is a legal notion, not a natural one. No behavior carries a label on it; it is a criminal law's task to define the kind of behavior that is deemed to be criminal. The first obvious definition of crime is therefore based on the definition used by criminal statutes,¹ which reads in general that a crime is an intentional act, committed without defense or justification, and punishable by criminal law. Such a formal definition is commonly used² – but it is rather descriptive in nature than explanatory. The two real questions that may be asked are, firstly, why some behavior is deemed to be criminal by the present law, and secondly, what behavior should be deemed criminal in the future.

This leads to the problem of explaining why some acts are punishable by the criminal law or why they ought to be. The problem of criminalization relates then to why some harmful acts are deemed criminal, whereas others are only civil wrongs

¹ For a long time, criminal law was not codified in common law countries. Presently, in all jurisdictions criminal law is codified or, at least, written down in statutes.

² Such a definition exists in half of the criminological books surveyed in Brodeur and Ouellet (2004, p. 2).

or are even perfectly legal, although their consequences may be even more serious than those of criminal acts.

This basic question about the subject of study has existed in criminology since the very beginning, and many competitive answers have been given. However, no consensus has been reached yet (Lanier and Henry 2001, p. 2). Historically, crimes were first considered as evils, sins against Gods and Nature. The classical theorists of the eighteenth century, like Beccaria and Bentham, demanded crime be defined in criminal codes.³ Criminality of behavior was to be based on harm to society.⁴

The notion of harmfulness or dangerousness was introduced in the formal definition of crime in communist countries. In the Soviet Union it was the only constitutive element of the definition, although the principle of *nullum crimen sine lege* was restored in 1958.⁵ Such definitions survived the process of transition in many former communist countries.⁶ But this difference should not be exaggerated, as “dangerousness” cannot constitute the sole basis for criminal responsibility any more.⁷ In fact, such substantive definitions of crime are complemented with the rule of obligatory prosecution, while in other countries there is a rule of prosecutorial opportunism which allows public prosecutors to drop cases when an act, although formally criminal, is of no importance for the public interest.

For a considerable length of time harmfulness had constituted the rationale for criminalization. The first challenge to this view was provided by Durkheim who perceived crime as a way to obtain greater social cohesion. In his view, solidarity among members of society strengthens when crime is punished, and the very existence of crime enforces moral rules without which no society can exist.⁸ Moreover, he also pointed out that some rule breakers, once their actions are eventually accepted, change the rules of society in such a way that their action is no longer con-

³ Bentham’s Introduction to the Principles of Morals and Legislation (Bentham 1982 [1789]) was itself, in part, an attempt to codify English criminal law. After his death, the Codification Commission was established, but their attempts, however, have also been unsuccessful. See Radzinowicz and Hood (1979).

⁴ “The true measure of crimes is (...) harm to society,” Beccaria (1995 [1764], p. 24).

⁵ “Pursuant to § 6 of the Criminal Code of 1926, any act or omission is societally dangerous if it is directed against the Soviet order or is harmful to the legal system established by the power of the workers and peasants during the period of transition to communist order.” Moreover, the use of analogy in criminal law was allowed. “If some societally dangerous act is not directly regulated in the Code, the bases and limits of liability for such an act are determined in accordance to those sections in which the closest category of crimes are provided for.” See Sootak (1996).

⁶ See, for example, the new Polish Criminal Code of 1997 (Art. 1 § 2. A prohibited act whose social harmfulness is insignificant shall not constitute an offence), the Romanian Criminal Code (Art. 17. Any action, which constitutes social threat, which is willingly perpetrated and which is provided in the criminal law, constitutes a crime), the Hungarian Criminal Code. (Section 10 (1). “An act of crime is an act perpetrated intentionally or – if the law also punishes negligent perpetration – by negligence, which is dangerous for society and for which the law orders the infliction of punishment”).

⁷ However, in contemporary socialist countries, such as China or Cuba, the concept of dangerousness is still in use. For China, see Epstein and Wong (1996).

⁸ “Crime brings together honest men and concentrates them”, Durkheim (1933 [1893], p. 127).

demnable. Therefore, criminality plays some role in the evolution of societies. This is not to say that Durkheim affirmed crime, rather he saw its positive side effects, like a body pain, which is no good of itself, but plays an irreplaceable role in life (Durkheim 1982 [1895], p. 73, footnote 13). But he also saw crime as a necessary phenomenon of social life, as crime serves an important social function. In fact, he claimed that in the world of no crime, other acts would be deemed to be outrageous, only because society needed someone to blame.⁹

Durkheim's view, although controversial, was a consensual view – i.e. he assumed that the process of criminalization served some social ends. There are, however, also conflict approaches to criminalization which postulate that certain acts are deemed criminal in the interest of some social group. Such a view was surely present in Marx's theory and was recalled by the critical view of the 1960s and 1970s, when the process of criminalization was perceived as a process of dominance of some social groups or classes over others (dominant groups may be organized according to their wealth, race, or gender).

These contrasting views still exist and the problem appears on its face to be unsolvable. In this book I will not explore this topic further, but I will limit myself to certain kinds of crime.

People, who perceive crime as a matter of some social convention or a tool for social oppression, like to refer to the varying scope of criminalization over time and space. "Clearly, what counts as a crime at one place in time, culture, or location may not be considered criminal at another time, in another culture, or even across the street!" (Lanier and Henry 2001, p. 7). But as true as this statement is, this does not mean that everything is subject to change. On the contrary, there are some crimes that have been recognized everywhere and in any time.¹⁰ These crimes include traditional ones like murder, rape, assault, robbery, larceny, that is to say: inflicting harm to others. While their criminalization might also serve some other ends than simply the protection of society, it would be absurd to say that the threat of punishment for this crimes does not actually protect the potential victims.¹¹

In this book I will focus on the problem of measuring the consequences of these crimes. The choice of traditional crimes is further justified by the fact that people are most of the time quite unaware of the precise content of criminal codes – and their behavior is rather driven by some simple, moral or heuristic rules.¹² Therefore, the consequences of non-traditional crimes may elude perception and understanding of

⁹ "Imagine a society of saints, a perfect cloister of exemplary individuals. Crimes properly so called will there be unknown; but faults which appear venial to the layman will create there the same scandal that the ordinary offence does in ordinary consciousness. If, then, this society has the power to judge and punish, it will define these acts as criminal and will treat them as such.", Durkheim (1982 [1895], p. 68).

¹⁰ See, for example, Radzinowicz and King (1977) pp. 101–105, arguing for "the constant core of criminal law."

¹¹ This division resembles that between *mala in se* and *mala prohibita*. For the origins of this distinction see "Distinction between 'Mala Prohibita' and 'Mala in se' in Criminal Law" (1930).

¹² See, for example, Ellickson (1991), for the description of informal rules that govern civil liability in a rural county in California. For the discussion on the relationship between norms and criminal law, see Stuntz (2000).

people. This fact, by the way, severely limits the potential influence that the change of criminal codes may have on people's behavior, and therefore restricts potential gains that one social group can obtain at the expense of others.

Focusing my attention on traditional crimes only, I will avoid discussion about the proper limits of criminal law. It is worth noting, however, that costs of crime estimates are connected with the economic theory of law. According to the economic theory of law, the ultimate goal of law is to maximize social welfare, and criminal law is preferred to other means (like contract or tort law) under certain circumstances (see, for example, Posner 1985). Following Benthamic concept, the economic theory of law postulates that only harmful behavior should be made criminal. Harm is considered as a decrease in the individual's well-being.

Therefore, there is a class of behavior, namely victimless crimes, that poses particular problems for the economic analysis. Examples of this class include drug trade, prostitution, gambling, et cetera. The most basic economic assumption is that by exchange people can enhance their utility, but in the above mentioned examples that very process of exchange is forbidden by law. The fact that the exchange, potentially beneficial for both parties, is forbidden by society for whatever reason, suggests that there are some external effects that make society so attentive to this transaction. The conflict between private and public interest is clear in such circumstances and any relevant analysis of cost of these crimes has to weight these factors as well.

This is not so, however, in the case of traditional crimes. Traditional crimes do not involve any consent on the victim's side and they are purely involuntary.¹³ The fact that crimes impose an involuntary burden on their victims means that this is a cost for them; it is the cost that potential victims will be likely to avoid, or actual victims have to suffer. The next section will offer a categorization of the costs of such crimes.

Nevertheless, it is worth noting that even among traditional crimes, not all are equally unwanted. Some crimes are pursued as a means of self-help or self-enforcement of other obligations (see Black 1983). A creditor who beats a debtor for not paying his debt commits a crime, but at the same time he enforces a legal rule of debt repayment. Should he not self-execute his rights, he has to go to civil courts for a remedy and rely on public law enforcement to collect his debt. When we assume that the action of a creditor was cost-efficient, i.e. the debt collection through the legal procedure would be more costly, reducing the number of crimes, including illegal debt collections, will increase the cost of debt collection, which in turn will

¹³ Homicide is the exception: it is still considered to be a crime even if a victim has agreed to be killed – with the exception, of course, of the few jurisdictions where euthanasia is legal. Nevertheless, such a mercy killing will be treated much more favorable than any other homicide, and the question raises many controversies, precisely because of this element of consent. To a lesser extent, the same can be said about other serious assaults, when the consent of the victim is quite irrelevant. For example, it is still forbidden to cut someone's arm, even with his consent.

restrict the access to credit and increase the interest rate. Therefore, a decrease in the number of crimes, although beneficial, will also have some counteracting effects, namely decreased efficiency of self enforcement of rules.¹⁴

2.2 What is a Cost?

Having clarified – as much as it is possible – the notion of crime, the notion of cost should also be explained. Generally speaking, by cost we understand the value of resources sacrificed in order to obtain a desired good or service or, alternatively, to avoid some unpleasant good or service. This value is subjectively assessed, and the market works only as a forum of exchange that maximizes the surplus of producers and consumers, but not as a place that equalizes subjective evaluations among people. Therefore, the market price only indicates the bottom (for sellers) or top (for buyers) level of resources they are willing to exchange, and the difference between their subjective valuations and the actual market price constitutes, if a transaction is realized, the surplus of a seller or buyer.

Traditional crimes, that are of interest to us here, are involuntary, which means that people do not like, and do not seek, to be a victim of a crime, but try to avoid it. People are willing to sacrifice some resources in order to avoid being victimized and, when they nevertheless become actual victims of crime, are willing to spend additional resources in order to minimize the consequences of this crime (or simply suffer adverse effects of crime onto their well-being.)

As we will soon see, the problem with the evaluation of costs of crime is that there is no explicit market for crime. No one can go there and buy perfect safety from crime. If this were a case, such a “safety ticket” would be priced according to people’s evaluations and the demand function for safety could be constructed.¹⁵ The lack of such an explicit market does not mean that people do not value safety from crime. On the contrary, people try to avoid unpleasant consequences of crime in many ways, and suffer some costs because of victimization. While it is impossible to be perfectly safe from crime, it is still possible to be a little bit safer. Therefore, we can observe some explicit market for anti-crime devices, like burglar alarms, special doors, bars, etc. There is also an implicit market for safety, when people move to better neighborhoods. And there is a general willingness to pay for some improvement in safety. We shall discuss the techniques of measurement in the next chapter, but firstly let us examine the spectrum of costs that existence of crime imposes on society.

¹⁴ Ellickson (1991) reports that the informal use, or a threat of use, of violence is a common practice among ranchers to enforce their obligations, while formal litigation is not only highly uncommon but also socially discouraged.

¹⁵ It is not clear however what would provide the supply side of the market. See Sect. 4.1.2.3 for the discussion of the concept of the market for crime licenses.

2.3 Categories of Costs

Let me start with a simple example. What are costs of being robbed? First of all, there is some obvious damage (damaged clothes and so on, for example). Secondly, some belongings have been stolen. Thirdly, a victim feels now less safe and has suffered pain when being robbed. Fourthly, a victim spends time at a police station and the police spend some time trying to catch an offender. Fifthly, prosecutors, judges and prison officers have to be paid when an offender is caught. And, sixthly, when an offender is caught he must serve his time in prison (or be punished in another, also costly, way), so there is a loss of time and also a loss of future income due to the prison history of an offender.¹⁶ Seventhly, the news of a committed robbery frightens other people and makes them less happy. Eighthly, a victim might suffer some injuries, of which the consequences would last for some time or indeed for ever. Ninthly, as a byproduct of robbery, a victim might be killed.

As we see, there is a “myriad of costs of crime” (Mayhew 2003, p. 1), and those costs are of very different nature. Even those who oppose the task of calculation the costs of crime agree that their enumeration is useful (Zimring and Hawkins 1995, p. 54).

There is no one way that the costs of crime may be categorized. Generally, the costs of crime can be divided into three broad categories:¹⁷

1. Costs of crime itself (pain and suffering, stolen/damaged property, health consequences for victims);
2. Costs of society’s response to crime (costs of criminal justice system: police, prosecutors, judges, prisons, and other correctional facilities); and
3. Costs in anticipation of crime (costs of avoidance behavior and precautionary expenditures).

2.3.1 *Costs of Crime Itself*

Costs of crime itself are costs which are direct consequences of crime. These are:

1. Direct property losses, i.e. property stolen, damaged or destroyed due to crime
2. Costs of time lost due to crime and its health consequences, including lost productivity
3. Health care expenses
4. Pain and suffering of victims (or emotional impact of crime)

These costs are mainly borne by victims. However, some of them are shared by other people as well. For example, health care is usually provided by insurance pay-outs,

¹⁶ See, for example, Grogger (1995) and Allgood et al. (2000) for research on the income effect of incarceration.

¹⁷ This follows Brand and Price (2000). Cohen (2005) mixes categories 1 and 3, but adds a category of “Offender costs”.

so the costs of it are borne by society at large (or at least by all of those who are insured). Moreover, if an employed person is on a leave due to injuries sustained as a result of crime, his or her company loses more than his or her unpaid wage. While it is possible to replace an old worker with a new one, this takes time and is infeasible (because it is too costly) in the short run. Pain and suffering of a victim is also, to some extent, shared by other members of her family, imposing an additional cost on them.

The most controversial costs here are: the cost of stolen property, and costs of lost productivity.

2.3.1.1 Stolen Property

When a thief steals something from the victim, the thing does not vanish from society. Although one person loses, another gains. Therefore, it would be controversial to treat the value of stolen property as a cost of crime, and this has been recognized in the literature since the very beginning (National Commission on Law Observance and Enforcement 1931, p. 35).

However, there is a difference between the voluntary transfer of property (as it happens on the market), and involuntary transfer, as is the case with theft. This is why Brand and Price (2000) and Cohen (2005) propose to differentiate between “social cost” and “external cost,” when the former means costs that reduce aggregate well-being, and the latter is a cost imposed on another person without her consent. The value of stolen goods is included in the calculus of external cost but is not included in the calculation of the social cost. External costs in turn are important for particular persons, who are victims of crime, while social cost is important for the society as a whole.

Nonetheless, it is important for society as a whole whether there are more or less thefts, even if they constitute only transfers. The point here is that potential victims, due to the fact that the transfer would be involuntary, try to avoid this from occurring, and take precautionary measures. These precautionary measures (for example, avoidance behavior or self-defense expenditures) are costly, but would be useless in a world of no crime. Moreover, the possibility that someone can take something we have produced greatly decreases our incentives toward working and producing. There is therefore a good reason for society to forbid involuntary transfers.¹⁸

In fact, whether one should include criminal gains into the social welfare function represents just a form of another question that goes to the foundations of cost benefit analysis. The question is “who has standing” or, to put it differently, whom we should include into our calculation. For example, if a potential project to be taken in Country A also affects citizens of Country B, should these effects be included

¹⁸ Not all involuntary transfers constitute crime, though. For one group, for example taxes, we can talk about implicit consent, based on social contract theory. Another group is constituted of civil wrong doings, when there is a duty to compensate, but where the act is not a crime. The reason why some acts are deemed to be crimes, whereas others are only civil wrongs, even if the latter may be more costly, is itself a fascinating topic but will not be discussed here.

or not in cost benefit analysis?¹⁹ Or should the effects of the project on the future generations be counted as well? (See Trumbull 1990.)

Generally, two competing answers have been given: the first is that cost – benefit analysis has some constraints, and these constraints limit whose and which benefits we are to include into the calculus. Particularly, criminals should not be included (see Trumbull 1990). The second is that criminals are members of society and their gains and pains should be included as well.²⁰ Later on I shall discuss this question and argue that criminal gains, at least some part of it, should not be included (see Sect. 4.3.1.2).

Some use the value of stolen goods as a proxy for the value of criminals' time and capital input in efforts to retrieve these goods from their legitimate owners (Becker 1968, p. 171, footnote 3). This would be so if the criminal market were competitive, i.e. if people take advantage of all occasions to steal, unless their gains from doing so become equal to the costs of their criminal activity. There is no evidence that the criminal market is competitive in that sense. Furthermore, the costs of the offenders' criminal activity do not only cover the value of their time but also compensate for the risk and potential punishment – it is unclear why such compensation should constitute a social cost.²¹

Moreover, this approach assumes that stolen goods present the same value for a victim and a thief and subsequent purchasers (fences, and final consumers of stolen goods). This is true for money, but not for goods that have sentimental value. This sentimental value would have been paid for if the goods had been put on the market – however, the very fact that they were kept without the will to sell means that other people valued it less than the original owner. If so, theft transfers goods from people who value them more to people who value them less, which is a pure loss, regardless any gains of subsequent purchasers.²²

¹⁹ A real life example may be an exercise of homeland security measures, e.g. visa applicants' clearance process. This process is costly but potentially helps to keep some dangerous people out. The question is whether costs imposed on all applicants (their time or lost opportunities) should be counted as well.

²⁰ Cook (1983) and Anderson (1999). This view has been also supported by Bentham (1982 [1789]): "The general object which all laws have (...) is to augment the total happiness of the community; and therefore, in the first place, to exclude (...) mischief. But all punishment is mischief, all punishment in itself is evil. Upon the principle of utility (...) it ought only to be admitted in as far as it promises to exclude some greater evil" (p. 158).

²¹ Let's assume that a potential criminal has the following dilemma: he can work for \$20 in a period t or steal \$100 (assume exclusivity of the two activities). If he steals, he faces a .10 probability of being caught and punished by \$500 fine. Therefore, his calculus is: either I would work for \$20 or I would steal and risk punishment. Assuming that he is risk neutral, the benefits of stealing are: $\$100 - \$500 \times 0.1 = \$50$. He decides to steal. But his gross benefits (\$100) greatly exceed opportunity costs (\$20 for work). Even if we assume that such opportunities would induce people with higher wages (up to \$50) and those people would win criminal competition (because they are smarter), still their gross benefits exceed their opportunity costs by an expected punishment component.

²² Posner (1985) argues that the primary role of criminal law is to prevent such transfers. See Posner (1985), pp. 1195–1196.

Lastly, allowing involuntary transfers makes any investments less likely. The true cost of stealing is not only the transfer of goods to those who value them less, but also the lesser inclination of those whose goods were stolen to keep producing.

It seems then that the involuntary transfer of property does involve some cost. This cost is lower than in the case of criminal damage, when goods disappear from the society, but nevertheless exists. Having in mind that theft involves also emotional costs, and weakens productive incentives for the future, it is not clear whether the value of stolen or damaged goods may be used as a proxy for all these effects.

The possibility of loss due to crime forces legitimate owners to take preventive measures, for example buying locks, burglar doors, safes, etc. Therefore, the cost of thefts should include also these expenses. Many precautionary behaviors (not going out in the night, etc.) have also their opportunity costs, although they are not subject for an easy calculation. When all opportunity costs (i.e. victims' opportunity costs of protection and offenders' opportunity costs of lost production) are taken into account the value of stolen goods becomes irrelevant for assessing the total costs of theft. Use of the value of stolen goods as a proxy for these costs is doubtful, for the exact proportion between the value of stolen goods and these costs is unknown.

2.3.1.2 Cost of Time

A victim of crime loses some time as a result of crime. This loss is due to the physical and mental consequences of crime, as well as to time spent on dealing with the criminal justice system.²³ The value of lost time should be treated as a cost of crime. When a crime results in death, the valuation of the cost of lost time turns into a valuation of human life.

The most common technique to value the time lost is to use the approach called "lost productivity", i.e. to assess how many hours of work have been lost due to crime. Multiplying the number of hours by an hourly wage gives the total loss.

However, there are many problems with such an approach. First of all, this approach estimates the value of time not for a victim himself, but for others. It is contrary to modern economic theory, which is based on individually perceived values (Freeman 2003, p. 302). For example, if someone chooses to work less heavily in order to, say, have more leisure time, it does not mean that he values his time less than others: rather to the contrary, it means that an hour of leisure is worth more than an income from an additional hour of work could compensate.²⁴ But this

²³ Only 40–60% of crimes are reported to the police. See Kesteren et al. (2000), pp. 194–195. Although the survey did not specify "burdensome" as a reason for non-reporting, the overwhelming reason was that crime was "not serious enough". Plausibly, this category covers cases when crime is not serious enough for victims to bother themselves with police formalities. The police also have strategic reasons for increasing formalities as it may, by reducing the number of reported less serious crimes, keep the official crime rate low.

²⁴ It is only under ideal circumstances, when a worker can freely adjust the number of working hours, that the marginal hourly wage equals the value of an hour of his leisure. There is some evidence that people value free time as low as 30–40% of an hourly wage. See Freeman (2003), pp. 438–439.

individual evaluation is lost when we take only productivity into account. Despite this fundamental bias, there is a problem of valuation time of those people who do not work, e.g. house wives, or school children and youths as well as retirees.²⁵ And lastly, there is problem of discounting the future. The longer the health effects last, the more important the problem of discounting is. Gains or losses that are to come in the future have to be discounted to their present value. For financial assets, the most common discount rates are interest rates.²⁶ However, what is the discount rate applicable in this context? It may be a given individual's discount rate or society's one. The choice of a discount rate is important as it highly influences the result, particularly the value of life of children (who do not work for the first several years of life, so their income in the far future will be heavily discounted).²⁷

Dolan et al. (2005) calculated the so-called "lost output" by estimating time lost due to violent crime, and multiplying it by the average wage. This approach, although politically correct (everyone is equal),²⁸ is nonetheless economically flawed. Not only do different people have different wages, but also they face different risks of victimization (this approach assumes victims are randomly chosen from the society).²⁹ Nevertheless, such an approach avoids difficulties in assessing the value of time for school (or pre-school) children and youths, non-working spouses, and retirees, at the expense of the fictitious assumption that everyone's hour is worth the same.

The lost productivity approach, although popular, encounters serious methodological problems which undercut its validity. This is particularly important for the valuation of human life, and for this task other methods have been developed.

2.3.1.3 Value of Life

As was mentioned before, lost productivity has been an historic approach to the valuation of human life and can be traced back as far as 300 years.³⁰ The more recent research on the valuation of crime has been based on the willingness-to-pay approach. It is important to notice here that when we talk about the value of human life we do not mean the value of any particular person but we mean the value for life saving or preventing death.³¹ The evaluation of the cost of life saving is important from a welfare standpoint. By equating marginal productivity of life-saving expenditures, more lives can be saved with the same budget (Gould and Thaler 1980).

Everyone faces some risk of death pursuing his or her standard life activities. There is some risk present in driving, working and spending our leisure time. This

²⁵ See Cohen (2005), pp. 52–53, for a discussion of schooling time valuation.

²⁶ Which vary according to risk.

²⁷ Dolan et al. (2005) uses 3.5% discount rate.

²⁸ Political reasons for applying this methodology are clearly stated, Dolan et al. (2005, p. 39).

²⁹ Generally speaking, poor people face greater risk.

³⁰ Freeman (2003, p. 302). President's Commission on Law Enforcement and Administration of Justice (1967).

³¹ For the first notion, see Schelling (1968, p. 127).

risk is not independent from our own behavior. Individuals each day make decisions that tend to minimize the risk, but this risk reduction comes at cost. If people are willing to pay one dollar for risk reduction of 1/1,000,000 (for example by buying a smoke detector) or they expect to be paid one dollar more for the same increase in risk at workplace, it means that, in their opinion, saving one statistical life is worth one million dollars. This does not mean, however, that any particular life is worth one million dollars. It only means that people value a small reduction in risk in such a way that due to their preferences one life will be saved for the aggregate spending of one million.³²

There is also an important point to make: the amount that people are willing to pay is for a marginal reduction in risk, not for the total one. Therefore, although one cannot spend more to save his own life than he has plus his discounted future earnings (what is a lost productivity approach), one can easily spend disproportionately more on marginal reduction of risk (Freeman 2003, p. 304). This is why the willingness to pay gives a higher evaluation of the value of human life than the lost productivity approach.³³

A few papers on the total cost of crime have used estimates of the value of human life based on the willingness-to-pay approach, as revealed in people's decisions about work or security devices.³⁴

Another way of assessing people's willingness to pay is to directly ask them (Schelling 1968, p. 129). The estimates of statistical value of life are somehow higher than those based on a revealed-preferences approach, although are of comparable magnitude.³⁵

However it is calculated, the value of statistical life, and consequently the cost of homicides, is the greatest single position in the evaluation of the total cost of crime. This may lead to some criticism of inclusion of values which are highly speculative (Zimring and Hawkins 1995, p. 140). But it is worth noticing that government agencies already use such values for policy making reasons and there is no reason why the field of criminal justice should be an exception.³⁶ The statement of the National Commission's report of 1931 (In dealing with matters of life and personal safety, mere economic considerations are very largely beside the point)

³² For a vast review of the literature see Viscusi and Aldy (2003). Based on the meta analysis they estimate the value of statistical life in the U.S. to be in the range of 5.5–7.6 million dollars (p. 42).

³³ Zimring and Hawkins (1995) missed that point when they criticized Cohen's (1988) study for using a 2.0 million dollars figure as a cost of homicide. They calculated that the "cost" of all deaths at this rate (4.3 trillion) would exceed the GNP (4.1 trillion in 1989). What they had not noticed was that they used the value for marginal change. The total change would be surely limited by the available resources.

³⁴ Cohen (1988) used a value of 2.0 million dollars. Anderson (1999) used an implicit value of human life based on wage differential in risky jobs (6.1 million dollars).

³⁵ Cook and Ludwig (2000) estimated a value for one life saving from gun violence to be 5.0 million. Brand and Price (2000) used a value of 700,000 British Pounds based on the willingness to pay to avoid a fatal road accident. Cohen et al. (2004) estimated the value of reducing homicide number by one to be 9.7 millions.

³⁶ Viscusi and Aldy (2003) list a number of regulations and their values of statistical lives which range from 1.0 to 6.3 million dollars.

(National Commission on Law Observance and Enforcement 1931, p. 379) is much outdated, not only because estimation techniques are now much better, but also because ignoring such a cost would heavily distort both the total burden of crime and their relative seriousness.³⁷

2.3.1.4 Health Care

Some crimes result in injuries which require medical treatment. The cost of this treatment constitutes an apparent cost of crime. While medical costs are quite obvious, costs of psychological impact, or trauma, are much less clear. It is reported that people who have been victimized have a higher level of fear for the next several months (for contact crime even longer) and are exposed to a much higher risk of post traumatic stress disorder than the general population (Cohen 2005, p. 54). However, the costs of psychological support (if it is institutional help, not the family support) cannot approximate the costs of trauma itself, and there is no obvious way to elicit estimates of trauma costs.

It should be mentioned that the amount of harm cannot be assessed by using costs of health care alone. For example, medical costs of surgery and long rehabilitation treatment may be considerable, while they are negligible when someone has died on the spot. That does not mean that the harm was greater in the first case, rather the opposite.

2.3.1.5 Pain and Suffering

A term “pain and suffering” covers all costs of psychological impact. It constitutes an element of non-economic damages in civil law and covers mental anguish, physical pain, and lost quality of life. Despite all the difficulties encountered in measurement (which will be discussed below), it is important to notice here that this component of costs is extremely important and usually constitutes the largest part of the total costs of crime (Cohen 2005, p. 57).

2.3.2 Cost of Society’s Response

The costs of society’s response are the most known costs of crime. This item include the most obvious expenditures: on police and other law enforcement agencies, prosecutors, judges (in criminal courts), prisons and other correctional facilities, probation officers, etc. As all these institutions are in modern states financed by public sources, data is readily available.

Sometimes, borders between crime reducing efforts and other activity are blurred. Park rangers, for example, are to some extent law enforcers, although they

³⁷ As an example of such distortion, see President’s Commission on law Enforcement and Administration of Justice (1967), Sect. 3.1.

also help visitors, collect information about park conditions, and help to maintain their parks. Analogously, department store staff place goods on the shelves, help customers, and monitor them in order to prevent thefts. Fire departments deal with some effects of crime as well (for example arson), although this is not their main task.

Therefore, law enforcement agencies' budgets show only a lower bound estimate of the society's total expenditures on crime.

Moreover, society loses more than mere amount of taxes. Tax collection is a costly process in itself (and it creates additional crimes as well). Taxes distort the economy and to some extent this is an additional, indirect effect of crime.³⁸ This effect however has not been calculated in any study of costs of crime.

2.3.3 Costs in Anticipation of Crime

People are aware that they may become victims of crime and undertake appropriate measures to minimize this risk. They buy security devices and services (locks, burglar doors, security services), pursue some activities (for example, they lock doors, launch alarms, watch belongings), and avoid other (people avoid some places and activities, do not easily trust each other).

Some of these measures can be easily expressed in monetary terms, as expenditures on the security business. Some cost may be put on time-consuming precaution behaviors.³⁹ However, the costs of other behaviors cannot be easily assessed. If someone gives up jogging in the park in the evenings, and chooses instead to watch TV, this loss is hard to measure. If people do not enter into relations due to fear of strangers, this influences their level of happiness. When they feel a fear of crime it depresses their quality of life as well. There is no simple way to measure the magnitude of these effects, and it is even harder to put any numbers on it.

2.4 Why Calculate Costs of Crime?

The above list of ways in which crime affects human behavior is far from being exhaustive. While the task of exemplifying some or all of them seems to be non-controversial, the task of calculating their costs is much less so.⁴⁰

The first reason is to show the relative importance of the problem. If the costs of crime are high (low), the problem of crime is big (small) (see Anderson 1999;

³⁸ The marginal excess burden of taxation depends on the tax rate. Approximately, the marginal rate is about 20% in the U.S., which means that for every dollar collected as a tax, a deadweight social loss is 20 cents. See Stuart (1984).

³⁹ For example, Anderson (1999) estimates the costs of locking and unlocking doors.

⁴⁰ See Zimring and Hawkins (1995) for a critic of the cost of crime agenda.

Cook and Ludwig 2000). Therefore, costs of crime estimates help to put crime into a broader perspective of many social evils which compete for our attention.

The second reason is that this reveals the seriousness of a particular kind of crime. This may help to prioritize the public action against crime. Crime statistics cover all crimes and do not weight their relative seriousness in any way.⁴¹ Trends of crime based on such aggregate statistics do not necessarily reflect changes in the real burden of crime on society.

The third reason is that calculating costs of crime allows one to conduct cost-benefit analyses in the field of criminal justice. In order to assess the effectiveness of a given action, the results of this action have to be comparable with the results of other possible actions, and with the cost of inputs. If there are two competing projects, and one will likely decrease the number of robberies by 1,000 and another will push down the number of assaults by 100, there should be some common metric to compare these two with each other. And if both of them cost X, there is not enough to say that one is better than another in terms of results, but it is also necessary to state whether benefits exceed costs (see Brand and Price 2000, p. 59).

These three reasons have been recognized in the literature as the most important ones (see, for example, Cohen 2005). Nevertheless, there are more reasons for the use of costs of crime estimates.

Estimates of the costs of crime allow one to rank crimes in the order of their seriousness, which may help legislators in setting the proper punishment scheme, and judges in sentencing policy. These estimates may be useful both in utilitarian and retributive theories of criminal law. This point will be elaborated further later on.

Estimates of the costs of crime also help to avoid a bias toward an “accountant perspective” in crime policy. Crime policy is mostly a public policy, and public expenditures for dealing with crime are the most apparent costs of crime. If one only looks at accounts of public spending, the easiest conclusion can be that the criminal justice system spends too much (for example, on prisons). But too much compared with what exactly? Costs of crime estimates allow one to look at the second side of the equation, i.e. to the benefits of crime policy.⁴²

The next chapter reviews techniques that have been used to calculate costs of crime.

⁴¹ In the U.S. the most used index is that of FBI, which counts only seven serious crimes. Even among these serious crimes, there is a huge difference between auto-theft and homicide or rape.

⁴² See Martin and Bradley (1964) for noticing a possible bias toward criminals in the absence of cost of crime estimates.

Chapter 3

Costs of Crime Estimation Techniques

In this chapter, I will review estimation techniques that have been used for assessing costs of crime. I begin with the discussion of two general points. Firstly, whether total or incremental costs of crime are relevant. Secondly, which perspective – ex ante or ex post – should be adopted when looking at costs of crime. Then I provide a review of costs of crime studies and discuss methodologies they use. At the end, I recommend a particular methodology for assessing costs of crime.

3.1 Total or Incremental Cost of Crime

Costs of crime can be considered either as total costs of crime or as incremental costs. The former means an attempt to catch the cost of total criminality in society, while the latter tries to measure the value of incremental changes in the level of crime.

Let's imagine an ideal world without crime. It would be a world of no fear of crime and pain because of crime. There would be no police forces and criminal courts. There would be no prisons and there would be no victims. Although there would be some lawyers (nothing is ideal, even an ideal world), there would be much less of them. Apparently, it would be a better world.

However, the reality is quite different. In this paper, I will not try to explore why it is so. Religion, philosophy and ethics have all been trying to explain a phenomenon of evil since the very beginning, but the final answer has still not been provided. Economics too has its own model of criminal behavior,¹ but the concept of costs of crime is not strictly connected with this model, even if many studies have been made under its assumptions.

Under the approach of the total costs of crime, costs can be generally described as those expenditures which would not exist in an ideal world of no crime.² The

¹ See Becker (1968) for the first modern formulation of the economic model.

² An approach used for example by Anderson (1999) and Brand and Price (2000).

obvious problem here is that we do know what such an ideal world would look like. We can only be certain that the total elimination of crime from society would mean a massive reconstruction of the actual world (see Cohen 2005, p. 7). Such a reconstruction would constitute a shock to the economy on a big scale (see Hawkins and Waller 1936, pp. 692–694) (for example, a lot of law enforcement officials would lose their jobs), but in the long run all resources that were previously devoted to the fight against crime would be spent on other aims which would benefit society as a whole.³ The visualization of this hypothetical world of no crime is a tremendous task, and probably unfeasible. However, some attempts have been done, and the result will be reviewed in the next chapter.

The less ambitious approach is an incremental approach. This approach tries to calculate the value of incremental changes in the level of crime. There is no reason to calculate the total cost of crime, precisely because it is obviously unattainable. However, what plausibly can be obtained is a moderate fall in crime rates. This approach may use many different techniques, as we shall see later, for example, comparing prices of real estates in areas that differ in crime rates, or asking people how much would they pay for some reduction in crime rates. This approach does not offer a full account of the costs of crime. However, what it does offer is an unbiased policy recommendation. For example, let's say the total cost of crime in a county is one billion. This means that it would be beneficial to spend as much as one billion for such measures that would eliminate crime totally. However, we are not given such a choice. In reality, what we face is a restricted set of alternatives that consists of either, say, doing nothing or establishing a reduction of a further 10% that would come at the cost of 100 millions. There is no reason to believe that the benefits of some reduction in crime will be in exactly the same proportion as this reduction is to the total number of crimes.⁴ If anything, people rather over proportionally value a small reduction in crime. This means that people would like to pay so much for a slight reduction in crime that they would not be able to pay at the same rate if the total elimination was possible. For example, one can pay \$200 annually to decrease a risk of being murdered from 0.001 to 0.0009 (a decrease of 10%). If society consists of 1,000,000 people, it means that instead of 1,000 there will be just 900 murders per year, and assuming everyone has the same preferences society has reached that level at a cost of \$200 million. This gives a value of \$2 million per every murder averted at the current level of crime. But it does not follow that people would like to pay as much as \$2,000 to eliminate the risk totally, nor that the society will spend as much as \$2 billion on such reduction.

³ But surely there is no guarantee that everyone would be better off, so this would not be necessarily a Pareto improvement. Apart from criminals, who – at least according to the economic model – have chosen a criminal career precisely because it was more beneficial for them, some law enforcement officials may be extremely good at catching criminals, but poor on all others jobs. The decline in crime may mean a decline in wages, or esteem, for such people.

⁴ See Cohen et al. (2004), and – for job related risks – Viscusi and Aldy (2003).

3.2 Ex Ante and Ex Post Perspectives

There are two possible perspectives concerning the problem of costs. The first is ex ante perspective, when an individual faces the risk of being a crime victim. She tries to minimize this risk and takes some precautions as long as the marginal benefits in terms of reduced risk equals marginal costs in terms of costs of those precautionary measures. Therefore, people try to minimize the risk of victimization by moving to safer neighborhoods, buying safety devices, and avoiding dangerous places. All these expenditures are borne in anticipation of crime.

However, a substantial proportion of people actually become victims of crime in any given year (see Kesteren et al. 2000). When they become victims of crime, they suffer pain and further losses. Therefore, another perspective as regards the costs of crime is an ex post perspective. This perspective looks at the costs of criminal damages, forgone productivity, health care, mental stress and human life. Very often, this perspective focuses on tangible costs (such as costs of health care), and overlooks other, less tangible costs (such as costs of mental stress). This may lead to paradoxical results. Let's consider the following example. Two persons have been assaulted, and have suffered some pain and distress. One of them decides to take psychological counseling to deal with her distress, and after one session (and \$100 less) the consequences of crime are wiped out. The second person, being not so susceptible to psychological therapy, decides to forego such an activity, and suffers on her own. What we can say about the amount of pain? It is clear that it was worth it for the first person to spend \$100 to remove her distress – so she values that distress at least at that level. The productivity of a counselor in the case of the second person, however, was not high enough to outweigh the price of his service, but it tells us nothing about the level of the distress itself. It might easily be the case that the amount of pain is lesser for the first person and greater for the second (measured by the willingness to pay to remove it), due to their individual characteristics; but their susceptibility to help is different. This problem arises because observable expenditures of an individual tell us about her preferences as well as her possibilities. In principle, we could ask a given victim of crime how much she would like to be given as compensation – an amount that would fully compensated her losses.⁵ Yet, there is no mechanism available to elicit unbiased responses, for people would have an irresistible incentive to overstate the compensation.⁶ Nevertheless, one study has explored the issue of a hypothetical ex post compensation, by comparing the level of happiness of actual and potential victims of crime, and finding the level of additional income required to restore the victims to the previous level of happiness

⁵ There is an obvious problem with homicide, when there is no one to be asked.

⁶ When one has also to observe the wealth of a compensation payer, the demanded compensation would consume this wealth entirely. In reality, when criminals have very limited assets, this would lead to modest compensation. This modest compensation, in turn, would not provide enough deterrence, given the fact of low apprehensibility of offenders. The restriction on wealth of a payer is an important reason from the economic standpoint why some harmful acts are crimes, rather than civil wrongdoings (Posner 1985, p. 1203).

(Powdthavee 2005). This study as well as other techniques will be discussed later on (Sect. 3.7), but firstly a short history of costs of crime estimates will be presented.

3.3 A Short History of Costs of Crime

Historically, the first estimates of the costs of crime tried to assess public expenditures on crime control and focused mainly on costs of police, courts, judges, juries, prisons and other facilities that were somehow connected with crimes.⁷

In one of the first detailed studies⁸ (at least one that has survived to our times), Eugene Smith's report to the International Prison Commission based in New York City then transmitted to the U.S. Congress, several different budget expenditures of the city of New York were calculated and accounted, at least partially, as costs of crime. These expenditures included the costs of the sheriff's office, county clerk's office, department of taxation, Law department, Department of public buildings, lightening and supplies, Department of charities, Department of Health, Fire department, coroners, national guards, commissioners of jurors, County courts, Supreme court as well as debt and interests on it required to finance all these public expenditures. As was somewhat depressingly noticed, almost all public buildings in New York, apart from schools, had some connection with crime (Smith 1901, p. 6), and in fact, after assessing the total annual cost of crime taxation (i.e. the sum of public expenditures on crime prevention financed by taxes) in the U.S. at the level of approximately 200,000,000 USD (of 1901), Smith concluded that "it makes crime by far the largest factor with which political economy has to deal" as "it greatly exceeds in amount every other object of public expenditure, except only that of our military establishment in time of war."⁹ But for everyone it was obvious that public expenditures could not stand for the total cost of crime. Smith also provided some rough estimates of criminal gains and according to his calculations there were 250,000 habitual criminals in the country who made about 1,600 USD a year in terms of criminal profits.¹⁰ Criminals' profits totaled thus to the amount of 400,000,000 USD. The

⁷ For example, fire departments in some part deal with the results of arson, and poorhouses were packed with ex-convicts or members of their families (and probably with some victims of crime as well). See Smith (1901, p. 4).

⁸ Sometimes, calculations of the costs of crime were done at side when a larger picture of criminality was drawn. For example, William Hepworth Dixon in his book "*The London prisons: with an account of the more distinguished persons who have been confined in them*" (London 1850) provided a rough estimation of the costs to society caused by criminal activity of three thieves, the brothers Kelly (pp. 23–24). Some authors tried to present the problem, but rather in an illustrative way than in any arranged manner. For instance, S. G. Lathrop (*Crime and its punishment; and, Life in the penitentiary*, Joliet, Ill. 1866) noticed that "cost of crime is enormous, exceeding by far, all the other legitimate expenses of government" but no numbers were provided as "no such statistics can be gathered" (p. 16).

⁹ Smith (1901, p. 8). Crime is not so top ranked today, but unfortunately there has not been a decrease in crime rates since the 1900s, but rather dramatic rise in the level of public spending.

¹⁰ It was noticed that value of a stolen good was only partially a profit of a given criminal, as receivers or purchasers of stolen goods get a substantial part of gains (Smith 1901, p. 9). What

total cost of crime was then estimated at 600,000,000 USD¹¹ and was, according to Smith, enormous. But even that amount could not be taken as a comprehensive estimation. It did not include the value of goods destroyed in the course of crime, or the value of preventative measures taken by people to avoid crime, as locks, bars, burglar alarms, safes, etc. And it also did not cover the costs connected with the consequences of crimes. “Who can estimate the money value of time, life and labor lost and the amount of expense entailed by each of these crimes?” (Smith 1901, p. 11), as Smith hopelessly pointed out. And, of course, it did not estimate the costs of pain and suffering, for no obvious way to monetize such losses then existed.

Much more debated was the subsequent research on the costs of crime, prepared by Goldthwaite H. Dorr and Sidney P. Simpson for the National Commission on Law Observance and Enforcement entitled “Report on the Cost of Crime and Criminal Justice in the United States” (1931, known also as the Wickersham Report). This elaborate report (657 pages long) was rather a report on economic consequences of crime than a calculation of the costs of crime to society. It started with the distinction between ultimate and immediate costs of crime. The latter was defined as a differential between the present total welfare of the society and a hypothetical, larger one, had no crime existed. But that concept, although theoretically sound, was rejected, for no means of calculating a hypothetical state were available. The former was simply a measure of costs incurred due to the existence of crime. The report categorized these costs under a number of headings, of which the first four dealt with public spending on crime prevention, justice and enforcement (i.e. costs of criminal justice system, costs of state police forces, and costs of penal and correctional agencies were covered). What was more interesting, the report also covered private expenditures on protection against crime, private losses due to crime, and indirect losses to the community due to the existence of crime. However, these expenses were far from being an exhaustive list – it was a collection of available data (for example, private protective service was included, but not costs of locks and bars). As for the losses to the community, it was calculated as the value of potentially productive labor time of prisoners and law enforcement officers. While this report was lengthy, it mainly focused on tangible costs of crime, leaving aside some important components. But that was also the reason for not providing the total amount of costs – as it could be only misleading (nevertheless, the total sum of costs reported totaled to \$1 billion).¹²

was not noticed however, was a fact that the same thing may have different values for an original owner and a subsequent purchaser when it is stolen. This point was discussed broader before (see Sect. 2.3.1.1).

¹¹ According to the Consumer Price Index, one 1900 dollar is worth \$24.324 of 2006. Thus, the present equivalent of \$600 million of 1900 will be the amount of \$14.6 billion of 2006 (*source* a CPI calculator at the web site of the Federal Reserve Bank of Minneapolis <http://woodrow.mpls.frb.fed.us/research/data/us/calc/hist1800.cfm>, accessed 18 September 2006).

¹² This amount converts to some \$12 billions of 2006 (it using the CPI method, as see the Footnote 11 above), less than than the previous estimates of Smith (1901).

The report and its methodology were appraised (see, for example, Taggart 1931) and that delimited the scope of further estimations which were to come. In particular, the focal point of research was established at analyzing economic consequences of crime. The discussion that followed the publication of the report even led some authors to suggest that criminal activity was so heavily connected with the rest of economy that the sudden disappearance of crime would “be as disastrous as the collapse of any other industry of similar magnitude. The repercussion would be the same in kind, if not in degree, as that which typically follows a great war (Hawkins and Waller 1936, p. 693).” Arguably, these disastrous consequences would exist only in the short run, while in the long run there would be many benefits. Nevertheless, pointing out that crime is one of many economic activities of a man was certainly in line with sociological statements, such as that of Emile Durkheim,¹³ that crime is a natural phenomenon. This view on crime as a social construct was also enforced by the existence of prohibition laws – according to the Wickersham’s Report, as much as two thirds of the criminal justice budget was spent on prohibition enforcement.

The economic consequences of crime were also dealt with in the report of the President’s Commission on Law Enforcement and Administration of Justice (1967). However, while more than 30 years passed since the Wickersham Report, little additional data appeared.¹⁴ The 1967 Report followed the previous one in the sense that it limited itself to direct or tangible costs of crime, and not only stated that “costs of lost or damaged lives, of fear and of suffering (...) cannot be measured solely in dollars and cents” (President’s Commission on Law Enforcement and Administration of Justice 1967, p. 34), but in fact did not provide any valuation for pain and suffering, except from homicide when the loss due to lost earnings was reported. Not surprisingly then, such a methodology led to the relative importance of property and economic crimes, of which the highest single position was illegal gambling. Generally, the cost of organized criminal businesses (gambling, narcotics, loan sharking, prostitution, and alcohol) was estimated at \$8 billion, while the costs of law enforcement (4.2 billion), of property crimes (3.9 billion), of private prevention (1.9 billion), and of violent crimes (0.8 billion) were found to be far lower. Following the modesty of the 1931 study, the report admitted that the lack of data is very often overwhelming, and did not provide an estimation of the total cost of crime to society.¹⁵ Nevertheless, it concluded that seven crimes with the greatest

¹³ See Durkheim (1933 [1893], pp. 72–73): “Contrary to current ideas, the criminal no longer seems a totally unsocial being, a sort of parasitic element, a strange and inassimilable body, introduced into the midst of society. On the contrary, he plays a definite role in social life. Crime, for its part, must no longer be conceived as an evil that cannot be too much suppressed.” To fully understand the revolutionary meaning of Durkheim’s statement, compare it with the following quote from Smith (1901, p. 12): “Crime is waging a ceaseless war, not only against all property, but against all law, all government, against civilization itself. All that we hold dear and all that makes life worth living is at stake; all is dependent upon forces that keep crime under.”

¹⁴ “The lack of knowledge about which the Wickersham Commission complained 30 years ago is almost as great today” (p. 32).

¹⁵ But what was reported sum up to 107 billions, which is the equivalent of \$688 billions of 2006 (calculated with the CPI index – see Footnote 1).

economic impact are however very different compared than those offenses included in the crime index (homicide and larceny of \$50 and over were found to be on both lists, while rape, assault, robbery, burglary and auto theft were not found to have a great economic impact). This conclusion meant that the costs of ordinary street crimes were modest, and costs of crime estimates, although important, were rather useless for shaping crime policy against street crimes. Thus, there was not much attention paid to crime policy implications, although in examining the structure of correctional expenses it was said that “the fact that an adult probationer costs 38 cents a day and an adult offender in prison costs \$5.24 a day suggests the need for reexamination current budget allocations in correctional practice” (President’s Commission on Law Enforcement and Administration of Justice 1967). Apparently, the report did not evaluate any costs for society (in terms of costs of committed crimes) when that offender is freed, but even if such a calculation had been done, it would hardly have changed the implications, due to the undervaluation of intangible costs of ordinary crimes.

The focus on so called victimless crimes also highlighted some flaws of the Report’s methodology. The costs of such crimes as gambling, prostitution and narcotics were calculated as amounts of money paid for these services and goods. But from the economic standpoint, the demand for something, even if it is illegal, indicates the value of the good for at least some part of the public. That objection was raised against the methodology of the 1931 report (Hawkins and Waller 1936, pp. 684–685) and was repeated this time. Phillips and Votey concluded that “true social loss is not even remotely related to the Commission’s estimates of social costs of the provision of illegal goods and services” and that “the only acceptable measure of undesirability would have to be what society is willing to pay collectively to prevent such activities” (Phillips and Votey 1981, pp. 55–56). The postulate to use willingness to pay as a measure of costs had yet to be realized. Instead, Phillips and Votey based their calculations of costs of crime on the sociological research of Sellin and Wolfgang (1964) and Gray et al. (1978). Sellin and Wolfgang constructed an index of seriousness of crime, asking people to rank different crimes and to attach point values that denominated seriousness of a particular crime to a respondent. Then, they aggregated the results and constructed the index of crimes, ranked by its seriousness (a similar approach was taken by Gray, Conover and Hennessey). Phillips and Votey combined the seriousness level (as reported in these two indices) with the net loss values reported in the 1967 President’s Commission Report. This led to the new table of the costs of crime, when every crime ranked by Sellin and Wolfgang was assigned some social cost, based on the assumption that social perception of seriousness of a crime is correlated with the cost of that crime. The results showed that the President’s Commission report seriously undervalued such serious crimes as homicide, assault, rape, robbery and burglary. In fact, the seven index crimes were valued now three times higher than in the Commission Report (\$9 billion to \$3.2 billion in 1979), and it changed the whole perception of the costs of crime. It consequently seemed that prostitution or gambling, which were illegal but were not perceived as particularly serious, were not so costly for society, whereas such serious crimes as violent crimes or burglary should get much more attention. This

finding was in line with new trends in criminology and crime policy. The criminological trends in the sixties stressed modest dangerousness of ordinary criminals, particularly when compared with white-collar swindlers, or even accused the social system of “producing crime”. The rehabilitation of offenders was put in first place. By the late seventies this view had disappeared¹⁶ and neo-classical trends became dominant (see, among others, Wilson 1975).

But even that improved calculation of the cost of serious crime undervalued the burden crime imposed on society, as demonstrated in the years to follow when the first estimates of cost of crime were made from the victim’s perspective.

3.4 Property Prices

Economists prefer the use of values that come from real market transactions. The real behavior of people reveals their preferences¹⁷ and show the values they put on different goods. Although there is no market for crime, there are some adjacent markets that may be used to assess costs of crime. One of them is the real estate market.

People try to avoid crime. One of the ways to do so is to avoid high crime areas. Therefore, people carefully choose their means of transportation (a cab may be preferred to a night bus, or you may simply stay at home),¹⁸ places of walking (parks and other unlighted areas are rather unpopular at nights), and places of living.¹⁹

Theoretically, places that have higher crime rates should be less valued by people, and therefore property prices will be lower in those areas. Knowledge of transaction prices and detailed characteristics of dwellings (size, number of rooms, quality of building, etc.) and of neighborhood (distance to the downtown, schools, airports, etc.) as well as other socio-demographic variables (age and racial structure of population, income of neighbors, etc.) allows one to run regressions on the variables and to identify whether local crime rates have an impact, and of what magnitude, on property prices.²⁰

¹⁶ See particularly Martinson’s (1974) question “What works?” with the conclusion that “nothing works”.

¹⁷ The revealed preference technique was proposed by Paul Samuelson in 1938. (Samuelson, P., “A Note on the Pure Theory of Consumer’s Behavior”, *5 Economica* 61.)

¹⁸ The cost of a cab at night is surely a cost of crime, at least in that part that was induced by fear of crime and not merely by convenience. It was classified as a precautionary behavior cost in Brand and Price (2000, p. 21), but no estimation of total cost of this behavior was made, neither in that study, nor in others.

¹⁹ There is evidence that rising crime rates induce people to move to suburbs. Cullen and Levitt (1999) found that one more reported crime is associated with one person decline in a city’s population. Particularly sensitive are highly educated households and those with children.

²⁰ There is a technique called hedonic pricing, in which regressions are run on a set of real market transactions, trying to capture the influence of these variables on the property price. See Thaler (1978, pp. 137–138) and Cohen (2005, pp. 33–34).

To get a proper data set, researchers combine information of real estate transactions (obtained from a municipality or a broker) and police data on crimes recorded as having been committed in a given block, tract or other locally defined area.

The first study is a short paper by Thaler (1978) who used a hedonic price index to analyze the impact of crime on one-family houses in Rochester, New York. He used police data on property crimes²¹ and found that property crimes depressed the value of property, even if some other factors had greater impact (for example, proximity to an airport). Based on his regressions and making some additional assumptions, he also derived a number of \$500 as a sum which people are willing to pay to avoid one property crime.²²

The next study (Gray and Joelson 1979) tried to capture the effect of different crime rates imposed on real estate prices. They found that “for every 1% of residential unit burglarized, the average value of an owner-occupied unit fell about \$366”. Similarly, an incident of vandalism in the neighborhood (a rate for 1,000 population) decreases the value of a unit of about \$117 (Gray and Joelson 1979, p. 53). What is interesting in their research is that prices of real estates were unaffected by so-called street crimes²³ while the level of rent was affected, and in a heavy way. The reasons for that remained unclear, though. They also roughly estimated that the loss in property value generated a loss in tax revenues for the city of Minneapolis of about \$13 million yearly (for comparison purposes they reported that the criminal justice system budget in that city was about 19 millions) (Gray and Joelson 1979, p. 57). They noted, however, that the question of true social benefit was not obvious.

In a study of the Chicago real estate market Rizzo (1979) also found an important influence of crime rates on property prices. Property crimes played a more important role than violent crimes – 1% change in crime rates induced a 17 and 12% decrease in rent, respectively. The effect on property prices was even bigger, with 25 and 10% decreases in value, for property and personal crimes respectively. After transferring these changes into cost per crime, Rizzo concluded that in Chicago an average indexed crime costs \$2,668.

A more recent work of Lynch et al. (2000) provides an analysis of the Jacksonville, Florida real estate market. This study also reports that crimes have some impact on real estate prices with a bigger effect for property crimes than for personal ones.²⁴ However, the impact of crime on prices differs from what was found in the previous studies. Generally, the impact of crime is very modest, as long as

²¹ Other crime rates (all crimes, personal crimes, property crimes in or around houses) were highly correlated. He noted that the use of police data might introduce bias due to underreporting, and dismissing the potential use of victimization data, he employed property crimes rate which was supposed to be reported most accurately. Thaler (1978, pp. 138–139).

²² Although, he noted that this estimate, because of high collinearity between different crime measures might also measure a reduction in other crime categories, not only property ones. Thaler (1978, p. 144).

²³ They tested, and excluded, variables of sex crimes (females only), assaults by strangers, street robberies and car theft.

²⁴ This study used crime rates weighted by their costs, as calculated by Cohen (1988) or to put it differently, weighted by its seriousness.

crime rates do not exceed a given level, whereas “house values decline dramatically in high crime areas” (Lynch et al. 2000, p. 235). In such areas (defined as being in two upper deciles), the discount in prices reaches almost 40%. The impact on prices of houses within lower crime areas is trivial and can be assessed at \$15 and \$27 a year for violent crime and property crime respectively.

The most intriguing finding was that of Gibbons (2004). He carefully analyzed London’s data on crime rates and property prices, and found that the property prices were pushed down by the incidence of vandalism (10% increase in criminal damages reduces prices by 1.5%), but – surprisingly – prices were not affected by burglaries. Moreover, the decrease in prices is much bigger than costs of criminal damages itself, which suggests that people are willing to pay much more than is needed to offset an expected loss. Gibbons offers an explanation that criminal damage is perceived as a sign of higher crime rates in the neighborhood and therefore potential buyers require much more discount than what would be appropriate if only criminal damages occurred. This finding – as Gibbons notices – is in line with the famous theory of “broken windows” (Wilson and Kelling 1982), which postulates that small damages in the neighborhood encourage a further devastation. In this sense, criminal damage not only signal what crime rates in the neighborhood are, but also what the rates will be in the future.

This short discussion of the previous research about the relationship between real estate prices and local crime rates shows that findings are inconclusive. While all studies have found some effects of crime on real estate prices, characteristics and magnitude of these effects differ. Not only it is hard to determine what the impact of crime on prices is, but it is also questionable which kinds of crimes have this effect. These problems are probably caused by severe methodological obstacles.

There is some discussion in economics about the validity of revealed preferences theory (see, for example, Sen 1982). Particularly, it is argued that some factors may make the choice of a consumer (which is the base from which his preferences are retrieved) not fully representative of his true preferences.

Besides the theoretical validity, there are also problems with the practical application. There is a question of simultaneity. This problem arises when crime rates and some variables concerning neighborhoods are simultaneously determined. For example, low prices of land attract relatively poorer buyers, who are also more prone to commit crimes. Therefore, the regression will be biased towards a negative relationship between crime and property prices.²⁵ Another example of a possible bias is a likely tendency of burglars to break into richer dwellings in expectation of bigger loots. Those dwellings, however, tend to have higher prices.²⁶ In such circumstances, there is a need for some additional variables that help tackling with described simultaneity.

²⁵ Gibbons (2004, p. F443). A quite similar effect was discussed in Thaler (1978) regarding the influence of the percentage of black people in the neighborhood.

²⁶ This may somehow explain Gibbons’ (2004) finding that burglary rates have no impact on property prices or that there may be even a positive effect (Lynch et al. 2000). Moreover, healthier people tend to report crimes to the police more often (Gibbons 2004).

There is a problem of expectations. Real estate properties are goods that provide a long living stream of service and their evaluation also reflects an expected rise or fall in prices.²⁷ However, this introduces a bias when expected fluctuations in price are compared with actual (and unexpected) crime rates. Moreover, when making a decision whether to buy a house, people may also expect crime rates to rise or fall in the next years to come. So, they may decide, for example, to buy a house in a neglected area that awaits revitalization. Because the revitalization is expected to come soon, prices are higher than those of other similar areas. However, the actual crime rates are high, even if they are likely to fall when the revitalization has been completed. This potential bias has not been dealt with in empirical studies so far.

Combining data from micro and macro levels constitutes another problem (see Moulton 1990). Researchers often use a radius around a given property to define the relevant area (e.g. Lynch et al. 2000; Gibbons 2004). However, this may be misleading as some natural (e.g. a river) or man-made (e.g. a highway) barriers make the crime rate in some area irrelevant for inhabitants in other areas, even if both areas are within a given radius (Thaler 1978). The same applies when census tracts are used (Gray and Joelson 1979), unless their borders follow said natural barriers. Moreover, the use of a tract or any other administrative division unit may lead to a bias when a given property does not lie in the center of a given tract, but close to the border, and crime rates of adjacent tracts may be more important (which is precisely why a radius defined area is sometimes used, with its own problems).

There are also important assumptions lying behind hedonic pricing technique. Potential buyers should be fully informed about local crime rates in order to take this information into account (Cohen 2005, p. 33). Even if a seller has some knowledge about a level of crime in his neighborhood,²⁸ this is private information and will not be transferred.²⁹ Full information is plausibly rather a rare case. And this may

²⁷ Freeman (2003, pp. 366–367). Rent rates are less prone to such expectations, unless this is a long term lease.

²⁸ The link between actual crime rates and perception of crime is complicated. For example, there is a strong correlation between the perceived likelihood of burglary and its actual occurrence at the national level. But it is also true that the individual experience of crime raises anxiety of being a victim again (Kesteren et al. 2000, pp. 77–79). If people knew all the relevant risk factors and if crime was distributed randomly, it would be irrational, as the actual occurrence does not change the future probabilities (but see Rabin 2002, for evidence of people's belief in the law of small number.) However, the fact of being victimized may also mean that there are some particular factors which had not been known before (for example, a particular vulnerability to crime, dramatically exposed by the incident) i.e. a lack of knowledge or that although all factors had been known, the previous assessment of risk was incorrect. In any case, the fact of being victimized is a legitimate cause of increased anxiety, as previous victimization is a powerful factor for predicting future victimization (Tseloni et al. 2002, p. 123). But see Moore and Shepherd (2006), who found that the actual victimization of burglary, physical violence or car crime did not significantly influence fear of crime, while threat of violence did.

²⁹ Gibbons (2004, p. F458). One can expect that sellers of houses in safer localities would be willing to share such information. Surely, there is a lack of credibility on their side and probably something like a seller's insurance should be required to fully convince a buyer. There is no evidence that anything like this happens on the market. A potential buyer can also look at some

explain why people react strongly to criminal damages (which are visible) rather than to burglary rates (which are not directly observable) (Gibbons 2004).

It may also be the case that people ignore small probabilities (or small changes in probabilities) (Kahneman and Tversky 1979, p. 278 and Sunstein 2002), and notice the increased risk of crime, only when this risk has risen to a substantial level. This would help explain the findings of Lynch et al. (2000).

And on the top of all this, we have to notice that only some crimes are committed near the place where a victim lives, so the expected effect of crimes on property prices is necessarily limited to these crimes that may be avoided by choosing an appropriate localization. Many crimes however are committed in such places as shopping malls, means of mass transport, and on the streets of city centers. These crimes can hardly be avoided by a careful choice of a place of living. Yet, it is true that every crime is committed close to something, so it theoretically may influence a price of that something. Following this intuition, one can expect that the value of commercial property will decline when there are high crime rates in the neighborhood. This is true to some extent. There is evidence that businesses avoid high-crime areas³⁰ and the price of such property may be lower.³¹ Nevertheless, some convenient places of committing a crime are public and non-tradable – such as parks, railways stations and subway systems. Crimes that occur in these places cannot have an impact on real estate prices.³²

Another question is a problem of locality of results. The previous studies have not discovered any common pattern in price discounting due to crime, and one can doubt if there is any representative location for the country. Therefore, the transferability of one city results into the country-wide estimates requires a study that includes a random set of different localizations. This makes this kind of study even more costly and unfeasible.

The last obstacle is that the use of property prices can hardly help to distinguish between costs of different kind of crimes. The simple division between personal and property crimes has sometimes been used, but it was found that rates of different crimes are too highly correlated to obtain individual estimates (Thaler 1978) or that

self-protection measures, such as burglar locks, doors, or alarms. But their presence, although suggestive of a higher crime rate, at the same time decreases the chances of being burglarized. The total effect is then unclear.

³⁰ Greenbaum and Tita (2004) report that the level of homicide has the greatest influence on the number of service-related establishments in low-crime neighborhoods.

³¹ It assumes that company managers demand a discount in price due to the presence of crime, to compensate either a lower attendance by consumers (driven by fear), or higher wages that have to be paid to workers to compensate them for a higher risk of commuting. I am not aware of any evidence of either of these effects.

³² Moreover, when the real estate market is regulated (and it is commonly regulated, at least for lease contracts), the price does not necessarily reflect all factors. For example, placing a ceiling on lease rates may prevent one from fully appreciating safer places. Community housing may also exclude some areas from the data set, as apartments in publicly owned buildings are not assigned on a market basis.

only property crimes are important, while personal crimes are almost irrelevant³³ or that available data does not allow localizing the exact place where violent crimes have been committed (Gibbons 2004). But even if this rough division was feasible, the more detailed categorization would hardly be possible. Thus, this methodology cannot provide estimates of costs of particular kinds of crimes, such as murder, rape, assault, robbery, burglary, larceny, etc. This limitation makes it of very limited use for public policy making.

All of the above-mentioned pitfalls of the real estate methodology induced researchers to seek alternative solutions.

3.5 Jury Awards

In order to overcome the problems with hedonic pricing technique, and to include those costs that cannot be directly measured, Cohen (1988) used pain and suffering compensation, awarded in civil trials, as a proxy for the costs of crime. The problem of measurement of pain and suffering, which is by far the most important element of violent crimes, is not specific for criminal law only. In tort law, the problem is basically the same, i.e. how to compensate for someone's pain, suffering, lost quality or enjoyment of life.

However, the amount of compensation awarded in a tort process may be perceived as a value of pain and suffering for society only when those who award it are representative members of their community. When the amount of compensation is decided upon by professional judges, who are not-randomly selected and have views which may differ substantially from the views of society, the level of compensation cannot be deemed to be representative.

Moreover, rules that govern the process of adjudication should not limit the amount of awards, nor exclude some items of pain calculation (for example, psychological but not physical losses³⁴). The fewer rules, the closer the result should be to a spontaneous valuation of intangible goods.

The above described conditions are only met in jury systems and only when there are no legal limits to jury competencies in deciding on the size of compensation. In fact, this is very similar to the actual construction of the U.S. jury award system. Jurors are randomly selected from the population³⁵ and they receive no instruction about the way to calculate the compensation.³⁶ Therefore, jury evaluation of pain

³³ Gray and Joelson (1979) and Rizzo (1979). Lynch et al. (2000) report an interesting correlation: the longer is the radius used to define the neighborhood, relatively more important is violent than property crime rate.

³⁴ It may be argued that this distinction is baseless on the medical ground, when every psychological trauma has its well observable, physical consequences as well.

³⁵ Jurors are selected from the voters lists and driving license holders. It is unlikely that the same person will be selected twice in his or her life. See Burnham (1999, p. 87).

³⁶ The lack of any rules according to which the compensation should be calculated was noticed a long time ago. See for example: "There cannot be any fixed measure of compensation for the

and suffering may be, *prima facie*, useful in evaluating similar injuries resulting from crimes.

Nonetheless, it also has to be noted that the reasonability of jury awards for pain and suffering has been questioned in the U.S. legal literature, although much of that criticism was toward punitive damages practice.³⁷ Decisions of juries have been presumed to be unpredictable and irrational and the size of compensation awarded enormous.³⁸ Some scholars argue that the open range of awards has led to a crisis on the insurance market, when insurers are not able to predict the possible amount of compensation, and therefore cannot calculate the premium.³⁹ However, there is also evidence to the contrary, pointing out that “their [juries] awards are generally modest, stable, and predictable” (Greene and Bornstein 2002, p. 35) or that “jury awards are predictable (although with a high degree of variability).” (Cohen and Miller 2003, p. 165.)

And the very reason that juries were established to assess the monetary value of pain and suffering made it possible for Cohen (1988) to use their verdicts for costs of crime calculations.

In his study, Cohen combined three different costs for victims of crime, namely, out-of-pocket costs, pain and suffering, and a risk of death due to the incidence of crime, and was able to deliver an estimation of the average cost of different kind of crimes.

Out-of-pocket costs estimates were taken from the National Crime Survey, and relied on costs reported by victims of crime. However, not all categories of costs were included in this study so some other components were added as well (e.g. costs of lost work days or psychological counseling).

Pain and suffering component estimates were based on jury awards for particular injuries. To match a kind of injury with a type of crime, the distribution of injuries among crime victims was taken from the National Crime Survey and supplemented by other sources.⁴⁰ An underlying assumption was that the origin of injuries is irrelevant for their valuation – in fact, there is some evidence that people suffer more from crime-induced injuries (see Shepherd et al. 1990).

The last component was a risk of death, as a consequence of being victimized. The value of life was based on studies that derived this value from the differential wages in jobs with an increased risk of death.

Cohen eventually calculated at the total cost of index crimes (homicide excluded) at approximately \$92 billion. It was some nine times higher than the

pain and anguish of body and mind, . . . but the result must be left to turn mainly upon the good sense and judgment of the tribunal assigned by law to ascertain what is a just compensation for the injuries inflicted”, “*City of Panama*,” 101 U.S. 453, 464 (1879).

³⁷ For an empirical review of jurors’ behavior, see Sunstein et al. (2002).

³⁸ See for example Bovbjerg et al. (1989) for some critic and possible solutions.

³⁹ See, e.g., Priest (1987). It has also led to the statutory caps on the size of awards in many, if not all, jurisdictions in the U.S.

⁴⁰ As the National Crime Survey did not report psychological trauma, and as it is important particularly in case of rape, other sources were used to fill this gap.

Table 3.1 Costs of crime in the US, 1988

Crime	Cost of crime to victims (dollars)				Aggregate cost (billion dollars)
	Direct losses	Pain and suffering	Risk of death	Total	
Against person					
Rape	4,617	43,561	2,880	51,058	9.1
Robbery	1,114	7,459	4,021	12,594	14.0
Assault	422	4,921	6,685	12,208	56.0
Larceny	179	–	2	181	2.5
Against household					
Motor vehicle theft	3,069		58	3,127	4.2
Burglary	939	–	–	939	5.3
Larceny	173	–	–	173	1.5
Total aggregate cost	17.5	39.0	36.1		92.6

Source: Cohen (1988), Tables 1 and 3 combined, rearranged and shortened. The value of life was assumed to be \$2 million.

direct costs of crime (out-of-pocket expenses), estimated by the Bureau of Justice Statistics.

Table 3.1 gives a summary of Cohen findings.

The inclusion of pain and suffering and risk of death components dramatically changed the estimates of costs of crime. Although Cohen added some new elements to the direct costs estimates and almost doubled them, there were intangible costs that made a difference. In all personal crimes they stood for more than 90% of all costs, while they were negligible for property crimes. Therefore, the decision as to which methodology to choose, and consequently as to which categories of costs to include, is the critical one.

Cohen's estimates were used in several studies, particularly those which conducted cost-benefit analyses of a given crime policy (see, for instance, Shepherd 2002b). Estimates obtained by Cohen were also criticized (see Zimring and Hawkins 1995, pp. 138–142, Austin (1996) and Nagin 2001, pp. 375–378). Although the criticism was very often misplaced, some questions remain. They will be briefly discussed below.

Only a small portion of all tort cases go before a jury.⁴¹ Moreover, those that eventually come before a jury are not representative, because they tend to be more sophisticated and less predictable in the terms of a possible judgment (whereas those cases in which a verdict is fully predictable should be settled) (see Nagin (2001, p. 377)). Moreover, there is a controversy over the predictability and reliability of juries' behavior, as mentioned above, and that impairs the use of their verdicts. Beside that, jury awards are a U.S. specific legal mechanism – in other countries, compensation for pain and suffering is awarded by professional judges.⁴² Therefore, even if

⁴¹ Greene and Bornstein (2002, p. 9), report that some 2% of cases are heard by juries.

⁴² Many European countries have developed some schemes that suggest an appropriate level of non-economic compensation. These schemes are neither obligatory, nor approved by legislators,

one agrees that estimates of jurors can be used for policy evaluation, it is in only a few countries that jurors are really free to make such estimates.

Cohen's methodology of calculating costs of crime to victims relies on summation of different items: tangible costs (based on victimization surveys), costs of pain and suffering (based on jury awards), and costs of death (based on the risk of death due to being a victim of crime and using wage differentials for the statistical value of life). As Zimring and Hawkins (1995) correctly note, the "choice of particular measures for particular factors seems wholly arbitrary" (Zimring and Hawkins 1995, p. 138). The calculation includes pain and suffering as a result of rape, but does not include fear of crime of homebreaking, not because the latter does not exist, but simply because there are no jury awards in such cases.⁴³ Therefore, some categories of costs are excluded due to the methodology's limitations. That would be acceptable as a conservative approach to evaluation (meaning the drift to the lowest possible values) if it is not for the fact that it changes the relations between different categories of crimes. Crimes that result in consequences for which compensation is awarded tend to be relatively more serious (costly) than those for which nothing is paid. This is the irremovable limitation of the methodology and it biases possible policy implications of the results.

3.6 Contingent Valuation

Using jury awards to calculate costs of crime has received a lot of criticism. Apart from controversies over reliability of jury awards, this technique was a mixed methodology that combines three different components: jury awards, out-of-pocket expenses, and a risk of death component, being quite inconsistent.

Therefore, a new methodology has been called for, namely contingent valuation. Contingent valuation is a technique that emerged in the 1960s in the field of environmental economics (Carson et al. 2001). This technique is based on a public survey in which people are asked how much they would like to pay for some good to be delivered. Generally, the survey consists of: "(1) an introductory section which helps set the general context for the decision to be made; (2) a detailed description of the good to be offered to the respondent; (3) the institutional setting in which the good will be provided; (4) the manner in which the good will be paid for; (5) a method by which the survey elicits the respondent's preferences with respect to the good; (6) debriefing questions about why respondents answered certain questions the way that they did; and (7) the collection of a set of respondent characteristics including attitudes, debriefing questions, and demographic information" (Carson et al. 2001, p. 179).

but emerged as a result of court practice. These schemes also cannot be perceived as representative. See Comande (2005). However, some argue that professional judges' decisions would be less erratic, while being in line with the general public evaluation (Viscusi 2002, pp. 206–207).

⁴³ Although, theoretically, there may be a compensation for fear of an actual victim of burglary, there is no compensation for potential victims of crime.

So far, a few studies of the costs of crime based on contingent valuation have been conducted.

Cook and Ludwig (2000) and Ludwig and Cook (2001) tried to assess the net benefits of different gun control programs. While the costs of these programs were roughly known (primarily, in terms of budget expenses), their benefits in terms of crime reduction had to be monetized. They surveyed a national sample of 1,200 adults and asked them how much they would pay for 30% reduction in gun violence.⁴⁴ Based on the answers they estimated that such a reduction was worth \$24.5 billion (in 1998 dollars). An estimated willingness to pay to avoid one gun injury was around 1.2 million.⁴⁵

The study was aimed precisely at cost-benefit analysis of gun control and therefore could not answer the more general question about costs of crime in general. This question was tackled by the Cohen's et al. (2004) study.

Cohen et al. (2004) employed contingent valuation methodology to study a public willingness to pay for the reduction of five crimes, namely: burglary, armed robbery, assault, rape or sexual assault, and murder. In this study, respondents were asked how much they would pay for a 10% crime reduction in three randomly chosen kinds of crime. For every kind of crime, a respondent was asked whether he would pay an amount chosen from the range \$25–\$225 (in \$25 intervals). Then a follow up question was asked, with the amount increased or decreased by one level, depending on whether the first answer was positive or negative.⁴⁶

The respondents' answers were transformed into a willingness to pay for crime reduction, basically by multiplying a percentage of people that would pay not more than a certain amount by this amount, and by summing across categories.⁴⁷ The average amount that a household is willing to pay is reported in the second column of Table 3.2. The total amount that all households are willing to pay was then divided by the number of crimes that would be reduced that way to reach the implied willingness to pay to avoid one crime.⁴⁸

The estimates are as follows:

These estimates should be interpreted so that, on average, a given household is willing to pay an amount, say, \$104 for a 10% reduction in the number of burglaries

⁴⁴ Precisely, they asked whether a respondent would vote yes or no for a gun violence reduction program if it had required to raise taxes for a household by 50/100/200 dollars (the amount was randomly chosen). If the answer was positive – the amount was doubled, if negative – the amount was halved, and the question was asked again.

⁴⁵ Ludwig and Cook (2001, p. 208). Having in mind that only some proportion of injuries is fatal, the estimated value of statistical life is 5.4–6.8 million (p. 221).

⁴⁶ On the aggregate level, there was no difference between estimates based on first only or follow up questions. Cohen et al. (2004, p. 94).

⁴⁷ In detail, the procedure was as follows: the function of WTP was smoothed to secure its monotonical decrease, then the probability density function was constructed. A given percentage of people willing to pay was multiplied by a mid-point between the amount they agreed to pay and the next bid, on the assumption that while they agree to pay, say \$200 and not \$225, we cannot be sure that they are not going to pay \$220.

⁴⁸ The number of crimes was taken from victimization studies, apart from murder, whose number was taken from the FBI index.

Table 3.2 Willingness to pay for crime reduction

Crime	WTP for 10% reduction	Implied WTP for crime	Previous estimates (Miller et al. 1996, inflated to 2000 dollars)
Burglary	\$104	\$25,000	\$4,360
Armed robbery	\$110	\$232,000	\$31,800
Serious assault	\$121	\$70,000	\$35,600
Rape and sexual assault	\$126	\$237,000	\$114,000
Murder	\$146	\$9,700,000	\$3,900,000

Source: Cohen et al. (2004), Tables 2 and 3, combined and shortened.

in the neighborhood, and that the society as a whole is willing to pay as much as \$25,000 to avoid one burglary (this calculation is based on the 10% decrease in the number of burglaries).

The estimates are much higher than those previously obtained by Cohen which were based on jury awards, with a ratio varying from 1.6 to 10. In particular, burglary and armed robbery were now estimated as being much higher – this may suggest that the jury-awards method was inadequate in the sense of understating those crimes for which compensation is usually not given (like for burglary).

Atkinson et al. (2005) studied the costs of three violent crimes in the United Kingdom using contingent valuation. Their approach was similar to that adopted by Cohen et al. (2004), with a few exceptions. One of them was that Atkinson et al. (2005) gave a broad description of the potential consequences of a given crime. This should improve the respondents' understanding of the potential benefits of crime reduction (Atkinson et al. 2005, pp. 562–563). However, there is no common pattern of injuries in a given crime category. For example, for the category of “common assault”, in half cases the victims did not suffer any physical injury, while in the rest of cases, their injuries ranged from minor bruising to injuries which required medical attention.⁴⁹ Therefore, instead of constructing a typical crime, in terms of consequences, the study formulated three different possible health scenarios (called no injury and short term mental distress, moderate physical injury and medium term mental distress, and serious physical injury with long-term mental distress), and attached these health scenarios to three crimes, namely common assault, other wounding, and serious wounding, respectively. Respondents were asked to familiarize themselves with the descriptions of the consequences.

The respondents were a national representative sample of 807 England and Wales inhabitants.⁵⁰ The face-to-face interviews were conducted. The respondents were told what the risk of being a victim of one of three crimes was. The risk was based on victimization data and was an average risk for the country.⁵¹

⁴⁹ The data on injuries is based on the British Crime Survey. Atkinson et al. (2005, p. 564).

⁵⁰ As many as 279 refused to give a meaningful answer.

⁵¹ Cohen et al. (2004) did not provide this information for their respondents.

Table 3.3 Willingness to pay in the UK, 2005

Crime	Cost of statistical crime (pounds), based on		Previous estimates (Brand and Price 2000) ⁵²
	Mean WTP	Median WTP	
Common assault	5,282	913	240
Other wounding	30,908	5,342	120
Serious wounding	35,844	6,196	97,000

Source: Atkinson et al. (2005), Tables 9 and 1, combined and shortened. High outliers excluded. All values in British pounds. The mean is different from the median because of a high skewness of responses. The mean and median were calculated with parametric statistics, based on lognormal distribution⁵³.

Each respondent was asked only about one crime (randomly chosen). His willingness to pay for a 50% reduction of that crime within the next 12 months were measured by a payment card – a respondent placed a tick against that amount from the list (varying from 0 to 5,000 pounds) which was the maximum he would like to pay.

The final results are reported above:

As can be seen from Table 3.3, the results are higher than the previous estimates⁵⁴ for two crimes, and lower for serious wounding. The willingness to pay does not depend on socio-demographic variables, with the exception of income and education level variables which are positively correlated with individual willingness to pay. Willingness to pay rises with the severity of the crime (Atkinson et al. 2005, p. 576).

The rate of no response is of some concern. This rate is quite high (more than 30%), but the demographic structure of non-respondents was no different than that of the sample.

While contingent valuation methodology is straightforward and allows specifying particular kinds of crime, it has also been criticized.⁵⁵

Contingent valuation relies on hypothetical situations; therefore we cannot be sure that people would behave the same way in reality (this is sometimes called

⁵² These numbers refer to the emotional and psychological impact on victims and do not include the costs of the criminal justice system and other costs. The evaluation of the emotional and psychological impact was revised in the subsequent study of the British Home Office (Dubourg et al. 2005), which increased the estimates of two first offences to 788 and 4,554 respectively, and decreased estimates for the serious wounding to 4,554 British pounds.

⁵³ A payment card lists only certain amounts. By ticking an amount of, say, 100 and not ticking the next amount of, say, 150, a respondent is willing to pay at least 100, but we are not sure whether he would like to pay more than that, up to 150. To estimate this, a parametric statistics may be used. Non-parametric values of means (medians) are: 60,68 (20), 84,12 (20), 106,72 (25).

⁵⁴ Brand and Price (2000) based their estimates on costs of road injuries, which they attributed into proper crime categories.

⁵⁵ See for example, Diamond and Hausman (1994). The controversy on contingent valuation validity was particularly influenced by Exxon Valdez catastrophe. The high valuation of ecological loss due to the catastrophe motivated Exxon to seek any flaws in the methodology of evaluation. Despite the motives, the discussion has been fruitful. See Cook and Ludwig (2000, pp. 98–99).

“hypothetical bias”). The evidence on that point is mixed. For example, the report of the NOAA (Arrow et al. 1993) recommended dividing the results of contingent valuation studies by a factor of 2 to get closer to the true valuation.⁵⁶ The meta study of List and Gallet (2001) found that the willingness-to-pay method is better than willingness-to-accept, and that the bias factor is about 1.3. Others, however, have not found any systematic bias (see Carson et al. 2001). Therefore, there is no reason to reject the stated-preference approach (Freeman 2003, p. 183). It does not mean that there should be no caution. The NOAA report formulated a few recommendations about the format of a reliable study, and further analyses also identified that some techniques are better than others. Specifically, a referendum format is preferred (a respondent votes yes or no on a given amount of expenditures), the question should be familiar to respondents, adequate information should be provided, photographs and other visual material should be used cautiously, an alternative should be clearly stated, a survey should not be conducted just after some event might influence people’s opinion, “no-answer” should be provided, and socio-demographic data about a respondent should be collected (Arrow et al. 1993).

Also, the internal check of validity should be made. This internal check tests whether the results of a study are consistent with the general economic predictions, for example, whether people are willing to pay more for more good, or whether willingness to pay decreases with price/tax and increases with income (Freeman 2003, pp. 176–177).

The willingness-to-pay approach measures the willingness to pay for public policy. Individuals, however, spend a lot of resources for private protection, by buying anti-crime devices (locks, alarms, etc.), choosing appropriate place of living, or changing their behavior. When the current public expenditures are below their optimal level (the optimal level being set at the level that of the aggregate willingness to pay), we may expect that people will compensate this underinvestment by private expenditures. If public expenditures are more cost-effective than private, people would be willing to shift resources from private precautionary measures to tax founded public programs. Therefore, the increase in public expenditures due to revealed willingness to pay for crime prevention may lead to the decrease in private expenditures on protection. As a result, the total reduction in crime because of the increased public spending can be lower than expected. The fact that willingness to pay for public programs does not cover all costs that people are ready to bear for averting crime calls for inclusion the private expenditures as well. Some researchers claim that private expenditures only shift crime from a victim who has taken some precautionary measures to another, but it will not reduce the total number of crime, and therefore should not be included in measuring the willingness to pay for crime reduction. Mikos (2006) opposes to such a view, and claims that even if private precautionary measures shift rather than reduce crime, they nevertheless shift crime

⁵⁶ What is the true valuation is questionable. Sometimes, the results can be compared with those estimated with revealed preferences method, experimental results or another willingness to pay study. Not all differences however may be attributed to flaws in contingent valuation methodology, as other methodologies are not perfect as well. Freeman (2003, pp. 175–176).

from the most sensitive victims into more resistant ones, and therefore reduce the total burden of crime.

Summing up, contingent valuation is a valid method of evaluation people's willingness to pay for public programs, but not necessarily cover all expenditures that people are willing to pay for crime reduction. Nevertheless, private expenditures should not be simply added to willingness to pay for public programs, for public expenditures are to some extent a substitute for private ones. Moreover, in some instances people are the cheapest cost avoiders, so some level of private protection may be optimal, and it should not be replaced by public programs. The willingness to pay approach thus covers only willingness to pay for public protection, and may guide public policy, but does not include willingness to pay for private protection.

3.7 Fear of Crime and Shadow Pricing

Another approach to measure the cost of crime was that employed by Moore and Shepherd (2006). They assumed that fear of crime is a proxy for happiness. Using data from the British Crime Survey, Moore and Shepherd tried to find a relationship between income and fear of crime. All else being equal, we can expect that people with greater income will be happier,⁵⁷ which means that they will have less fear of crime. As people with higher income tend to be less fearful of crime, the question may be asked what is a required additional income to offset various negative life events, and among them victimization, to keep the fear of crime constant.

This approach, which is a kind of shadow pricing, was used to analyze the British Crime Survey data combined with data on social deprivation of the local area. The study found that fear of crime (fear of crime was measured separately in the British Crime Survey as a fear of walking in the dark and a fear of being home alone) is inversely related to income, and that the threat of violence, expressed by a criminal, significantly increases fear of crime. A lot of social factors are also correlated with fear of crime, such as age, marital status, gender, and education. Surprisingly, the actual victimization does not seem to increase fear of crime. As the authors noticed: "This is to be expected. Psychological models of fear (...) stress the prospective nature of fear: Fear as a felt emotion elicited by possible future events. It is plausible that crimes, such as burglary, elicit changes in subjective states such as happiness (Powdthavee 2005) but changes in anticipatory emotions, i.e. fear, would not be expected for events that have already occurred" (Moore and Shepherd 2006, p. 299).

They found that the compensatory income required to keep fear of crime constant is substantial. For a change from no threat to one threat, a 496% increase in the total household income is needed to compensate an increase in fear of walking in the dark, and 115% to compensate an increased fear of being home alone. Consecutive victimizations (a change from one threat to more than one) require lesser marginal compensation, with a 116 and 20% increase of income, respectively.

⁵⁷ Generally, a higher income induces greater happiness for a given individual. The relationship over time and across countries is more complicated. See Frey and Stutzer (2002).

The study of Moore and Shepherd (2006) is unique in its implementation of shadow pricing. However, their claim that this methodology is superior to contingent valuation has to be critically evaluated. Their choice of fear as a measurement of happiness was dictated by availability of data, but it also severely affected the results. As they noted, fear is of a prospective nature – they claim this is why only the threat of violence has some impact on the fear of crime measures, while actual use of violence or other victimization has not. Apart from the fact that there are studies that relate the actual victimization to the increased fear of crime,⁵⁸ even if we assume that people do not feel fear for crime due to previous victimization (assuming that future probability of victimization is unaffected by the previous experience), nevertheless they probably prefer to be in a state of lower crime anyway. Therefore, they would like to pay for such a reduction, even if the level of fear is evenly distributed across victims and non-victims of crime. The methodology of Moore and Shepherd (2006) does not allow to capture this willingness.

There is evidence that being a victim of crime decreases the level of happiness (Powdthavee 2005). This study, based on South African surveys, related the reported well-being to victimization rates and found a substantial effect of actual victimization on the reported level of happiness. Precisely, it assessed that an average household would require \$21,142 per month in additional expenditures to compensate for being victimized by crime,⁵⁹ with crime victimization being by far the most important factor for a decrease in overall happiness.⁶⁰ Moreover, victimization of other members of community also decreases the well-being of non-victimized household.

Powdthavee's (2005) study in some sense confirms the very high costs of actual victimization – being then in line with other estimates of costs of crime. However, it is not clear how these estimates may be used to calculate any total burden of crime or marginal willingness to pay. Nevertheless, examining the relationship between actual victimization and the level of happiness is a promising alternative for contingent valuation methodology, as an assessment of the burden crime imposes on people.

3.8 Total Cost of Crime

As was previously described, from the historic perspective the direct costs of crime estimates were the first methodology employed. Costs of law enforcement were easily to calculate so costs of police, prosecution, judges, and prisons and other

⁵⁸ See Kesteren et al. (2000, pp. 77–79) (experience of crime raises anxiety of being a victim again) and Tseloni et al. (2002, p. 123) (the fact of being victimized is a legitimate reason of increased anxiety, as a previous victimization is a powerful factor of predicting future victimization).

⁵⁹ Victimization includes occurrence of the following crimes committed within the last 12 months: murder, housebreaking, burglary, robbery, of which a member of a given household was a victim.

⁶⁰ What is interesting, the impact of victimization tends to diminish when crime rates are growing. In a hypothetical community with 36% of others being victimized, an individual is indifferent – in terms of well-being – between being actual victimized or not. (Powdthavee 2005, p. 542). This may suggest that in such high crime areas fear of crime replaces pain of actual victimization.

institutions were included in all estimates (Smith 1901; National Commission on Law Observance and Enforcement 1931; President's Commission on Law Enforcement and Administration of Justice 1967). But it was also very clear that these costs formed only one side of the equation. The very reason why society spends money on crime prevention is to lower crime and the burden associated with it. The economic consequences of crime were then estimated: Smith (1901) used an approximation of criminal gains as an equivalent of public losses due to crime; National Commission on Law Observance and Enforcement (1931) used available data on some crime prevention costs and used labor wages to calculate the value of time lost by criminals behind bars and law officers; President's Commission on Law Enforcement and Administration of Justice (1967) provided only loss of earnings due to homicide, but excluded all costs of pain and suffering. Moreover, the Report included costs of illegal activities measured as a total income for illegal goods and services – this shifted an accent from street crimes into organized and white-collars crimes.

What was certainly lacking in all these calculations was the comprehensive list of all (or at least the main) consequences of crime, particularly those that affect victims. Although some methods of valuation (e.g. property prices, happiness loss) also have tried to capture the total cost of crime, they have been unsuccessful in this attempt.

A total cost of crime calculation should include as many consequences of crime as possible, even if they were assessed with different methodologies. The point of reference is a hypothetical state of no crime. Therefore, these kinds of assessments do not answer the question of how much people would like to pay for crime reduction, but rather a question of what is the total burden of crime, compared to the ideal world without it.

While historically the first studies of crime were of this kind, they lacked too many important costs. Modern estimates of the total cost have tried to capture the whole picture.

Anderson (1999) included in his analyses a wide spectrum of costs:

Crime-induced production covers personal protection devices (guns, locks, safes, etc.), operation of correctional facilities, and drug trafficking. In the absence of crime, time, money and other resources would be used for other purposes.

Opportunity costs – the value of time of criminals which could have been devoted to legal activities instead. Similarly, the value of victims' time lost due to having been victimized.

Value of risk to life and health – this is the value people place on the risk that they will suffer injury or die due to crime.

Transfers – some crimes involve transfers of property, for example theft. However, according to standard economic reasoning, transfers are not considered to be a net loss to society.

Main Anderson's (1999) numerical estimates are reported below (Table 3.4).

The total burden of crime (net of transfers) was estimated at 1.1 trillion. But as high as it may appear, these estimates did not include all costs, for lack of data. Nevertheless, this collection of costs, limited by data availability, provokes one to asking many questions. For example, the biggest position in crime-induced

Table 3.4 Total cost of crime in the US, 1999

Category	Cost (billion dollars)
Crime-induced production, including	397
Drug trafficking	161
Police protection	47
Corrections	36
Prenatal exposure to cocaine and heroin	28
Federal agencies	23
Judicial and legal services	19
Guards	18
Drug control	11
DUI costs to driver	10
Opportunity costs, including	130
Time spent securing assets	90
Criminals' lost work days	39
The value of risk to life and health	574
Value of lost life	440
Value of injuries	134
Transfers	603
Occupational fraud	204
Unpaid taxes	123
Health insurance fraud	109
Total burden	1,705
Net of transfers	1,102
Per capita (in dollars)	4,118

Source: Anderson (1999), Tables 1–7, combined and shortened.

production is drug trafficking. This amount was taken from the report of the President's Commission on Organized Crime and is simply an amount of money spent on the yearly consumption of drugs. But as was argued before, this can be hardly viewed as a cost of crime. The very fact that people willingly buy drugs stands as an argument for classifying it rather as social benefit than cost.⁶¹ While it is true that there are negative externalities connected with drug consumption (higher mortality rate, lower productivity, and so on), the same is true with many other human activities like alcohol and tobacco consumption, junk food consumption or extreme sports practicing.⁶² Moreover, it seems to be a pure transfer from a buyer to a seller, so it should instead be classified under that heading. In Anderson's (1999) study there are more inconsistencies like this: in the cost of driving under the influence, penalties and fees were included (another transfer), costs of exposure to cocaine and heroine

⁶¹ Phillips and Votey (1981, pp. 55–56). Anderson (1999) tried to catch the point when he wrote "if there were no laws but what is currently deemed criminal behavior continued, the cost of law enforcement might be zero, but the damage and deterrence cost of said behavior would not cease" (p. 613), but then contradicted himself with the mentioned costs of drug trafficking: if drug trafficking was legal, what would be the damage then?

⁶² It could be true that a world without such "social bads" would be a better one, but it also means that we would simply like to change people's preferences. Whether the society is legitimate to punish non-victim behaviors is highly debatable.

were exaggerated (Cohen 2005, p. 83) and for no reason the costs of exposure to alcohol or tobacco were not included.⁶³

One of the most surprising components was the value of time lost on securing assets. This is mainly the value of time spent on locking, and unlocking doors. Anderson (1999) estimated that each adult spends 2 min a day locking and unlocking doors, and more than 2 min looking for keys.

Anderson (1999) also included such minor items, as anti-theft devices in libraries, but did not include such costs as pain and suffering of victims (only lost working days were included). He also did not include any estimates of fear of crime, which has an impact not only on an individual's well-being, but also on his behavior.⁶⁴ His estimates then are likely to understate the true impact of crime, even if his selection was highly arbitrary. The report also did not allow for differentiating between different categories of crimes, and he only estimated the total cost for all crimes.

The British study of Brand and Price (2000), with the revisions made by Dubourg et al. (2005), is another example of the estimates of the total cost of crime. The report was estimating mostly costs for individuals and households, but there were also some estimates of the costs of commercial and public sector victimization. Brand and Price generally divided the costs of crime into three categories: costs incurred in anticipation of crime, costs as result of crime, and costs in response to crime (costs of criminal justice system). Costs were also divided by the main crime categories, so the estimates allowed one to make cross crime comparisons.

The costs incurred in anticipation of crime covered security expenditures (locks, guards, etc.) and insurance administration.⁶⁵ The consequences of crime included property stolen and damaged, emotional and physical impact on victims, loss output, victim services, and health services. The costs of response to crime included the costs of the criminal justice system, i.e. police, courts, prisons, and other institutions.

Some costs were not calculated, although conceptually belonging to the relevant categories, due to the lack of data. They included: costs of precautionary behavior, fear of crime, public defensive expenditure (costs in anticipation of crime), insurance claims, quality of life of victims (costs as result of crime), witness costs, miscarriages of justice, costs to offender and his family (costs in response to crime).

The methodology used for estimating numbers was a mixed one: some numbers came directly from the market (for example, expenditures for security expenditures or insurance administration), others were self-reported (costs of stolen goods were reported by victims in the British Crime Survey). Estimates of mental and physical costs of crime were based on the willingness to pay to avoid road accidents as used by another British agency: Department of Environment, Transport and the Regions. These estimates were then replaced by the subsequent report of Dubourg

⁶³ Even if alcohol consumption is legal per se, potential damages due to prenatal exposure may be classified as criminally negligent.

⁶⁴ For example, avoidance of potentially dangerous places.

⁶⁵ Brand and Price (2000) treated all involuntary transfers as losses. However, they did not include insurance premiums, because it was regarded as a voluntary transfer. Brand and Price (2000, p. 18).

Table 3.5 Costs of crime in the UK, 2005

Crime category	Average cost per crime (pounds)	Total cost (million pounds)
Homicide	1,460,000	1,997
Wounding	8,850	11,291
Sexual offences	31,440	8,464
Common assault	1,440	2,666
Robbery	7,280	2,436
Burglary in a dwelling	3,270	2,877
Theft	844	4,193
Criminal damage	866	2,242
Total	N/A	36,166

Source: Dubourg et al. (2005), Table 2.1 (cost per crime), Table 4.2 (total cost). Values in 2003 British pounds. Only crimes against individuals and households.

et al. (2005). Dubourg et al. (2005) assessed these costs using a technique called QALY – quality adjusted life year. This concept, widely used in health economics, tries to weight years of life by a measure of their health quality, ranging from 0 to 1, where 1 means full health and 0 stands for death (see Dolan et al. 2005). Therefore, when a negative event affects somebody’s health profile (that effect being physical or mental), he loses some QALYs. For example, if an injury means that for next 1 year the quality of life will be at the 80% level of full health followed by another year at the level of 90% and then a full recovery, this means that the first year will be 0.8 and the second 0.9 QALY, i.e. there will be a loss of 0.2 and 0.1 QALY in each year, or 0.3 (out of 2 years) totally. As each injury has some equivalent in QALY, and as crimes have some usual consequences, there is a possibility of attaching to every crime an average loss in health measured by QALY.⁶⁶ This allows one to compare the relative seriousness of crime (in terms of QALY), but it does not allow further use in cost-benefit analyses unless some monetary value of QALY has been assumed. How to obtain a monetary equivalent of QALY is not obvious – usually, willingness to pay to avoid certain injuries (whose consequences are measured in QALY) is used. The range of the possible value of QALY has been assessed to vary between 27,000 and 135,000 British pounds with a value of 81,000 being the most reliable (Dolan et al. 2005, p. 965).

When the value of QALY has been adopted, the evaluation of costs of crime to victims is straightforward. The physical and psychological consequences of victimization are measured by QALY and then transferred into monetary values.

Costs per crime and the total cost of crime in the U.K. were estimated as follows in the Table 3.5 above.

The total cost of crime is driven mostly by psychical and emotional impact (51% of total), followed by costs of criminal justice system (20%), and lost output (12%). Therefore, violent crimes are estimated to have a dominant position in the total cost

⁶⁶ Dolan et al. (2005) report following QALY for different kind of crimes: murder 17.79; serious wounding 0.191; other wounding 0.031; common assault 0.007; rape 0.561; sexual assault 0.160; robbery 0.028. (see p. 965).

of crime, with property crimes (burglary, theft and criminal damage) constituting only 26% of the total cost.

To assess the pain and suffering component, the Dubourg et al. (2005) study has used the QALY methodology, and QALY has been deemed to be superior to the willingness to pay method.⁶⁷ The advantage of QALY lies in the fact that it is somehow “objective”, while respondents in the willingness to pay surveys are sensitive to the wording of questions and other biases.⁶⁸ The QALY methodology reveals the true consequences of a given crime in terms of health losses and is independent from personal perspectives on possible outcomes of a crime. Though, there are some shortcuts in QALY methodology as well. The focus of QALY is on actual victimization, therefore only actually committed crimes are included. Yet, the fear of crime affects all people, not only those poor ones that have been victimized. This fear is not covered by QALY and has not been covered by Dubourg et al. (2005). The willingness-to-pay methodology, on the contrary, deals with the fear of crime as well.⁶⁹

Another pitfall is that QALY does not give any particular monetary value and has to rely on other methodologies. While crimes can be ranked using QALY measurement, there is nothing in QALY methodology itself that allows attaching some monetary value to QALY years. Dolan et al. (2005) employed the value from the willingness-to-pay study: in this study people were asked how much they would pay to avoid an injury which would otherwise occur with certainty (Dolan et al. 2005, p. 965). As the QALY loss for this injury could be calculated (it was 0.037), the value of one QALY was readily available, by dividing the mean (adjusted) of the willingness to pay to avoid this injury by its severity measured by QALY. This assumes that the QALY has a constant value, independent of the initial level. In other words, people put the same value on the loss from 1.0 (full health) to 0.95 (almost fit), as from 0.05 (very bad) to 0.00 (dead). This is a very strong assumption and has not been supported by any evidence.⁷⁰ Usually, one can expect a diminishing marginal utility (or disutility) of QALY, as is usually the case with normal goods. There also may be a case that people tend to ignore small losses in QALY (so they are almost indifferent between levels of 1.00 and 0.99 QALY), while they start appreciating a loss of some substantial amount (say, they see the difference between 1.00 and 0.90 QALY). It is hard to predict the impact of these effects, but as they tend to bias the estimates in different directions, the net effect is unknown. This potentially biases not only the estimates of the total cost, but also the relative order of crimes.

⁶⁷ Atkinson et al. (2005) use willingness to pay and report much higher estimates of costs. See Table 3.3.

⁶⁸ For discussion see Sect. 3.6.

⁶⁹ The fear of crime may have a substantial effect on personal well being. See Sect. 3.7 for discussion. To fulfill this gap Dolan and Peasgood (2007) assess the level of fear of crime in terms of QALY, i.e. in terms of health loss. Their research, however, has been based on so many assumptions regarding the health equivalent of the fear of crime, that the results do not seem very convincing. Anyway, they estimate that the fear of crime in the U.K. counts for one fifth of all intangible costs of crime (p. 129).

⁷⁰ It has not been discussed either. See Freeman (2003, pp. 341–346) for some discussion of QALY methodology.

Table 3.6 Cost of crime in Australia, 2003

Crime	Average cost (Australian dollars)	Total cost (millions of Australian dollars)
Homicide	1,600,000	930
Assault	1,800	1,440
Sexual assault	2,500	230
Robbery	3,600	600
Residential burglary	2,000	1,650
Non residential burglary	4,500	790
Theft of motor vehicle	6,000	880
Shoplifting	110	810
Theft from motor vehicles	550	530
Other theft and handling	360	640
Criminal damage	700	1,340
Crime costs	N/A	19,030
Cost in dealing with crime	N/A	12,750
Total cost	N/A	31,780

Source: Mayhew (2003), Tables 3 and 4 combined and shortened. “Crime costs” included costs of particular crime listed and some others. “Cost in dealing with crime” includes costs of criminal justice system, private security industry, household precautions, provisions for victims, and insurance administration costs.

The controversial point that has been discussed in Dolan et al. (2005) is that value of loss does not depend on the source of loss, i.e. the evaluation is not context sensitive (Dolan et al. 2005, p. 967). This is controversial, because crime is not a random event, but conveys important moral connotations, as shame, guilt, and condemnation. Therefore, people may differently evaluate the same injuries, if one is caused in a road accident while another is caused by crime. The QALY methodology comes from health economics, and deals mainly with outcomes of illness. Generally, it is believed that crime imposes higher trauma than the injury with the same physical consequences. QALY also measures emotional consequences, but then we need a separate set of QALY rates for criminal injuries, which will likely be higher due to context sensitivity. Dolan et al. (2005) used a general QALY so it might underestimate true losses due to crime.

Another study of the total cost of crime is a study by Mayhew (2003). It dealt with the cost of crime in Australia and basically followed the methodology of Brand and Price (2000). It will thus not be discussed here in any detail. Nevertheless, the estimates of the study are reported above (Table 3.6).

A similar study has been made in New Zealand.⁷¹ Because it heavily relied on British and Australian studies, it will not be discussed in details here. The results are basically in line with the results of those studies.

⁷¹ See Roper and Thompson (2006). The total cost of crime has been estimated at 6.5% of New Zealand’s GDP (p. 17).

3.9 Other Estimates

Another approach to cost of crime evaluation has been taken by Soares (2006). In this study, the welfare loss due to violent deaths was estimated for more than 70 countries. As Soares correctly noticed, previous papers had concentrated mainly on the U.S. and the UK, with few reports on other countries. Soares (2006) is the first study that takes an international perspective and allows for the comparison of the impact of crime among different economies. The study constructs a model of life-time utility, and theoretical marginal willingness to pay for reductions in mortality rates. Willingness to pay is theoretical because it is derived from the set of equations describing a life-time utility function and is not based on any survey or revealed-preferences approach. Since the utility in the model depends on consumption, only the income has to be known in order to calculate the marginal willingness to pay.⁷²

Then, this theoretical willingness to pay is compared with statistics of violent deaths. The potential reduction in death probability if violence were to be eliminated completely was estimated.⁷³ Then, the marginal willingness to pay for such a reduction was computed for an individual and aggregated for a given country.

The results show what the burden of violence is (in terms of deaths) for given countries. The impact substantially varies from a very low level of 2% of GDP for Spain to the incredible high burden of 281% for Columbia. In terms of regions, the lowest burden is imposed by crime in Western Europe (7% of GDP on average), followed by North America (15%), Former Communist Countries (20%), the Western Pacific region (46%) and Latin America and the Caribbean (57%). African and Eastern Mediterranean countries were excluded due to data limitations.

While the study is the first international comparison of costs of crime, it only partially deals with the full array of costs of crime. Firstly, only costs of deaths were calculated, whereas violent crime also causes other costs: many injuries are not fatal; there also exists a fear of becoming a victim. Therefore, this study heavily underestimates the true burden of crime.⁷⁴ Secondly, the model can be applied to measure willingness to pay for any reduction in mortality rates, not only that caused by violence. Therefore, as far as deaths caused by crime are perceived to be worse than those inflicted by other causes, the model underestimates willingness to pay. Thirdly, willingness to pay is constructed theoretically, as the maximum amount that a rational person having a utility function as modeled would like to pay for mortality reduction. There is no evidence that this is truly what people would like to pay.

⁷² There are more technical details: the discount rate has to be known, as do some other parameters of the model. The estimates of the model are reported to understate the value of life, when compared with the estimated value of life from other sources. Soares (2006, pp. 827–828).

⁷³ It does not assume that the complete reduction is feasible or even desired. It only calculates how much people would like to pay for it.

⁷⁴ As has been noticed earlier, costs of homicides constitute about half of all costs of crime.

3.10 Discussion

The preceding overview of different methods of cost of crime evaluation demonstrates the many difficulties of this exercise. It also demonstrates that a consent over the acceptable methods has not been reached yet. Analyses of cost of crime differ in many important dimensions. Table 3.7 offers a quick overview of these studies with respect to the most important features.

Some differences are particularly important and influence potential application of a given study in crime policy. These differences will be discussed in some detail below. Firstly, the difference between *ex ante* and *ex post* perspectives will be discussed. Depending on the perspective, costs associated with crime differ substantially. Secondly, the difference between marginal changes and estimates of total cost of crime will be analyzed. Then, there will be a short discussion of comprehensiveness of the studies and their level of detail.

3.10.1 *Ex Ante and Ex Post Perspectives*

Powdthavee's (2005) study reveals that the size of the hypothetical compensation required by actual victims of crime to be restored to their original level of happiness is enormous.⁷⁵ Being a victim of crime negatively affects the level of happiness. As happiness rises with income, additional monthly income required to restore the victim to the original level of happiness can capture the true loss due to crime. This income has been calculated to be about 82 higher than the actual level of current household expenditures.⁷⁶ This suggests a non-linear relationship between risk of victimization and perceived costs. This non-linearity means that while people are eager to take a reasonable level of risk, if compensated for that, the size of compensation rises much faster, for example exponentially, with risk. At the end of the spectrum, when risk becomes a certainty, a required compensation far exceeds what can be reasonably expected. This may also explain the long standing hostility toward

⁷⁵ Moore and Shepherd (2006) report qualitatively similar results for the UK, although of a lesser magnitude.

⁷⁶ This would translate in the U.S. into about \$300,000 of additional monthly income for a household whose member has been a victim of murder, rape or robbery, or if a household has been burglarized within the previous 12 months. This monthly income translates into a lump sum endowment of \$72 million if a real interest rate is 5%. It is several times more than the reported value of statistical life (and it is a compensation not only for homicide, but for less harmful crimes as well). The original data set concerns South Africa, so this calculation is for illustrative purposes only. Powdthavee's study does not allow one to assess the persistency of trauma for crime victims. The most serious psychological effect of victimization (not to mention physical consequences) is PTSD (Post Traumatic Stress Disorder), which is likely to develop among crime victims, particularly of violent crimes. While persistency of PTSD depends on individual characteristics, it is very often long lasting, up to 15 years or more. See Cook et al. (1999, p. 33).

Table 3.7 Overview of cost of crime methodologies

Methodology	Total/marginal change	Ex ante or ex post perspective	Crime specific	Based on individual preferences	Studies
Public expenditures	Total	Mixed	No	No	Smith (1901), National Commission on Law Observance and Enforcement (1931) and President's Commission on Law Enforcement and Administration of Justice (1967)
Property prices	Marginal	Ex ante	Rough	Yes	Thaler (1978), Gray and Joelson (1979), Rizzo (1979), Lynch et al. (2000) and Gibbons (2004)
Jury awards	Total	Mixed	Yes	No	Cohen (1988)
Contingent valuation	Marginal	Ex ante	Yes	Yes	Cook and Ludwig (2000), Cohen et al. (2004) and Atkinson et al. (2005)
QALY	Total	Ex post	Yes	Mixed	Dolan et al. (2005)
Shadow pricing	Marginal	Ex post	Rough	Yes	Powdthavee (2005) and Moore and Shepherd (2006)
Total cost of crime	Total	Mixed	Yes	Mixed	Anderson (1999), Brand and Price (2000), Mayhew (2003) and Dubourg et al. (2005)
Theoretical willingness to pay	Total	Ex ante	No	No	Soares (2006)

evaluation of the value of human life. Those who claim that human life and integrity are invaluable are right in the sense that the required compensation is enormous.

Table 3.8 below reports the costs of particular kinds of crime. The reported values are either costs of consequences of crime, or willingness to pay to avoid them, or required compensation, depending on the study involved. To provide comparability, all values are reported as a percentage of GDP per capita in a given year in a given country.

As can be easily seen from table, the willingness to pay estimates provide much higher numbers than those calculated on a basis of actual costs incurred by victims and society (mixed methods). This is understandable, given how many items are omitted at accounts of the total costs of crime, due to data limitations. These omissions, however, should not lead one to ignore the fact that people are willing to pay substantially more in order to avoid being a victim of crime. Willingness to pay reveals that those consequences of crime that have actually been monetized, for example in a way of healthcare expenditures, severely underestimate the true burden of crimes. The ratio between willingness to pay and actually monetized cost of crime is roughly of a magnitude of 1–4. This leads to the conclusion that had a particular policy been based on such estimates, it would not fully take people's preferences into account, and would be biased toward underestimation of the real burden of crime, and, consequently, underestimation of the people's demand for safety.

Another clear fact is that crimes against property are much less important than crimes that involve violence.⁷⁷ This is particularly true in the case of theft. Burglary, probably because of the inherent risk of violence when someone is home, is considered to be somewhere in between property and violent crimes. If we take the reported costs as a measure of a crime's seriousness, the ratio between theft and homicide is found to be 1–1,566 (Dubourg et al. 2005), 1–4,138 (Mayhew 2003) or even 1–11,488 (Miller et al. 1996). This is a very high ratio, compared with other rankings of seriousness. For example, Sellin and Wolfgang (1964, p. 289) report a ratio of 1–4 to 26 between theft and murder (depending on the value of stolen goods) in Philadelphia and Kwan et al. (2000, p. 241) report a ratio of 1–15 in Hong Kong.⁷⁸

The most striking number is the very high hypothetical compensation required to restore a person to the original level of well-being that she had enjoyed before a member of her household became a victim of murder or robbery or the household was burglarized or broken into.

It is hard to compare Powdthavee's (2005) results with other estimates of the costs because his study does not report the crime structure among respondents, apart from the fact that the number of murders is in the ratio of 1–10 to all other crimes. If we were to give such a weight to murder and to assign equal shares to other crimes in the Cohen et al.'s (2004) estimates, the set of crimes roughly similar to

⁷⁷ While homicide is unsurprisingly the top-rated crime, the second highest position of rape in almost all studies might come with some astonishment. For some evidence why rape is so highly feared, see Buss (2005, p. 120 ff).

⁷⁸ For more on that, see Sect. 4.2.1.

Table 3.8 Cost of certain crimes as a percentage of GDP per capita

Study	Miller et al. (1996)	Cohen et al. (2004)	Dubourg et al. (2005)	Atkinson et al. (2005)	Mayhew (2003)	Powdthavee (2005)
Methodology	Mixed	WTP	Mixed	WTP	Mixed	Compensatory income
Country	US	US	UK	UK	Australia	South Africa
Crime:						
Murder	11,488%	27,894%	7,831% (1)		4,138% (1)	
Rape and sexual assault	340%	682%	169% (2)		6% (2)	
Armed robbery	74%	667%	39% (3)		9% (3)	
Serious assault	94%	201%	47% (4)	176% (5)		
Residential burglary	5%	72%	18%		5%	
Theft	1%		5%		1% (6)	
Criminal damage			5%		2%	
Common assault			8%		5%	
Set of crimes:				26%		145,203% (7)
murder/burglary/robbery/housebreaking						

Notes: (1) Described as homicide; (2) Described as “sexual assaults”, including rape; (3) Including all robberies, not only armed ones; (4) Described as “wounding”; (5) Described as “serious wounding”; (6) excluding theft of and from vehicles; (7) Compensatory income required to restore an original level of happiness of a household whose member has become a victim of one of four crimes in the previous 12 months. Income has been recalculated from a monthly payment into lump sum compensation with the discount rate of 5%. GDP per capita in current prices taken from the database of the International Monetary Fund: <http://www.imf.org/external/pubs/ft/weo/2006/02/data/index.aspx>, last accessed 30 November 2006.

that of Powdthavee's would have a value of about 34, i.e. about 40 times lower. It seems then that the burden of actual victimization is much more severe than any willingness to pay to avoid such consequences. Not enough empirical research has been collected yet to provide a definite answer why it is so. The limitations of wealth may play some role, as well as competition among different needs. There is also a possibility of gambling with risk, i.e. the human tendency to disregard possible negative outcomes (see Kahneman and Tversky 1979, p. 286).

Notwithstanding the high costs of actual victimization, the willingness to pay for crime prevention programs is a more decisive criterion for crime policy because it measures present people's attitudes toward crime prevention expenditures. These preferences are not immutable, though. Scientific inquiry into many negative consequences of victimization shapes public perception of relative seriousness of crimes, and in turn changes willingness to pay for crime prevention.⁷⁹

3.10.2 Marginal and Total Cost of Crime

Another important distinction is that between marginal and total cost of crime. The marginal cost of crime tells us what the benefit of the marginal (incremental) reduction in crime is. The total cost of crime tells us what the total burden of crime on society is. Table 3.9 allows one to compare the total cost of crimes, as reported by different studies.

While information about the total cost of crime is important for assessing the relative weight of crime problem among many social ills, it is the marginal cost that may influence crime policy. It is true that the total burden of crime (which has been estimated to be high) is "useful in making a 'first cut' in setting public priorities and organizing a response" (Cook and Ludwig 2000, p. 47). But this is only because of a rule of thumb that if something is so costly, society can probably do something about it. In fact, whether the cost of crime is high or low does not matter for crime policy, unless we can do something to reduce crime (Cohen 2005, p. 5). And when we are talking about reducing crime, we are talking about marginal changes, not the total sum, except if we believe that crime can be erased totally. The estimations of the total cost of crime are then useless for shaping crime policy. Although one can compute an average cost of crime based on such calculations, this average cost will not necessarily be a marginal one. The standard economic approach suggests that there will be diminishing marginal utility of crime reduction, i.e. up to some point, the marginal reduction will be assessed to be higher than an average. The use of average cost of crime may therefore understate the actual willingness to pay for crime reduction.

⁷⁹ For example, Ashworth reports that public perception of rape has changed substantially because of scientific evidence pointing at disastrous effects of this crime on victims (Ashworth 1995, p. 92).

Table 3.9 Total cost of crime in different countries

Country	Year	Total cost of crime (local currency)	Cost of crime as % of GDP	Source
US	1900	USD 600 m	2.9%	Smith (1901)
US	1930	USD 1 bn	1.1%	Report on the Cost of Crime and Criminal Justice in the United States (1931)
US	1965	USD 107 bn	14.9%	President's Commission on Law Enforcement and Administration of Justice (1967)
US	1993	USD 451 bn	6.8%	Miller et al. (1996)
England and Wales	1999	GBP 59 bn	6.5%	Brand and Price (2000)
US	1999	USD 1,102 bn	11.9%	Anderson (1999)
Australia	2002	AUD 31.8 bn	4.2%	Mayhew (2003)
England and Wales	2003	GBP 36.2 bn	3.5%	Dubourg et al. (2005) [only for households and individuals]
New Zealand	2003	NZD 9.1 bn	6.5%	Roper and Thompson (2006)

Note: GDP in current prices taken from the database of the International Monetary Fund: <http://www.imf.org/external/pubs/ft/weo/2006/02/data/index.aspx>, last accessed 30 November 2006.

Nevertheless, calculations of the total cost of crime show that the burden of crime is enormous. Victimization studies confirm that a substantial part of society is victimized every year.⁸⁰ The society's fear of crime is then understandable.⁸¹

3.10.3 Lack of Categorization

In some studies of the cost of crime, only the total burden of crime was calculated (for example, Anderson 1999; Moore and Shepherd 2006; Soares 2006). While estimates of the total cost of crime provide some information, it is of very limited use. It may guide public policy in general, but it fails in details. It shows that crime is a problem (but nobody really denies that), but it does not help to assess any policy change.

⁸⁰ Kesteren et al. (2000) report that across countries, between 15 and 30% of population is victimized by at least one of 11 common crimes every year.

⁸¹ According to the Gallup International Millennium Survey "people all over the world are very concerned about the level of crime in society and the detrimental effect it has on their daily lives." The level of concern was described as "great deal" by 81% in Africa, 78% in Latin America, 61% in North America, 52% in Western Europe, 50% in South East Asia, and 49% in Eastern Europe (on average 57%.) People also tend to think that their governments do too little to deal with crime. See <http://www.gallup-international.com/ContentFiles/millennium10.asp>, last accessed October 11, 2006.

First of all, crimes are of very variable nature. It is somehow appealing for law enforcement agencies to focus on the aggregate number of crimes, but such a number tells nothing about the changes in the burden of crime, when the structure of crime changes.

A lack of categorization prevents one from conducting cost-benefit analyses of various crime prevention programs, as these programs are usually crime specific. If there is no measure of the relative weight of theft toward assault, comparing programs that aim at different crimes is impossible.

It does not help law enforcement agencies to prioritize their activities either. When the agencies report aggregate numbers, they may opportunistically focus on crimes that are the easiest to detect, even if those crimes are of minor importance, neglecting more important (more costly) crimes that require more efforts. Costs of crime estimates may be used to weight the outcome (i.e. the number of crimes cleared) of law enforcement agencies and thus provide non-biased estimates of their effectiveness.

3.10.4 Comprehensiveness

It is not an easy task to list all of the possible effects of crime. If one takes a yardstick of an ideal world of no crime in order to compare this hypothetical picture with the actual one, it is inevitably hard to imagine how this world would really look like. Direct effects of crime are obvious, but indirect effects are complicated. It is clear that there would be no police, but what those police officers would do instead is much less obvious. Complex dynamic processes would transform the behavior of people, and there is little we can predict.

Review of the total costs of crime literature reveals that there are some unavoidable obstacles in listing and calculating various parts of the total cost. This is mainly due to a lack of data, but it also exposes some arbitrariness in choosing the relevant items. Moreover, for some outcomes there is no other way for valuing them, but to directly ask people.

In some sense, it seems that some researchers have tried to reveal the “objective” costs. This is why so much attention has been paid to lost productivity, or the value of stolen property. But this approach is false from its premises. People value things in a subjective way, and there is no other way than to follow their evaluation. There might be some controversy over the proper methodology to be used to measure people’s evaluations, but there should be no controversy that we cannot derive any objective numbers, in the sense these values being independent of people’s preferences.

The revealed-preferences methods are, by now, far too rough to give enough details about the relative impact of different crimes, and we may doubt whether they reveal people’s evaluations in a complete manner. The stated-preferences method covers all possible outcomes that people are afraid of, and gives the most comprehensive picture we can now have.

3.10.5 Recommendation

There are several reasons why costs of crime estimates should be made. The first reason is to assess the relative importance of the problem of crime, as compared to other social problems. The second is to rank crimes according to their relative seriousness, what may help to prioritize crime policy. Allowing cost-benefit analysis in the field of criminal justice is the third, and probably the most important reason. The possibility of application of cost of crime estimates will be extensively discussed in the next section. Here, the advantages and disadvantages of varying methodologies shall be summarized.

The early attempts of calculating cost of crime focused on tangible effects: the value of stolen goods, destroyed property, lost productivity, public expenditures on law enforcement, and so on. Such an approach put aside all non-monetary, intangible effects of crime, and might be of only little relevance. For crime even intuitively is a cause of much more than mere property damage. Reducing the impact of crime to tangible damages omits all important features that make crime so undesirable, and the reluctance to use cost of crime estimates in such a form is understandable. A proper methodology of estimating cost of crime may not exclude psychological impact. This requirement makes all calculations of tangible consequences of crime of secondary importance.

Yet, the psychological impact of crime can be measured in many ways. Revealed preferences, QALY, contingent valuation are all methodologies that are capable of including psychological impact into the analysis. Of these, revealed preferences methodology is particularly interesting. It is based on real behavior of people in the market settings, so cannot be objected on the grounds it is speculative. Still, many problems make this methodology not so promising. Usually, data from real property markets are used for assessing the impact of crime. However, real property markets are heavily regulated in many countries,⁸² and prices do not necessarily reflect all factors. Moreover, isolating the impact of crime on property prices from all other factors is not an easy task, and distinguishing between the impact of different types of crimes is impossible. Thus, even if such studies may inform about the evaluation of costs of crime in a particular area, they are not capable of delivering a more detailed assessment of costs.

QALY seems to be particularly suitable for giving a detailed description of health consequences of crime, but suffers from the wrong perspective. Ex post perspective, i.e. looking at the consequences of actually committed crimes, may provide a lot of information, but has many drawbacks as well. It cannot measure fear of crime, because fear of crime has a prospective nature, i.e. it regards crimes that are only likely to happen, not the actual ones. What is even more important, it ignores the actual preferences of people. The description of actual harm done is instructive, and may shape people's preferences, but should not substitute them. In case of homicide, for example, no amount of compensation may make the victim whole ex post, and

⁸² The most common form of regulation is the existence of community housing. Community housing is subsidized, is usually short of demand, and influences prices on the rest of the market.

for other crimes, the required compensation would be tremendous (as a happiness study has shown). Yet, it does not follow that people are not ready to bear some risk of being a victim *ex ante*, even if *ex post* they will regret it.

The distinction between *ex ante* and *ex post* perspectives is a crucial one. It resembles the distinction between certain and probable outcomes. People are willing to risk even their own life when the risk is reasonably small. *Ex post* perspective is like looking at definite outcomes, when risk does not matter any more. To follow *ex post* valuations would ignore people's attitude to risk, and be paternalistic, in the sense it would impose a pattern of behavior that is contrary to what people feel, for their own sake. Also, it would be contrary to the principle of foreseeability that forms the basis of criminal responsibility, as will be shown in the next chapter.

Contingent valuation offers *ex ante* perspective, and may guide policy choices in a better way than *ex post* valuations. It also provides the marginal willingness to pay for crime reduction (which is relevant for crime policy), and allows ranking different crimes due to their perceived seriousness. Willingness to pay for marginal changes in crime rates is important for public policy. By a standard economic assumption, people spend as much on private protection as marginal benefits equal marginal costs of this protection. However, there is no reason to think that public choices accurately reflect people's willingness to pay in a coherent manner.⁸³

Contingent valuation studies are capable of answering all questions that cost of crime estimate aim to address, and it is recommended to use this methodology. In the subsequent part, when cost of crime methodology is not specified, it is assumed that contingent valuation is discussed.

⁸³ See Sect. 4.3 for a discussion of public policy. While there is evidence that sentencing patterns more or less conform to people's valuation of seriousness of crime (see Sect. 4.2), crime prevention and other policy strategies may deviate from people's preferences for institutional reasons.

Chapter 4

Implications for Criminal Policy

Estimates of cost of crime would have only marginal importance if they were inapplicable to criminal policy. Some reasons for conducting these estimates have been given above (see Sect. 2.4). In this chapter, the implications of the cost of crime concept will be discussed in more detail.

The chapter is divided into three parts that regard theories of punishment, practice of punishment, and practice of law enforcement, respectively.

Firstly, I will examine the potential relevance of costs of crime estimates for the theory of punishment. I will argue that such estimates should have a place under any acceptable theory of punishment. Secondly, I will discuss the application of these estimates to sentencing policy. I will also investigate whether the actual practice of punishment is coherent with costs of crime estimates. Lastly, I will discuss the potential use of costs of crime estimates in criminal policy.

4.1 Costs Estimates and Theories of Punishment

People feel that they need some theory of punishment. By definition, punishment constitutes pain and suffering, and we need some justification for why we impose such bad things on others who do not wish to receive it. Theories of punishment may be positive – explaining the practice of punishment as we know it, or normative – postulating what theory of punishment we ought to adopt. Quite contrary to the standard meaning of the word “theory”, theory of punishment is usually used in the second meaning, i.e. not as an explanation, but rather as “moral claims as to what justifies the practice of punishment” (Hart 1968, p. 72).

The tension between punishment as a means of achieving some other goals, and punishment as justice alone is reflected in two main theories (or families of theories) of punishment. One is a theory of retribution, and is now commonly assumed to be a dominant one in a public discourse of philosophy of punishment (Dolinko 1997, p. 507). This theory, speaking generally, states that criminals deserve punishment for wrongs they have done, and this reason is a necessary and sufficient condition for

the infliction of punishment. Any other consequences, although may be welcomed if positive, are only additional.¹

A rival theory is consequentialism, which itself can be based on deterrence, incapacitation, rehabilitation or restoration principles.² The justification of punishment offered by each of many consequentialist theories of punishment can be generally summarized as “it is right to punish criminals because doing so minimizes the net level of suffering”.³

Usually, the theory of punishment is meant as a theory of state punishment. This view, however, substantially narrows the scope of punishment.⁴ In fact, people use punishment in many social situations, and they do not rely only on state punishment.

Recently, some game theory experiments reveal that people are ready to punish others for their non-cooperating behavior, even if it does not bring any benefits to themselves (because they will not meet those persons again), and even if the process of punishment is costly.⁵ Therefore, people are willing to pay something just for justice to be done, and apparently their own interests are not of primary importance. However, in the long run, people in those social settings that allow imposition of punishment on non-cooperative members may be better off, so people will prefer (and migrate to) a punitive to non-punitive rules of game (for evidence see Gürerk et al. 2006). This explains why private punishment is used in many circumstances – in fact, sometimes, private punishment expels the rules of punishment prescribed in criminal law.⁶ For any theory of punishment, it is necessary to explain and guide also the practice of private punishment.

Before we proceed to discuss the place of the costs of crime estimates in those different theories of punishment, the more general question of the relation between harm and culpability should be reviewed. If a theory of punishment is to be grounded in the concept of costs of crime, which are equivalent to harm, the importance of the amount of harm done for sentencing should be inquired into.

¹ Sometimes, however, it seems that desert has to be supplemented by other conditions. For example, “punishment [ought] not [to] violate any non-forfeited rights of an offender” (Moore 1997, p. 173) or that the punishment scale should be as low as possible, having in mind a necessity of the social order (Von Hirsch and Ashworth 2005, p. 142). To this extent, desert is not a “sufficient” condition any more, although Moore argues otherwise (Von Hirsch and Ashworth 2005, p. 142). Honderich (2006, p. 74) argues that retributivism is justified by providing grievance satisfaction. In that sense, it is consequentialist as well.

² Some propose another division and claim that rehabilitation is not just a means to attain crime reduction by changing the offenders, rather it is an intrinsic good to educate those people, and if they do not want to do that voluntarily, it is just to force them. See Moore (2007, p. 1553).

³ See Dolinko (1997, p. 507). Dolinko uses this description for a deterrence theory, but it applies to other consequentialist theories as well.

⁴ For a detailed discussion of the reduced notion of punishment and why we should enhance our perception on other forms of punishment as well, see Zaibert (2006).

⁵ See for example Fehr and Gächter (2000) and Kahneman et al. (1986) for evidence of the significance of the retributive principle.

⁶ See Ellickson (1991) for a description how ranchers in Shasta County solve their conflicts.

4.1.1 *Harm and Culpability*

Seriousness of a given conduct is determined by two factors: harm and culpability. While in ancient societies, criminal liability was close to objective (strict) liability for harm done, this is not longer true.⁷ Criminal liability, although usually imposed for completed acts that have actually caused harm, covers also attempted crimes (in which case, harm is non-existent or substantially lower)⁸ and negligent acts (in which case, either actual harm is null or very low because risk has not realized, or equals harm done intentionally).⁹

This may be puzzling in terms of the costs of crime. This is so because costs of crime estimates focus on harm done. These estimates try to assess the actual harm done by some behavior, regardless of the culpability of an offender. This may suggest that the individual culpability of an offender is irrelevant for criminal law, when one is to adopt a cost of crime perspective, or that attempted crimes should not be punished at all, or punished much more leniently. Because in all jurisdictions this is not the case, one would then have to reject a cost of crime perspective altogether. But such a conclusion would be unjustified, for the focus on actual harm does not preclude criminal liability for attempts, or for negligent acts.

The amount of harm casually connected with some activity is a prime reason to regulate this activity, and – in some cases – to prohibit such activity by means of criminal law. Suppose that some activity is dangerous for others, for example driving a car, and the law sets an appropriate level of care.¹⁰ One's failure to observe this level of care results in criminal prosecution and the punishment for a negligent crime. Suppose there is a speed limit on a road. In a million but one cases, drivers drive faster and nothing happens, but one driver has had bad luck and hits and kills a pedestrian. The amount of harm – death – seems to be similar to the harm caused by murder, but in all legal systems, this crime will be called negligent homicide and punished less severely. The question why negligent homicide is not punished as severely as murder is explained by the level of culpability. Culpability – in turns – is connected with the probability that some particular action will bring undesirable consequences. If a particular action is always or almost always a cause of undesirable consequences, these consequences will be assumed to be wanted as if

⁷ See, for example, Renger (1977, p. 66). However, there existed some ways to escape punishment for negligently committed crimes (for example, asylum for those who commit involuntary manslaughter). See Parisi and Dari-Mattiacci (2004, pp. 491–492). But see Avinor (2004), who argues that the conventional theory of the continuous movement from objective to subjective liability in criminal law across time is unfounded.

⁸ Imagine that someone tries to kill another person but a bullet misses. If a prospective victim has not realized the danger, there is no harm. If she has noticed an attempt, there is some harm done, but obviously much lower than would have been had the attempt been successful.

⁹ Suppose that a driver recklessly drives his car. If no one has met him along the way, there is no harm ex post, although there was a risk ex ante. If someone has driven from the opposite direction, and fortunately avoided collision, the actual harm is low. If, however, the risk is realized, the harm, say a lethal consequence of the collision, is high.

¹⁰ The question why any given level of care should be chosen is itself complex, but will not be discussed here.

intended, under the doctrine of *dolus eventualis* (knowledge). If a given conduct is unlikely to bring some consequences, when they have actually occurred, they will be treated as negligently caused.

Having said so, another question is more important. Why harm is relevant then at all? If there is only a risk of bringing some consequences, and if that risk is realized without the control of an actor, why should he be punished more when the harm occurs. He cannot be blamed for that (as long as we can blame people for their choices only). Following this reasoning, one has to punish equally those drivers who have exceeded the speed limit and have not caused any accident and those who have had bad luck and caused an accident. This is arguably not the solution chosen by any legal system. The standard punishment for engendering a risk is rather low (in our example, a fine), much higher in the case when harm is actually done (in our case, probably a short term period of imprisonment), but still considerably lower than for intentional homicide (which is punished by death or long term imprisonment.)

The answer can be that in many cases, we can neither observe the level of activity nor the level of care. Suppose there is a physician who can be careful (and all his patients survive), or careless (in which case, some of his patients die). We do not know how many times he is careless with his treatment and we cannot punish him for that conduct. However, we can be sure that he was careless after investigating the case of the patient's death. In such a case, a punishment for the result is also a punishment for all other cases of negligence that have passed unnoticed.

In many cases, however, the level of activity is controlled. For example, the police control the traffic and punish those who speed. What is then the reason for the increased punishment for a specific result (the pedestrian's death)? The reason is that we cannot easily check the level of care actually exercised by the driver. If there is connection between the level of his carelessness and the amount of harm done, the harm done in turn can be used as a proxy for his carelessness, i.e. his blameworthiness.¹¹

A similar divergence between blameworthiness and harm can be noticed in the case of attempts. While for many philosophers of law attempts should be punished as much as completed acts,¹² for luck cannot decrease the individual's culpability, both common and continental law criminal codes treat attempts more leniently. In the latter case, even if attempts are in principle punishable as much as completed acts, a more lenient treatment is allowed, or suggested.¹³ This is the case in the

¹¹ The fact that punishment depends to some extent on the outcome, has struck many for its absurdity. However, "It gratifies a natural public feeling to choose out for punishment the one who actually has caused great harm", Stephen as quoted by Hart (1968, p. 135). If a causal relationship exists between the level of care and the amount of harm, this "natural public feeling" is just a kind of moral heuristics.

¹² See most notably, Hart (1968, pp. 127–135). This view is shared by many other scholars in what Moore (1997, p. 193 ff) calls "standard educated view denying wrongdoing any independent moral significance". Moore himself argues otherwise, recognizing he is in the minority.

¹³ In principle this means that this is a general rule written in a code. Case law may differ, in a sense that it may punish attempts less severely, which is likely to be the case.

German,¹⁴ French,¹⁵ Swedish,¹⁶ and Polish Criminal Codes.¹⁷ This view has been also followed by the American Model Penal Code.¹⁸ This view is shared by common law systems, which traditionally consider attempts as deserving less punishment than completed acts.

This can be explained by analogy to negligent acts, when harm is a proxy for the level of care. In the case of attempts, harm actually done is a proxy for the intensity of the intent, assuming that it is gradable (see Ashworth 1988, p. 738 ff). Therefore, in some cases, the fact that the attempt was unsuccessful is due to the fact that the intent to commit that crime was not high enough, so the offender at some point of action has chosen to stop it. This is the point of many statutes which mitigate, or exempt from, punishment if the offender voluntarily aborts the course of his action.¹⁹ In some cases, however, the attempt was completed, and the lack of the result was entirely due to reasons out of the offender's control. (Suppose the victim was shot in the head, but survived due to swift emergency care.) In such circumstances, there is quite a broad consensus that the completed attempts and completed crimes ought to be punished equally (see for example Hart 1968, p. 130 and Ashworth 1988, pp. 743–744).

How can it be justified in terms of the cost of crime, when the amounts of harm differ substantially among these two cases? It can be understood in terms of imposing a risk. One imposes a considerable risk of death by shooting someone in head, and this risk constitutes the basis for punishment. This punishment depends on the amount of harm associated with a given conduct, and on the probability that such a conduct will bring a particular outcome. It is then irrelevant in a particular case whether the harm actually occurred.²⁰

Summing up this short discussion, it seems that costs of crime estimates do not necessarily lead to strict liability for the results of conduct. When one chooses a

¹⁴ Section 23 (2) of the German Criminal Code provides that “an attempt may be punished more leniently than the completed act.”

¹⁵ Art. 121–4 of the French Penal Code treats attempts on an equal footing with completed acts. However, many provisions provide for an exemption from penalty if the criminal alerted authorities and prevented the crime from being completed (art. 132–78).

¹⁶ Chapter 23 section 1 of the Swedish Penal Code states that “punishment for attempts shall be at most what is applicable to a completed crime”.

¹⁷ Article 14 par. 1 of the Polish Criminal Code states that the penalty for attempts is within limits for a completed crime, but other provisions enact many exceptions.

¹⁸ See par. 5.05(1) of the Model Penal Code, which provides that attempts at committing first degree felonies are punished as second degree felonies, and all other attempts are punishable as much as completed acts. See Avineri (2004, p. 447 ff).

¹⁹ The German Criminal Code provides that “Whoever voluntarily renounces further execution of the act or prevents its completion shall not be punished for an attempt” (section 24). The same proviso exists in the Swedish Criminal Code (Chapter 23 sec. 3), French Criminal Code (art. 132–78), and Polish Criminal Code (art. 15 par. 1).

²⁰ See Ten (1987, p. 115), and Hart (1968, p. 264) for somewhat analogous arguments about defining crimes in terms of a particular pattern of behavior which is likely to produce harmful consequences.

perspective of the unjustified imposition of risk, the amount of harm and probability of its occurrence jointly determine the appropriate reaction of the law.

4.1.2 Retributivism

Retribution is probably the oldest and the most basic justification for punishment (Miethe and Lu 2005, p. 15). It was a principle of retribution that was behind *lex talionis*, i.e. the law of retaliation; it can be found in the Old Testament,²¹ in the Code of Hammurabi²² and other laws of ancient societies. While the principle of retribution seems similar to one that is used now, the criminal justice system under ancient law was completely different than a contemporary one. For example, crime was considered as a private wrong, not a public one, so there was a private accusation system with strong safeguards against false accusations. Monetary punishments were collected by victims, not by the state. There was no prison as a form of punishment, although prison could be used to secure a payment of damages (see Renger 1977, p. 73). And, the principle of collective liability within a kin also existed (see Posner 1980, p. 44). Focusing on retribution does not mean that ancient societies neglected deterrence. Quite the contrary, for example in old Babylonian law, the bodies of executed criminals were publicly exposed, and mutilation would play an important role as a general deterrent as well as an individual one (see Renger 1977, p. 77).

The retribution principle had played a leading role until the nineteenth Century, when consequentialist justifications were put forward. In the 1950s and 1960s the retributive theory of punishment appeared was near death (Hampton 1992, p. 659) but reports of its death were greatly exaggerated. In fact, particularly since the decline of the rehabilitative ideal in the late 1970s, retributivism has regained its primary role as justification for punishment, at least in the U.S.

The basic justification of punishment – for retributivists – is that wrongdoing deserves to be punished. This is not only a justification – an entitlement to punish – but also a duty. Not only it is just to punish criminals, but it is unjust not to punish them. Thus, there is a moral obligation to punish criminals because they deserve it, and any other justifications, particularly those of possible consequences of that action, cannot be taken into account.²³ This absolute obligation was famously formulated by Immanuel Kant who wrote: “Even if a civil society were to dissolve itself by common agreement of all his members . . . the last murderer remaining in prison must first be executed, so that everyone will duly receive what his actions

²¹ “An eye for an eye, a tooth for a tooth”, Exodus 21:23–27.

²² See Renger (1977, p. 70). It is worth noting that although some crimes were punishable by death (homicide, involuntary manslaughter, but also burglary, adultery, some kinds of theft, fraud, and false accusation), bodily injury warranted only monetary compensation (however, if a victim was from the upper class, the bodily punishment applied).

²³ Moore (1997, p. 28), stresses the mutual excludability of retributive and other goals of criminal law. But see Honderich (2006, p. 78) who argues that retributivism looks at consequences of the system of punishment as well.

are worth".²⁴ While there is some discussion whether Kant himself had a consistent theory of punishment,²⁵ or indeed whether it was purely retributive,²⁶ contemporary retributivism claims that there is a moral obligation to punish criminals for their wrongdoing.

After justifying punishment as such, the question arises, what amount of punishment ought to be inflicted. Generally speaking, retributivism requires proportionality between the offence and punishment. Punishment should be equivalent to the harm done by an offence and the culpability of an offender.²⁷

Still, surprisingly little has been said about the connection between the gravity of offenses and the required punishment. While there is discussion on deserved punishment for attempted vs. completed crimes, or on the severity of punishment for offenses committed with different mens rea (intentionally, recklessly, negligently), not much has been written about how to set a punishment scale, even within one class of offenses, for example intentional completed crimes.

According to Hugo Bedau "(1) the severity of the punishment must be proportional to the gravity of the offense, and (2) the gravity of the offense must be a function of fault in the offender and harm caused to the victim" (Bedau 1985, p. 102).

This statement calls for three separate steps. The first is to specify the gravity of different offenses. The second is to assess the severity of punishments. The third is a method of matching the former with the latter.

For any theory of punishment that aspires to have practical importance these steps are crucial. There is little debate about punishment in general, and the justification for the practice of punishment, even if so vigorously sought for within Academia, does not bother law makers.²⁸ Even the postulate that offenders should be punished because they deserve it is quite uncontroversial, for non-retributivists also tend to agree with this statement,²⁹ although they seek further reasons for the justification of people's vengeance.³⁰

²⁴ I. Kant, *The Metaphysical Elements of Justice* *331, as quoted in Murphy (1987, p. 518). Some authors point out that justification of that statement is purely on consequentialist grounds: to prevent blood guilt to rest on members of the society. See Zaibert (2006, p. 103).

²⁵ Murphy (1987) argues that Kant held contradictory views on punishment, and even did not develop any coherent theory of punishment.

²⁶ Byrd (1989) argues that Kant was a consequentialist as to the setting up of a crime policy, and retributivist in its application. Therefore, deterrence plays its role in law making, but sentencing should be retributive. This interpretation makes him very close to Hart's and Rawls's standpoints. See Avio (1993, p. 265).

²⁷ This is the Kantian postulate. See Byrd (1989).

²⁸ The abolition movement has been, is, and predictably will be, quite weak.

²⁹ Some even think that the very word "punishment" means that it is deserved pain. For when inflicted pain is not deserved it is not a punishment at all. Retributivism is then a purely logical doctrine about the use of the word "punishment". See Quinton (1954, p. 134). This view, of course, is not welcomed by retributivists, see Zaibert (2006, p. 129 ff). See also Darley et al. (2000) for evidence that people are willing to punish for retributive motives. Only in the case of insane offenders are people likely to incapacitate them in order to prevent further crimes.

³⁰ For the relationship between retributivism and emotions, see Moore (1997, p. 127 ff).

The important question for law makers and the question that should be addressed by any theory of punishment is, then, what amount of punishment is deserved. Notwithstanding the words of one of the most prominent retributivists who said that “[retributivists] are not committed to any particular penalty scheme nor to any particular penalty as being deserved,”³¹ there is an evident gap in theory as regards the amount of punishment deserved and only few attempts have been already made to fill this gap. They shall be discussed below.

4.1.2.1 Von Hirsch’s Scale of Punishment

Probably the most developed theory of the punishment scale is that of von Hirsch. His position may be summarized as follows: crimes should be ranked according to their seriousness. Analogously, punishments should be ranked according to their severity. Then, as the proportionality principle calls for, a more severe crime meets a harsher punishment (Von Hirsch 1992, pp. 76–77). Let’s suppose that there are three crimes, A, B, and C, where A is the most serious, and C the least, and three punishments, say X, Y, and Z, where X is the harshest, and Z the least. Therefore, our ranking of crimes and punishments would be [A, X], [B, Y], and [C, Z]. In other words, someone committing more serious crime deserves more severe punishment, and any deviation from this order would violate the proportionality principle.³² However, it is clearly obvious that there are many possible solutions to the above constraint on the punishment scale. The above matching rule is met when X, Y, Z relate to 1, 2, and 3 months of prison, as it is if they concerned 1, 2, and 3 years. The ranking of parallel crimes and punishments thus needs to be anchored somewhere. While a particular starting point is a matter of convention, “not all conventions are equally acceptable” (Von Hirsch 1992, p. 77). For an extreme high starting point would lead to the deprivation of the most basic liberties of the offender even for petty offenses, and a very low starting point would lead to a punishment that does not convey enough disapproval for the most serious of crimes. Nevertheless, there is a broad range of discretion, and so “there are no uniquely deserved punishments” (Von Hirsch 1992, p. 78). Yet, when anchoring points are chosen there is no discretion at all, for the order of crimes and punishments has been established and there is only one way to match one with another (this is not precisely true as we will see below).

The fact that the punishment scale can slide down or up is somehow troublesome. Von Hirsch proposes to move the scale downward until the point is reached when further reduction would lead to an eruption of crime (von Hirsch 1993, pp. 40–46). This is surely a consequentialist reasoning and one can wonder how much of the

³¹ Moore (1997, p. 88). Moore’s treatise (or rather a collection of essays) *Placing Blame* is itself an excellent example of the theory of criminal law that does not tell anything about how much to punish as if it were irrelevant.

³² The idea of such a scheme is of course much older, and is in fact utilitarian. See Bentham (1982 [1789], chaps. xiii–xv), and Rawls (1955, n. 14).

proportionality principle is saved. When people are punished so lightly, do they get what they deserve?³³

The early attempts of retributivists to give an answer to the question of the punishment scale have been criticized. For example, Van den Haag (1987) reviewing Hirsch (1985) noticed that “just deserts theory offers no rational criterion of comparative seriousness [of crimes]”, and “[it] fails even more fundamentally to tell us what is deserved for any crime” (Van den Haag 1987, p. 1254).

Apparently, this criticism had some merit and von Hirsch has tried to develop his punishment scale more fully.

The first step is to assess the relative seriousness of a crime, which had “scarcely been touched” in jurisprudence as von Hirsch noted (Von Hirsch and Jareborg 1991, p. 2). This can be explained by some general reluctance to the concept of comparability of different harms, and to valuation of some invaluable goods, like life, health, liberty and so on. For example, in a monumental work “Harm to Others”, Joel Feinberg quickly dismissed the basic point of the magnitude of harms by saying that “it is impossible to prepare a detailed ‘manual’ with the exact ‘weights’ of all human interests” and “it is legislator himself, using his own fallible judgment rather than spurious formulas and ‘measurements,’ who must compare conflicting interests, and judge which are the more important” (Feinberg 1984, p. 202). Leaving such a leeway for legislators would nonetheless be a serious omission in any theory that aims at guiding legislators, such as the theory of punishment. Von Hirsch then does not allow legislators to freely assess the relative seriousness of offenses, but “[is] offering a theory on how harms *should* be rated” (Von Hirsch and Jareborg 1991, p. 5 (emphasis in original)). Interestingly enough, he dismisses the importance of the seriousness of crime surveys,³⁴ for two reasons: the first reason is possible misjudgment of people; the second is that those rankings do not explicitly tell us what factors should be counted in. In return, von Hirsch and Jareborg offer a more objective scale, based on Sen’s living standard criterion (see Sen 1987).

The standard of living, in Sen’s view, covers not only affluence, but also some other goods, like life expectancy, low mortality, good schooling and alike. The important feature of the living standard concept is its objectivity. Sen gives an example of an obscenely rich person who is deeply unhappy for no one wants to read his poetry. While subjectively unhappy, his standard of living is high. It would be then perverse to count his unhappiness in any aggregate function of social happiness,

³³ See Adams (1996, p. 414). In fact, von Hirsch proposal recognized some difficulty with that position (see Von Hirsch 1992, p. 84). Recently, he justifies this position in three ways: firstly, too much punishment that is necessary (but necessary for what?) would violate another important principle which is “sparing use of coercive state interventions” and that is undesirable because of the increased suffering and loss of freedom of choice of criminals; secondly, it “would be inconsistent with the moral functions of penal censure” for such a system would not appeal to the moral reasoning of criminals, but rather would be purely threatening (Von Hirsch and Ashworth 2005, pp. 142–143). Does not it seem now that we have a mixed theory of punishment, a kind of reverse utilitarianism that cares about the welfare of criminals and ignores others? In such a view, desert becomes a necessary, but not a sufficient, condition for punishment. For another understanding of “sufficient condition” see Moore (1997, p. 173).

³⁴ For the first of this kind, see Sellin and Wolfgang (1964).

when other people would have been perfectly happy had they been given a chance to take his position. It is true that Sen's proposal offers less precision than that provided by, for example, measurement of GDP. Nonetheless, as Sen noticed, why should we not prefer to be vaguely right than to be precisely wrong? Leaving aside any potential applications of the living standard criterion in economics, there is a question of its usefulness in assessing harm connected with the criminal offense.

Von Hirsch quite arbitrarily divides the living standard continuum into four levels in descending order of importance: subsistence (survival), minimal well-being (minimum level of comfort and dignity), adequate well-being (adequate level of comfort and dignity), and enhanced well-being (significant enhancement in quality of life compared to the adequate level). Crimes then can be ranked according to the level of the living standard they affect. Thus, mayhem affects level one, so it is a more serious crime than a theft, which usually affects only level four. There will be variability within levels too (Von Hirsch and Jareborg 1991, p. 17).

Assessing the amount of harm is only the first step in describing the level of deserved punishment, the second being scaling punishments and the third being a function of matching one with another. These further step, however, will not be discussed here, for they are not related to the cost of crime.

The first step, however, is strictly connected with costs of crime estimates, and therefore a potential application of these estimates will be discussed in detail below.

4.1.2.2 Living Standard Criterion and Costs of Crime Estimates

Von Hirsch and Jareborg do not mention costs of crime estimates as a possible source of eliciting the amount of harm done by crime. This is odd, because their aim is exactly the same, i.e. to measure harm. Nevertheless, they criticize the sociological studies of the seriousness of crime and, instead, they try to assess the amount of harm based on Sen's criterion of the living standard.

Therefore, it is necessary to compare cost of crime methodologies with the methodology of the living standard criterion as applied by von Hirsch and Jareborg. Having discussed many different methodologies of costs of crime estimates, it would be needless to review all of them here. Thus, the main features of the living standard criterion shall be discussed and compared with the most promising methodology of costs of crime, i.e. contingent valuation.

The first feature of the standard living criterion is that it is detached from the personal subjective view. It is objective in the sense that a person has or has not a high standard of living, regardless of this person's subjective view on that matter. In the context of crime, such an approach calls for the objective valuation of consequences, regardless of the victim's attitudes. Accordingly, von Hirsch and Jareborg postulate to measure the impact of crime by replacement costs in these cases when lost items can be easily replaced (Von Hirsch and Jareborg 1991, p. 22). However, as was discussed earlier, such a market-based approach is very limited in its application, because many consequences of crime have no explicit market. Thus, in all other cases what will be assessed is the impact of different dimensions of interests.

These interests – in view of von Hirsch and Jareborg – consist of physical integrity, material support and amenity, freedom from humiliation, and privacy and autonomy, although the list is rather illustrative than exhaustive. The set of interests, given by the authors, is not backed by any deeper theory,³⁵ and so the second important feature of their theory is its arbitrariness.³⁶ Any given offense will affect some or all of these interests and influence the living standard level. Then, in an attempt to rank crimes, a handful of examples are given and their possible outcomes are discussed, and so crimes are classified.

The two features of this approach – objectivity and arbitrariness – seem to be contradictory. From one side, the standard living criterion was called for so as to avoid subjective judgment, but from the other side, in return we get an arbitrary list of factors that should influence the seriousness of crime. In fact, by devising the list of factors (standard of living levels and interests), we do rank crimes. If we are to say that homicide is the worst crime, because it affects the level one of the standard of living (subsistence), we say that because we suppose level one to be the most important, homicide is the worst crime. This kind of reasoning does not lead us very far. In fact, now we have to consider a legitimacy of the ranking of the standard of living levels, and the impact of crime on different interests. And when we say that the hierarchy of these levels and interests is obvious, we refer to the hypothetical social consensus on that (so no one would reasonably oppose it). Why should we not ask people directly about that, though? This would lead us back to surveys about the relative seriousness of crimes. What then is the original reason for rejecting the subjective view of public surveys? It seems that von Hirsch's hostility is driven by the fear that the public has both reasonable and unreasonable attitudes toward crime.³⁷ Ill-founded fears should be disregarded, and so we should not rely on a public survey, as they convey all feelings along. But the list von Hirsch and Jareborg propose is not universal across cultures. In fact, they perceive it as an advantage. "In a culture where privacy is less valued, the conduct [burglary] could have less significance" (Von Hirsch and Jareborg 1991, p. 6). But what does it mean that "privacy is less valued" if not that people in that culture value it (relatively) less? There is then nothing objective, apart from the notion that in some society people value privacy less or more, being it objectively justified or not. This argument, by

³⁵ Von Hirsch and Jareborg (1991, p. 19). In fact, Sen's approach itself can be criticized on the grounds that there is always someone who imposes his own views of what is important and should count on others. If his views are coincident with the views of others his position is irrelevant, but when his views differ from the views of the general public, he is a tyrant. For the discussion of the list of living standard factors, see Robeyns (2005).

³⁶ It may be argued that this theory is not arbitrary in the sense that it appeals to our common moral intuitions. But this claim is an empirical one. Do we need any theory to simply say that murder is worse than burglary or than theft? Such a theory risks being too banal to be useful. What we do need, and what seriousness of crime surveys try to reveal, is our moral assessment about the relative magnitude of the seriousness of different crimes (see the discussion of this surveys in Sect. 4.2.1). Davis claims that such surveys do not give meaningful results, but that claim has been ill-founded (see Sect. 4.1.2.3).

³⁷ See the distinction between reasonable and unreasonable fears of victimization. Von Hirsch and Jareborg (1991, p. 23).

the way, goes quite in the opposite way that Sen argues for with his living standard criterion, when he stresses the importance of objective circumstances.

But more importantly, even if we agree that it is possible to properly guess the right ordering of different interests and levels of living standards, according to the public perception in a given time and place, the question of the exact influence of a particular crime on these levels and interests remains. What von Hirsch and Jareborg propose is an ordinal scale where some crimes are considered more serious than others, for example homicide is worse than assault and than burglary, but the scale itself does not tell how much more serious. This in turn has an impact on the assignment of punishments. Suppose that we choose anchor points (according to von Hirsch's methodology, see above), with the maximum penalty of 20 years of imprisonment, and the minimum punishment of 1 month in jail. In our example, we have only three crimes, so homicide will be punished by 20 years of imprisonment, and burglary by 1 month. But what theory tells us about assault? Assault is more serious than burglary, so deserves more severe punishment, and is less serious than homicide, so deserves less punishment than provided for that crime. But how much more, how much less? Should it be 2 months, or 19 years? The lack of an answer is due to the fact that von Hirsch uses only an ordinal scale, where the intervals between items being ordered do not matter. Such a scale cannot tell anything about the relative weight of crimes, apart from the fact that one is more serious than another.³⁸

In contrast, both contingent valuation methods and public perception of seriousness surveys do provide categorical rankings. Not only do they tell which crimes are more serious than others, but also how much more serious one is compared with another. Therefore, any ranking of this kind would answer the question of how much the punishment for assault is close to the punishment for homicide.

Summing up, von Hirsch's attempt to develop a methodology of ranking crimes according to their seriousness is an important step in filling the gap in the retributive theory. Any theory of punishment should not only answer the question of why punishment is justified, but also the question of how much of that punishment ought to be imposed in particular cases. However, von Hirsch does not exactly answer this question. The attempt to make any objective ranking of seriousness (which is why he based his ranking on the living standard criterion of Sen's) was self contradictory when he introduced the notion of intercultural differences. As was discussed earlier, any attempt to measure the cost of crime in a way that is detached from people's preferences has to fail, and so has failed the attempt of von Hirsch.

But it seems that the basic line of reasoning can survive. In any theory of punishment we do need some reference to the seriousness of crime, and this seriousness has to be measured somehow. Conceptually, there is no difference between public perception of seriousness surveys and costs of crime estimates based on contingent valuation. Both methods reflect public attitudes toward crime. When aggregated, they also give some kind of objective valuation – objective in the sense that it is

³⁸ Recently, von Hirsch has recognized the importance of cardinality. He calls it "spacing" and sees it as one of three sub-requirements of proportionality. Still, he admits that his criteria for gauging harm will be unlikely to give precise estimates of relative seriousness. See Von Hirsch and Ashworth (2005, p. 140).

inter-subjective. What probably makes von Hirsch worry about the subjectivity of seriousness ranking is that subjectivity contradicts the ability of an offender to foresee the consequences of his acts, which of course affects his culpability. Let us suppose that someone values his privacy so much that even a slight violation of this sphere would be considered by him to be much worse than any physical attack. Therefore, he would assess burglary to be more serious than assault, contrary to the ranking given above. If public perception is generally different (i.e. that assault is more serious than burglary), an offender could not have foreseen that in this particular case it is not true, being rather convinced that burglary is a lesser crime than assault.³⁹ Should he be then responsible for the particular severe consequences of his crime in this case? Aggregation of public perception of seriousness allows easy communication to all potential offenders that in society's view the harm of any given crime is at given level. Thus, the offender cannot legitimately say that he could not have foreseen how much harm he would do when, say, robbing his victim. Therefore, a purely subjective approach would, in many cases, violate the principle of foreseeability. The standardization allows one to assume that an offender can know the amount of harm his offense is going to make, because it is a typical harm associated – in a given culture – with the offense. This should counter the implicit distrust with the subjective approach that can be found in von Hirsch's work.

4.1.2.3 Fair Play Theory

Retributivism has many faces, and one of them is so-called fair play theory. This theory generally states that punishment is deserved because an offender violates rules of the society and by this act takes some unfair advantage. Then, the legitimate punishment should be in proportion to the unfair advantage taken by the act.⁴⁰

This approach shifts the relevance point from harm to unfair advantage. While von Hirsch's approach tries to relate seriousness of crime to punishment, Michael Davis sees it as inappropriate. He criticizes the surveys of the seriousness of crime on the ground that they give unreasonable effects. For example, quoting a study of public perception of the seriousness of crime by Rossi et al. (1974), Davis asks "What legal system we know of would, for example, treat assassinating a public official as substantially *less serious* than assaulting a police officer with a gun?"⁴¹ This and other incoherencies in this study lead Davis to reject the argument that punishments provided for in criminal codes are based on harm done by crime. It seems, however, that his criticism toward seriousness of crime surveys is ill-founded.

³⁹ Is it then possible for any person within a community to set up his own punishment tariff? May I announce what the punishment would be if someone beat me up, or robbed, or stole from me? And if not, why not? Obviously, there would be some informational obstacles, for how could an offender know what my tariff looks like. But this can be overcome in many cases.

⁴⁰ This approach has been stated by Morris (1968) and followed by some others, e.g. Finnis (1980), ? or Davis (1992). It is not so clear whether this version of retributivism is really retributive, for it claims that punishment is justified as a means of maintaining a fair distribution of benefits and burdens. See Zaibert (2006, p. 117 ff).

⁴¹ Davis (1992, p. 64). Emphasis in original.

The study of Rossi et al. (1974) gives a ranking of 140 different crimes, ordered according to the mean seriousness given by respondents. However, the variances around the means are substantial, making crimes which are close to each other pretty undistinguishable. In the case reported by Davis, the mean seriousness of an assault on a policeman is 7.938 (variance 3.225), and the assassination of a public official is 7.888 (variance 5.400). This can be hardly seen as a *substantial* difference. In fact, based on these parameters we even fail to reject the hypothesis that these means are different.⁴² But surely, this is only a minor miscalculation in Davis's reasoning. What is important is that he rejects the victim's perspective on harm done, and shifts to the offender's perspective about unfair advantage gained. To be the true reference point, unfair advantage ought to be measured somehow. In fact, there has been as few attempts to measure unfair advantage as has been the case with the measurement of harm in other versions of retributivism.⁴³

One of researchers who have heavily tried come up with some punishment scale is Davis. He proposes to measure unfair advantage by the results of the hypothetical market for a license to commit a crime (or an option to be pardoned afterward). "Each penalty in a relatively just system of criminal law should correspond to the price a license to commit the crime would bring" (Davis 1992, p. 238).

The licenses would be put on auction. Their number should be a maximum consistent with maintaining the desired level of social order. In this way, the price of a license should reflect not merely any criminal gain from the offense, but the value of liberty itself, the individually perceived value of being not bonded by restraints that bond others. "The price of licenses should be a good index of the advantage criminals in our society unfairly take by doing the forbidden act" (Davis 1992, p. 241).

Some parameters of the model would influence the price of licenses. Firstly, the price of licenses would depend on their quantity. Why society should sell this or that quantity of licenses or why should they sell anything? Secondly, the price would depend on punishment for committing a crime without a license. Davis proposes to have a single harsh punishment for any offense committed without a license. He justifies it by saying that "Punishing him severely for poaching when he might easily either have bought the appropriate license or taken the appropriate precautions does not seem unduly harsh" (Davis 1992, p. 246). But still it seems to be quite odd that in order to punish some people proportionally we have to punish others disproportionately.⁴⁴ Licenses can be resold at the market, so eventually insurance companies are expected to come. At the end, the market price for the licenses should reflect the perceived value of unfair advantage, and therefore can be used for setting a punishment scale. Davis rejects harm as a useful category for setting such a scale,

⁴² Assuming $n = 100$ in both cases, $z = 0.17$, so we have about a 46% probability of being wrong assuming that one mean is different from another. Not to mention being *substantially different*.

⁴³ For example Finnis rejects *lex talionis*, based on harm, and vaguely relates the individual self-will against his fellows to the appropriate punitive response. Nevertheless, he concludes that "There is no absolute 'natural' measure of due punishment". See Finnis (1980, p. 264).

⁴⁴ Yet, if our auction model is only a thought experiment, this consideration should not bother us. For we are only interested in the results of the auction, which will be used to set our actual punishment scale.

so it seems that cost of crimes estimates would be quite useless in his model. But it is not necessarily so.

Why it is so will be obvious when we think about the supply side of the market. This point is particularly weak in Davis's reasoning, as the only clue he gives is that the number of licenses will be maximum above which the crime will be intolerable. In another market model of crime, namely that of Ehrlich's,⁴⁵ the supply side of the market is determined by the balance between costs of prevention and costs of risk of crime itself. In Ehrlich's model, people are forced to tolerate crime because not tolerating it, meaning spending more money on police and prisons, is even worse. Let us take this point to Davis's model.

Suppose there is a society where there is no crime. This society is to decide whether to issue one license to commit a crime or not. The contingent valuation study reveals that society is willing to pay X to keep the current rate of crime. The amount of X is then a bottom line below which no offer will be accepted. Conditionally on the potential advantages of committing a crime, the market price may be higher, but it is not going to be lower, for in that case society will buy it itself.⁴⁶ Therefore, the bottom prices for licenses for different crimes will be based on the society's willingness to pay to avoid them, which is precisely what contingent valuation studies measure.

In fact, Davis thought the same when he wrote "the seriousness of a crime would put a floor under the market price," (Davis 1983, p. 744) but he then changed his mind. In a book's version of this article, he mentioned that "later [he] realized that any effect such associations [buying licenses back] could have would be short-lived" and added "[i]n the long term, the price of any license will be a function of social supply and criminal demand" (Davis 1992, p. 240). No reason whatsoever for this change was provided by Davis, so it is hard to say why he changed his mind. But what he definitely failed to notice is that the social supply of licenses *is* determined by people's willingness to pay for crime reduction. We can imagine that initially society has issued some number of licenses to commit a crime. Then, society calls some of this licenses back, because the costs of not doing so are greater than the costs of crime prevention. Therefore, the number of licenses (the supply side) would be a function of people's willingness to pay for crime reduction and their willingness would indeed set the bottom price.

The relative bottom prices would then reflect the relative seriousness of crime, as measured by contingent valuation studies. But what would actual prices be at Davis's hypothetical auctions? It is of course hard to address that question theoretically as it depends on what people get from crime. Nevertheless, having in mind how high people value some crimes (or rather how precious a reduction of a risk of being a victim of one of them is),⁴⁷ it is hard to imagine that people would be willing to pay as much to commit a crime. Who is going to pay \$25,000 for a

⁴⁵ For the formulation of the market model of crime, see Ehrlich (1996).

⁴⁶ We can imagine that there is an agent at the auction acting for the whole of the society.

⁴⁷ See Chap. 3.

punishment-free burglary or \$237,000 for a punishment-free rape?⁴⁸ In fact, the very tragedy of crime stems from the fact that the gains or advantages of a criminal are much lower than the costs borne by victims. It is particularly true for violent crimes. While there are some instances when burglary can give more than \$25,000 in loot, it is implausible that rape gives more satisfaction than \$237,000. It does not seem to be very surprising. Would it be otherwise, criminals could easily obtain people's consent in advance instead of using force. But it also means that Davis's hypothetical auctions would fail to give any result.

But maybe, at least, the punishment scale based on people's perception can communicate the right scale to potential offenders? This shall be discussed in some detail.

4.1.2.4 Communicative Role of Punishment

Duff defines his approach as follows: "Criminal punishment (...) should communicate to offenders the censure they deserve for their crimes and should aim through that communicative process to persuade them to repent those crimes, to try to reform themselves, and thus to reconcile themselves with those whom they wronged" (Duff 2001, p. xvii). This, of course, does not necessarily mean that this punishment consists of hard treatment. Theoretically, all punishments may be purely declaratory. While "hard treatment" can communicate censure, so can many purely symbolic punishments. The justification of hard treatment lies in its role of "secular penance". But this is not a partly consequentialist position, for "the very aim of persuading responsible agents to repent the wrongs they have done makes punishment the appropriate method of pursuing it".⁴⁹

As in all others theories of punishment, this theory would be incomplete without a sentencing sub-theory. As Duff recognizes "a normative theory of punishment must either include, or be able to generate, a theory of sentencing – an account of how particular modes and levels of punishment are to be assigned to particular kinds of offense and offender" (Duff 2001, p. 131).

Duff recognizes that von Hirsch's analysis of living standard criterion could be helpful in ranking crimes according to their seriousness (as well as ranking punishments according to their severity), but also considers that as too costly an enterprise. For it separates legal definitions of crimes from their extralegal moral understanding as wrongs. "Those moral understandings are more complex, particularized, and concrete than are the understandings available within such a legal framework." (Duff 2001, p. 136) Therefore, he rejects the strong positive notion of proportionality

⁴⁸ Numbers reflect people's willingness to avoid one such a crime according to Cohen et al. (2004).

⁴⁹ Duff (2001, p. 30). This moral reform theory shares some affinities with both retributivism and consequentialism. It is forward looking (although the success is only foreseeable, not required) like a consequentialist theory, but the aim of reforming the offender is attainable through the punishment, not any treatment. However, like a retributive theory, this process is based on the very act of committing crime, and treats the offender as a moral agent who may be persuaded, but cannot be treated. See Garvey (1998, pp. 763–765).

(according to which judge's discretion should be limited) in favor of the so-called negative proportionality, which calls for rough proportionality, i.e. proportionality within a broad range.⁵⁰ The exact punishment to be inflicted is not the sole responsibility of a judge, who assesses the seriousness of the criminal conduct, but ought to be a result of a kind of dialogue. In this dialogue, the offender from one side, and the victim and a public official from another side, will try to produce a sentencing proposal to be then confirmed by a court. This procedure would inevitably lead to disparities, but it is claimed to be justified on the grounds that the just sentence is not only the question of the output (whether it fits the crime or not), but also the question of a just procedure. And a procedure is deemed to be just when it "allows offenders and victims a voice." (Duff 2001, p. 163)

Is there any place for costs of crime estimates? One can be eager to say that if the criminal punishment is to communicate censure, the amount of that punishment should be related to the harm done. In setting an appropriate punishment scale, law makers communicate what values in the society are valued most, and judges by imposing such penalties not only reaffirm that evaluation, but also induce offenders to recognize the wrong they have done to the full extent. When we look at penance as postulated by Duff, we could argue that this penance ought to be somehow proportional to the harm done, because this is the way for the offender to fully understand the wrongness of his action. Too lenient sanction would mislead the offender to treat his wrong actions as not as evil as they deserve to be treated. Accordingly, a penalty that is too harsh would mislead the offender another way.

So far the punishment has only an expressive function, not a communicative one. By punishing offenders, society communicates to them the relative ranking of goods and rights, whose infliction is being punished accordingly. This for Duff is unacceptable, for "the criminal law of a liberal polity, and the criminal process of trial and conviction to which offenders are subjected, are communicative enterprises that address citizens, as rational moral agents, in the normative language of the community's values" (Duff 2001, p. 80). This communication process is important, because the general aim of the criminal law is "to persuade them to refrain from criminal wrongdoing because they realize that it is wrong" (Duff 2001, p. 81). And "if a citizen does commit such a wrong, the law should aim to bring him to recognize and to repent that wrongdoing: not just because that is a method of persuading him not to repeat it, but because that is owed both to him and to his victim" (Duff 2001, p. 81).

⁵⁰ Duff (2001, pp. 137–139). He adds that "what matters about crimes is not just their seriousness but their character as public wrongs". This may lead to the question whether 'public wrongs' are somehow gradable or not. If the former case is true, punishment will still be proportionate, but not to the seriousness but rather to the 'wrongness' (or to both, in which case they may, or may not, contradict each other). In the latter case, this may violate the proportionality principle by setting a minimum level of punishment that has to be imposed not because of the seriousness of a given crime but because it constitutes a public wrong. It is like moving the punishment scale up by some certain amount of punishment. It saves the ordinal scale, but distorts the cardinal scale.

In this view, Duff's justification seems to be a kind of a paternalistic tyranny.⁵¹ Not only does the criminal law announce what the values of the community (or a majority of that community) are, but it also tries to persuade potential offenders that those values are their own, for their own sake. And when a given offender is caught, the punishment is aimed at his moral reform, recognition of the wrongness of his action and internalization of the general moral norms.⁵²

Because we need to treat offenders as moral agents, and we want them to internalize the norms (instead of simply obeying them), we cannot force them. Therefore, punishment is a method of persuasion. As a persuasion it has to be individualized, both in terms of a broad judicial discretion and in a way of negotiating the punishment between an offender and a victim and/or a probation officer.⁵³ It is similar to the process of mediation, although it happens after conviction, while a typical mediation is rather instead of the formal process of criminal adjudication.

During this process, the cost of crime necessarily enters as part of the victim's claim. These costs, however, are individualized, i.e. they are the costs of the conduct of the actual offender, and of the actual harm done, whereas cost of crimes estimates are aggregates that provide average values of harm. Therefore, individual costs will differ from the average costs in two main ways: firstly, they will deviate from the average due to particular circumstances of the conduct, and the victim, and secondly, they will only cover costs of that behavior that has actually been brought before the court.

Is that shift of perspective justified? In a retributive sense, it seems so. One ought to be responsible for his own conduct, and only his. What is important is the actual harm done, regardless of the average harm done within some general class of offences.⁵⁴ The amount of actual harm is contingent on circumstances that may or may not be foreseeable by an offender. While those factors that are foreseeable may arguably mitigate or aggravate punishment, the interesting case is the latter one, i.e. with unforeseeable consequences. Suppose that out of 100 cases of, say, sexual assaults, 99 are of modest harm but one has so disastrous a psychological impact on the victim that as the result of this crime she commits suicide. This particular result is not dependent on any circumstances under the control of the offender (nor *modus operandi* of the offender, nor any observable characteristic of victims

⁵¹ Duff (2001, p. 90) recognizes that this is "anathema to traditional liberals", but although he rejects the idea that the offender's own good is a desired aim of punishment, he still retains "some aspects of this picture."

⁵² One may speculate whether the aim of the criminal law in Duff's view is not a social cohesion which would ultimately lead to no crime. In such a view, Duff's theory would be purely consequentialist. But one can also stay one step behind and consider the very process of communication as intrinsically good. But when it is so good to persuade people to our values, and the commitment of crime signals they do not share these values, may we employ provocation as a method to check who believes in our values and who should be persuaded?

⁵³ Duff places this process *after* conviction (determination of guilt). Nevertheless, it resembles the process of plea bargaining *before* the conviction, with the exception of the absence of a victim in the latter case. This is a kind of mediation, although after the formal process of adjudication.

⁵⁴ The broader the class of offences, the higher the variance.

are related to this result). While the suicide is unforeseeable by any particular offender, it is perfectly predictable as a matter of statistics. Knowing that, law makers set the punishment for that crime on a higher level than it would have been without the possibility of such extremely severe consequences, but obviously lower than it would have been if all crimes had had such bad consequences. Such a punishment for this crime communicates, or announces, that this crime causes harm of a higher amount than could be expected in a standard case. In such circumstances, can the offender reasonably claim that he could not foresee consequences that have actually occurred? Or can he demand a more lenient treatment, based on the fact that the harm has not actually materialized in his case?

In that sense, the amount of harm due to the particular crime is irrelevant (as much as in the case of negligent crimes), insofar as that harm has been unforeseeable. It is the communicative function of law to announce that a given class of offences is more dangerous than one could think. In such circumstances, the individualized, actual amount of harm does not matter.

The actual amount of harm does not also matter in another sense. Punishment is not merely a compensation. Only a small number of actual crimes are prosecuted. If following Kant we assume that not only are we entitled to punish, but also that we are obliged to punish, the fact that so many crimes have not been punished is something that should concern us. In this sense, a punishment for one crime that happened to be apprehended should also be a punishment for other crimes, those that we know that have been committed, but have not been able to prove. If people committed crimes evenly, i.e. if every criminal committed an equal number of homogenous crimes, or the overall seriousness of a given set of crimes is equal among criminals, and those criminals are caught randomly, a punishment that is much harsher than a mere compensation would be acceptable. This is because while in any particular case one gets more than deserves, on average he gets exactly what he deserves.

People of course do not commit an equal number of crimes. Some people commit only one crime while others are career criminals. The best way to know who is who, i.e. whether a person is a one-time offender or a notorious criminal is to look at his criminal records. There is some probability of error when someone is brought before the court for the first time, but we punish him for more than one crime. This probability of error diminishes, however, when someone is a permanent "client" of the courts. Therefore, harsh treatment of recidivists can be justified on the grounds that the risk of error diminishes with the number of appearances of a given criminal before the courts, and can be justified by retributivists insofar as they claim not only that it is legitimate for us to punish crimes, but also that we are required to do so.⁵⁵

⁵⁵ Moreover, amateurs or first time offenders are being caught more easily (see Braithwaite and Petit, 1990, p. 178). This is an additional reason for more lenient treatment of those committing crimes for the first time (i.e. for harsher treatment of recidivists), as they are overrepresented in the sample of offenders being tried before court.

4.1.2.5 Retributivism and Costs of Crime

The above section has discussed the possible role of costs of crime estimates in the family of retributive justifications of punishment. The central claim of retributivism, i.e. the claim that crime deserves punishment, leaves aside the amount of the justified punishment. Costs of crime estimates may help to fulfill this gap by providing the people's assessment of the relative seriousness of crimes. In this task, the estimates of the cost of crime have an advantage over the living standard criterion already employed in one version of retributivism (that of Von Hirsch.)

Costs of crime estimates provide a basis for a relative ranking of crimes and therefore allow the proportionality principle to govern the punishment scale. For that purpose, however, costs of crime estimates do not differ substantially from seriousness of crime rankings. Superiority of costs of crime estimates over rankings of seriousness will be seen within frameworks of other theories of punishment.

4.1.3 Consequentialism

The consequentialist family of theories justifies punishment by the fact that doing so maximizes some ultimate good, for example welfare, or utility, or happiness of people. In such a view, punishment is considered as something intrinsically bad, whose imposition is allowed only because it leads to some positive consequences.

This position was famously expressed by Jeremy Bentham who wrote: "The general object which all laws have, or ought to have, in common, is to augment the total happiness of the community. . . . But all punishment is mischief: all punishment in itself is evil. Upon the principle of utility, if it ought at all to be admitted, it ought only to be admitted in as far as it promises to exclude some greater evil."⁵⁶

Because consequentialism looks for consequences, it is often described as forward looking, as opposed to retributivism which is backward looking.⁵⁷ This was again stressed by Bentham who argued that "general prevention ought to be the chief end of punishment as it is its real justification. If we could consider an offence that has been committed as an isolated fact, the like of which would never recur,

⁵⁶ Bentham (1982 [1789], p. 158). Similar words about punishment as evil have been expressed by Beccaria, following Montesquieu: "Every punishment which is not derived from absolute necessity is tyrannous," Beccaria (1995 [1764], p. 10).

⁵⁷ Simplifying, the opposition between retributivism and consequentialism is that in the former view we punish *because* a wrong has been done, while in the latter we punish *for* other wrongs not to be done. For such a distinction, see for example Rawls (1955, p. 5); Honderich (2006, p. 6). For (probably) the first formulation of the consequentialist standpoint, see Plato (Protagoras 324ab): "In punishing wrongdoers, no one concentrates on the fact that a man has done wrong in the past, or punishes him on that account, unless taking blind vengeance like a beast. No, punishment is not inflicted by a rational man for the sake of the crime that has been committed – after all one cannot undo what is past – but for the sake of the future, to prevent either the same man or, by the spectacle of his punishment, someone else, from doing wrong again." (as quoted in Primoratz, 1997, p. 111.)

punishment would be useless. It would be only adding one evil to another” (Bentham 1843, p. 383).

Such a view requires caution, though. If we imagine a society in which there is only one period of time in which crimes may be committed and everyone is able to commit a crime only during that particular time, the *ex ante* threat of punishment is justified if it deters at least some of the potential offenders. When *ex post* it happens that some people nevertheless have committed a crime, it is still worthy to punish them, even if, *ex hypothesis*, they cannot commit crimes any more. This is not to deter them or others (which is impossible, as they will not have another opportunity), but to maintain the credibility of the system of law. This credibility is not necessarily tied with criminal law. In this case, for example, there is no room for criminal law anymore, but the general notion of law enforcement survives. If a punishment will not be carried on, any other rule of law may be perceived by people as unenforceable, and they will not feel obliged to obey any legal rules at all. Therefore, the forward looking aspect of consequentialism should be understood from *ex ante* perspective, i.e. before any crime has been committed, rather than from *ex post* perspective, when some crimes have already been committed and we only look for further consequences.⁵⁸ Arguably, in Kantian’s situation of the dissolution of civil society, it seems there is no need to punish anyone, which is of course against his retributive position. But it is not very likely that such a situation will occur. Moreover, if Kantian’s postulate is to be interpreted so that not only the last murderer has to be executed before dissolution (which is quite costless), but also so that all crime mysteries have to be resolved before people can go on (which is quite impossible), this imperative considerably loses its intuitive power.⁵⁹

This story tells us that it is not always beneficial to calculate costs and benefits at every move, but it is better to set some set of rules to be followed later on. In such a way, a rational temptation for benefits in a short run will be defeated by a more beneficial long run perspective.

Rule utilitarianism refers to the long run perspective and forms a basis for modern consequentialist theories of punishment, notably those of Hart and Rawls (see Hart 1968 and Rawls 1955). In their views, the institutions of punishment have emerged because following such rules has good consequences. The goodness of

⁵⁸ This is a somewhat similar situation to the seemingly irrational (but credible) threat in game theory. Suppose that in order to deter crime you promise to punish anyone who tries to steal something from you. But is it rational to say that you are going to pay a lot of money only to punish someone, for example by keeping him in prison for a couple of weeks? It does not seem so. You would just add another cost to that already borne by a theft. So, a thief may think that your threat is not credible, and he can steal anyway (and if you cannot protect your property in the first place, there is no sense in further punishment). But if you can make your threat credible, saying that whatever occurs you will fight your temptation to economize on the cost of punishment and will punish him anyway, he will be deterred. How may a threat be credible? For example, you pay in advance the full cost of punishing an offender, if he is caught. In other words, you buy an insurance against the cost of punishment, or simply you pay taxes in advance. In that way, any potential offender cannot count on your meanness during the execution stage. For a similar argument, see Seidman (1984, p. 337).

⁵⁹ See Avio (1993, p. 263 ff), for that argument.

the system makes it needless to consider every case on utilitarian grounds, or even makes it dangerous for the reason given above.⁶⁰ Rawls stressed that the utilitarian rules of punishment, meant as a system, prevents one from the temptation to do something beneficial in the short run only, for example punishing a person the judge knows to be innocent in order to maintain law and order in the community.⁶¹

A more troubling question regards whether the utilitarian rules as such may allow punishing an innocent. For example, whether it is allowable on utilitarian grounds to punish someone that we only suspect is guilty. Therefore, it is a question whether the institution of punishment may be used on people out of whom some may, in the final analysis, be innocent. The general answer is, of course, yes. There is no possibility of punishing guilty people only, because we do not have full information about things they have actually done. To say that the system of punishment ought to be constructed in a way that precludes punishing an innocent, is to say that we cannot have any system at all.⁶² While Rawls tends to focus on punishment inflicted by the state, the conflict between the long (rule utilitarianism) and short run (act utilitarianism) is as acute in the case of individuals as in the example above. Therefore, the claim that Rawls' distinction is valid only in the context of state punishment is misconceived.⁶³ It is true that state punishment is not the only punishment that is used by people to protect themselves. Informal punishment can be used quite frequently and even push out the official path.⁶⁴ Nevertheless, all rules are subject to the same conflict between short and long run, and informal rules of conduct are as likely to prevent the choice of short run beneficial solution at the expense of the future as public ones.

The distinction between the rules of practice and the practice under the rules allows Rawls to say that "the judge and the legislator stand in different positions and look in different directions: one to the past, the other to the future" (Rawls 1955, p. 6). The legislator is (ought to be) utilitarian, whereas the judge can be

⁶⁰ The more common criticism of case by case considerations is that it leads to incoherent judgments. See Beccaria, "It is for this reason that we see the same court punish the same crime differently at different times, because it consults not the constant and fixed voice of the law, but the erring instability of interpretations". Beccaria (1995 [1764], p. 15).

⁶¹ The alleged tendency to punish innocents, or to sacrifice an individual for the sake of others, is of course one of the main arguments against consequentialism and utilitarianism in general.

⁶² The question is it morally permitted to have a system that inevitably leads to some positive number of punished innocents has not been particularly recognized within retributivism. But it still is a very troublesome question. See for example Smilansky (1990, p. 259), who argues that "... 'punishing' the innocent is in itself wrong, doing a great deal to avoid it is a matter of great importance – which must not be overridden *almost irrespective* of consequences" (emphasis added), and therefore any utilitarian attempts to relax standards of proof are morally unacceptable. But see Nozick (1974), who correctly argues that there is no possibility of having a mistake-proof system of punishment and that we can easily cut down the number of mistakes by any rate we want simply by cutting the number of convictions, and letting more and more guilty persons avoid the punishment (p. 97). For a claim that retributivism does not substantially differ from consequentialism in punishing an innocent, see Christopher (2002, pp. 869–887 and 899–923).

⁶³ For that claim, see Zaibert (2006, pp. 12–16).

⁶⁴ See for example Ellickson (1991), for an example of informal punishment used instead of state punishment in the context of conflicts between farmers in Shasta County, California.

retributive (or indeed is obliged to be). In this sense, such a theory is called a mixed theory of punishment, although in fact it does not mix different ingredients of consequentialist and retributive theories, but rather uses each theory on a different level (see Zaibert 2006, pp. 16–17). While the distinction between the levels will be useful in the later on, when the possible importance of costs of crime estimates for judicial reasoning will be discussed, we should now turn to the question of what is the role of costs of crime estimates on the legislative (utilitarian) level of a mixed theory of punishment.

While all consequentialist theories share the same aim, which is crime reduction, or reduction of criminal harm, they differ in employed means. The usual means of attaining the goal of crime reduction are deterrence, incapacitation, and reform.⁶⁵ Punishment works as a deterrent when people refrain from committing crimes because of the fear of potential punishment. Those who nevertheless commit crimes are punished to maintain the credibility of the system of punishment.⁶⁶ Incapacitation works when people that are more likely than others to commit crimes are incapacitated and are unable to commit crimes. Reform works when we are able to change people attitudes in such a way that they will commit fewer crimes in the future. The correctness of the methods proposed by these theories is empirically contingent and criminological findings may make one theory more preferable to another.⁶⁷ These different methods often thus point at different directions within the criminal justice system, but they share the common consequentialist aim of crime reduction due to the operation of the system of punishment.

4.1.3.1 Crime Reduction and the Aims of Utilitarianism

Within the utilitarian view, crime reduction is only an intermediary aim. The final aim will be the total preference satisfaction, or total happiness, or total welfare.⁶⁸ Therefore, there is a need to develop a relationship between criminal harm and the

⁶⁵ Some propose other classifications. For example Primoratz divides utilitarian theories into deterrence, reformation (changing the offender), and educative (changing the society) based. Primoratz (1997, p. 11).

⁶⁶ Those who have committed a crime undoubtedly show that they could not be deterred by the prescribed punishment. It is called a sorting paradox and leads to the criticism that in the name of deterrence we punish people who cannot be deterred by this punishment. And if so, such a punishment is a waste of resource. See Seidman (1984, pp. 329–330).

⁶⁷ In particular, deterrence depends on the people's responsiveness to incentives; incapacitation depends on the distribution of the criminal tendencies in society; and reform depends on the possibility and efficiency of the human souls' reform process.

⁶⁸ This is not the place to discuss the many varieties of utilitarianism. It is worth noting that while all utilitarian theories aim at the general welfare, they differ in what constitutes that welfare. It may be happiness (sometimes understood as a simple vector of pains and pleasures, see Bentham), or preference satisfaction (see Mills). It may also be a more objective view that well being is more objective than someone's subjective feeling about that (see for example Sen). Such objectivists may claim that not all people's preferences are equally worth satisfying. See Scarre (2002, pp. 4–10).

ultimate goal, however perceived. Crime reduction is beneficial because it reduces the costs of crime to victims. If a crime policy may reduce the number of robberies by, say, 10%, it will also reduce all victimization costs, including the costs of medical services to victims, the costs of stolen goods, and the cost of fear.⁶⁹ The reduction in victimization costs has to be compared then with the costs of obtaining such a reduction, particularly the costs of policing, convicting, and punishing the offenders.⁷⁰ If the balance is positive, a given policy is efficient and acceptable from the utilitarian standpoint. It does not follow, however, that such a policy ought to be implemented – it might well be true that alternative policies are not only efficient, but also more cost-effective, and they are to be implemented in the first place.⁷¹

One of the basic features of punishment is that it involves pain and suffering of the offender.⁷² The obvious question is whether such costs to the offender should be included in the calculus. Bentham was very clear on this point when he claimed that some cases should not be met with punishment for unprofitability of punishment: “If the evil of the punishment exceed the evil of the offence, the punishment will be unprofitable: the legislator will have produced more suffering than he has prevented” (Bentham 1843, p. 397). This position is a result of the general utilitarian aim of maximizing the total happiness, in which happiness of all people is included.

Such a position has been heavily criticized, though. Let us recall Nozick’s “utility monster” who can transform resources into greater gains than others’ losses (see Nozick 1974, p. 41). It follows that if we are to maximize the total happiness, we

⁶⁹ Some costs will decrease in proportional with the crime reduction, for example costs of damaged goods or costs of health services, while others are not necessarily so, for example fear of crime may be only roughly related to the actual number of crimes. There is some evidence that people use some heuristics in assessing the level of crime in the neighborhood, and will only notice a decrease (increase) in crime, when the crime level drops (rises) below (over) some threshold. See for example Lynch et al. (2000) (and discussion in Sect. 3.4).

⁷⁰ The costs of criminal justice are often misperceived. For example Duff (2001, p. 4) claims that costs of punishment (burden on offenders and costs of criminal justice system) are partially offset by the fact they fund employment for many criminal justice officials. This is a misunderstanding. The costs of the system are in no way offset by the fact that some get money we spend. In an economy, it is impossible to spend money in a way that benefits no one. Even if one burnt a pile of banknotes, it would benefit all other holders of the remaining money. The only grain of truth in that statement is that disutility of the offender is not transferable. See the text below.

⁷¹ There are also the costs of government intervention. The government has to collect taxes for its activities, and taxation creates distortions in economy. Costs of such distortions should also be counted against benefits.

⁷² See Bentham (1843, pp. 390–391) or Hart (1968, pp. 4–5) who treats pain as the most important definitional feature of punishment (and see Hobbes who claims that “If the harm inflicted be lesse than the benefit, or contentment that naturally followeth the crime committed, that harm is not within the definition [of punishment]; and is rather the Price, or Redemption, than the Punishment of a Crime”, Hobbes (1976 [1651], p. 166). In some theories, though, this feature is not so obvious. For example, when supporters of the rehabilitation theory claim that they can transform bad people into good people, such a process – as a medical treatment in general – even if temporarily painful generates positive outcome for the person affected. As such, people should be willing to pay for being treated in this way, and it is not clear why should we give it for free to those very people who break the law.

should allow those monsters to get all resources, for they gain more utility from it than we would be able to do. In the context of crime we can reformulate the problem. Suppose there is a “disutility monster”, i.e. a person who is so sensitive that any punishment will impose an unimaginably high pain on her. Are we obliged to refrain from punishing such a person, for it will not increase the total happiness? And if we cannot punish the monster, are we not simply subordinates of him?

This kind of objection leads some to reformulate the aim. For example, Posner claims that the aim should not be utility maximization, but rather wealth maximization (Posner 1979, p. 119 ff). Wealth maximization is understood in a way that consists in a monetary equivalent of everything that people care about. The monetary equivalent is exposed (or negotiated) in the marketplace, although the market can be implicit as well as explicit. Posner employs here the concept of the Pareto improvement, for the market exchange, if free, benefits both parties. If some coerced transactions are to be allowed, they should meet the criterion of the potential Pareto improvement, i.e. it should be possible to compensate the losers by the winners, even if there is no actual compensation paid.⁷³

It seems that what really differentiate these two aims, that is total happiness vs. wealth, is a question of transferability. Utility cannot be transferred by itself, for it needs some transportation vehicle. Consider an example of a rich man who owns a beautiful painting that is worth \$100,000 and who derives some utility from the pleasure of owning it. There is also a sensitive poor guy who would get much more pleasure from looking at the picture, but unfortunately is too poor to buy it. Should he be allowed to simply steal the painting from the owner, on the grounds it will increase the total happiness? According to the classical utilitarianism, the answer seems to be positive. However, the thief cannot compensate the loss of the owner simply by giving him some amount of his utility that could compensate his loss. Utility is not detachable from any given person, so it is not transferable. Thus, the theft cannot compensate the owner in any other way than by returning the painting. Therefore, such an activity is not even potentially Pareto efficient, and should not be allowed.⁷⁴

The same line of reasoning may be applied to the question of whether pain of punishment that is borne by a convict should be included in a social welfare function. Bentham’s answer is certainly yes, while for those who aim at wealth maximization the answer, by contrast, is no. The point is whether the disutility of punishment for one person can be transferred into the disutility of others. When punishment reduces the ability of the future work of a convict, or increases his chances of re-offending, there is a transferable loss, i.e. the disutility of a convict transforms into, or causes, the future disutility of others. Such costs should be included in the account of wealth. However, a disutility of punishment that is a pure suffering of a convict, and which does not bring any other consequences, is irrelevant from the point of wealth. It does reduce the total happiness, at least as long as a decrease in

⁷³ This is, of course, Kaldor-Hicks’ criterion.

⁷⁴ If a thief has enough money to buy the painting, but he chooses to steal, he should not be allowed to do so on the grounds that it is more costly to discuss the question of the value afterwards and that reaching an agreement *before* the stealing should be preferred.

the happiness of a convict is not offset by a pleasure of revenge victims or the general public may enjoy, but it does not reduce the total wealth, unless it brings some other consequences and only to that extent.

All implications of the question of utility transferability for costs of crime estimates will be discussed in the next section.

4.1.3.2 Costs of Crime and Different Versions of Utilitarianism

As has been discussed earlier, there are different methodologies for measuring the costs of crime. One of them is an *ex ante* willingness-to-pay approach which measures people's willingness to pay for crime reduction. The other is the *ex post* happiness assessment that measures the decrease in happiness due to having been a victim of crime and the required amount of money to compensate that loss.

The willingness-to-pay approach corresponds to the wealth maximization criterion – the risk of being a victim of crime can be reduced for a price of forgiving some other expenditures. A person that pays for a crime reduction gets some utility from the safer environment but if he chooses differently, he may well spend that money on something else. Someone's pain and suffering is relevant for others only insofar as it translates into some tradable good.

Such an approach may be challenged on the basis that it benefits the rich, who can pay, and discriminates against the poor, who cannot. It seems that even great danger of crime among the poor will be tolerable according to that theory, as their willingness to avoid pain and suffering does not translate into any goods they can sacrifice in order to obtain more safety. Some may say this is not just – people should not be exposed to more crime just because they are poor.⁷⁵ In fact, poor people are more prone to be victimized,⁷⁶ and, consequently, they are more punitive.⁷⁷ Proponents of the wealth maximization criterion may answer, however, that the rich nevertheless pay more than the poor for the safety of others. This is not only because they pay more taxes (which they do), but also because they are more willing to pay more for public goods (and safety is a typical public good). Therefore, they willfully

⁷⁵ If all people ought to bear an equal risk of being a victim of crime, it would mean that private protection (private security officers, special locks, doors, and bars) should be forbidden. Having in mind that people can adjust the victimization risk by changing their routine activities, it follows that the government would also have to mandate a very similar life for everyone to achieve real equality in this regard. Strict egalitarianism inevitably leads to totalitarianism. For evidence of an unequal influence of a crime wave on crime-avoiding activities see Di Tella et al. (2006).

⁷⁶ Victimization rates decrease with income. For example, among those whose family income is less than \$7,500, victimization rate (for all personal crimes) is 40.9. Among those whose family income is more than \$75,000, the rate is 17.4. See U.S. Department of Justice, *Criminal Victimization in the United States, 2005*, Statistical Tables, Table 14, (http://www.ojp.usdoj.gov/bjs/****pub/pdf/cvus0501.pdf).

⁷⁷ There is some evidence that this relationship, while being true elsewhere, does not hold in the US. See Yocom (2006).

pay higher taxes, providing more safety for others.⁷⁸ Apart from that, it may also be argued that in a democratic system it is a median voter that chooses the actual level of taxation and spending. Such a median voter would reject claims of the poorer to tax the wealthier in order to provide more safety, if the demanded level of taxation is higher than his own preferences. Thus, the median willingness to pay for crime reduction shows the level for which there is a majority among voters.

The happiness studies correspond to an *ex post* happiness assessment. Pain and suffering due to being a victim of crime is always relevant because this is the sum of all people happiness to be maximized, and therefore the sum of people's unhappiness to be minimized. Such an approach does not exclude the poor – in fact, everyone's happiness is equally important. This being an advantage, there are some drawbacks too. Firstly, it assumes the possibility of interpersonal happiness (utility), itself a controversial assumption. Secondly, it leads to the conclusion that while all are equal, some are more equal than others as they gain or lose more happiness out of the same act than the others (like the utility monster described above). In the context of crime it means that very sensitive persons would demand a higher punishment than usual, or that some offenders could not be punished at all due to the enormous disutility it would cause to them. Thirdly, there is a conflict between a rule of majority, and a rule of maximization of the total happiness – in case of the utility monster, it would be preferable to give him everything at the expense of others. Such a move would not however gain much support in general elections.

It follows that happiness studies do not constitute a firm basis for policy choices. They may, however, be very helpful in providing information to people about the consequences of some acts. If only a small group of people suffer from a particular crime, but they suffer greatly, that may convince the general public to provide them with more protection.

The willingness to pay approach seems to be more appropriate methodology for assessing the costs of crimes, at least according to one of the versions of utilitarianism.

4.2 Costs Estimates and Sentencing Policy

How should the estimates of the costs of crime drive sentencing policy? Both retributivists and consequentialists agree on the necessity of the relationship between the seriousness of crime and the severity of punishment (see Durham 1988, p. 132). It seems that there is a broad consensus that criminal penalties should be proportionate to the gravity of an offence, although both camps have different reasons for this statement.

⁷⁸ “The rich, on the average, assign greater value to public goods than the poor do, not because they have different tastes, but because they have more money. A tax system that taxed the poor just as heavily as the rich would result in the rich getting smaller amounts of public goods than they want. Rather than see that happen, the rich would gladly agree to a tax system that assigns them a larger share of the tax burden.” Frank (2006, p. 652).

For retributivists, it is a principle of proportionality deeply embodied in the notion of justice that requires sentences to be proportionate to their seriousness. That is, the moral wrongness and the harmfulness of the act require punishment, so any distortion from the order of the seriousness would constitute a breach of the moral obligation.

For consequentialists, the reason for proportionality lies in the fact that the seriousness of crime is a measure of bad consequences, and if by sentencing people we may prevent some crimes from happening, we would like to prevent the worst ones in the first place.⁷⁹ One can, of course, ask whether it is possible to prevent all crimes by setting enough high penalties or to put it differently: why not hang all criminals? The obvious answer is that we need some marginal deterrence. If there is the same penalty for different kind of crimes, say robbery and murder, a robber has nothing to lose by shooting his victim. In fact, by murdering, he may be less likely to be apprehended because he eliminates the witnesses of his crime.⁸⁰ It is, then, the marginal deterrence that gives rise to the principle of proportionality, according to consequentialists.⁸¹

One can also argue that because enforcement is costly, it is efficient to prevent crimes in the cheapest way, i.e. by setting penalties just above the level of potential gains obtained by criminals in committing such a crime (adjusted to the probability of apprehension). Different crimes have different payoffs so at the end we would have a scheme of sanctions that reflects the potential gains. If the potential gains from committing a crime determine the perceived seriousness of crime, the scheme would also be in line with the relative seriousness of crime. It is important to note, however, that the gains for a criminal are not necessarily equal to the loss of a victim. These values, although maybe similar within the class of property crimes, tend to diverge within the class of violent crimes. As was described in Chap. 3, the implied cost to a victim of a robbery, rape or homicide – measured by whatever technique – is enormous, and likely exceeds any monetary equivalent of utility an offender may get. It is hard to imagine that a would-be murderer would not give up his plans if given \$9.7 million, nor a would-be rapist who is offered \$237,000.⁸² In fact, we tend to understand (maybe even justify to some extent) criminal behavior of those who commit crimes when high stakes are at play, but are horrified by crimes that make big losses to victims with no or small gains to offenders. Therefore, the scheme of

⁷⁹ Montesquieu (1794) said „It is an essential point, that there should be a certain proportion in punishment, because it is essential that a great crime should be avoided rather than a lesser, and that which is more pernicious to society rather than which is less” (p. 97).

⁸⁰ This is hardly a new point: “In Russia, where the punishment of robbery and murder is the same, they always murder. The dead, say they, tell no tales.” Montesquieu (1794, p. 98).

⁸¹ Instead of having different penalties for different crimes, one may adopt only one penalty (say, the death penalty) and impose it with varying probability to create marginal deterrence. This approach, while used in some periods of history, seems to create perverse incentives on the side of prosecutors. See Friedman (1999).

⁸² Values based on Cohen et al. (2004) WTP estimates. See Table 3.2; Cohen et al. (2004) above. Nevertheless, giving money to would-be criminals seems to be an inefficient way of reducing crime for such a solution may attract many others who would credibly threaten that they will commit a crime if not paid off.

sanctions should be adjusted not to the potential benefits of offenders, but to the potential costs on the part of victims.⁸³

While both retributivism and consequentialism claim that punishment should be proportional to the seriousness of the offence, so that the relative severity of sanctions should reflect the relative seriousness of crimes, they apparently differ in setting an anchoring point. Having in mind the high assessment of the cost of homicide, one may reasonably expect that the anchoring point for consequentialists will be that on the top of the list, i.e. for the worst crime there will be the maximum possible penalty.⁸⁴ Maybe it is less understandable why retributivists, who in the old good times were deemed to be revengers, try to anchor their scale at the lowest possible point, i.e. just over the point that would lead to a massive eruption of crime (see von Hirsch 1993, pp. 40–46, and Sect. 4.1.2.1). If there is enough space on the penalty scale, the consequentialist and retributive schemes may not match each other. The following example helps illustrate this point. If the seriousness of murder is considered to be 15 times greater than seriousness of theft, then the proportionality principle calls for the penalty for murder being 15 times greater than penalty for theft. The question now is whether we are able to construct such a penalty scheme that has a required range: in this example, the answer is positive. Consequentialists will anchor their scheme at the top, setting the penalty for murder penalty at life, which may be an equivalent of, say, spending 30 years in prison on average. Accordingly, the penalty for theft will be set at a 2 years term of imprisonment (for the sake of simplicity, I will not consider here a possible non-linear relation between the length of imprisonment and its perceived harshness.) Retributivists could start from the bottom, asking what the minimum acceptable sentence for theft is, and setting this at, say, 3 months they could set the penalty for murder at 45 months.⁸⁵ Consequentialists' and retributivists' scales may produce different results, because in a wide penalty space, anchoring the penalty scheme either from the bottom or from the top makes the difference. The situation would be quite different if the seriousness of murder would be, say, 1,000 times greater than the seriousness of theft. The penalty space is simply too small to consist of non-trivial penalties that may

⁸³ Let's consider the following example: we may deter all would-be murderers but two by imposing a penalty for murder of 5 years imprisonment. The next murderer would be deterred by setting a penalty of life imprisonment, and the last one cannot be effectively deterred. By setting a penalty for murder at 5 years, we allow two murders to be committed at the cost of 10 years imprisonment (two men, a term of 5 years imprisonment each). Moving a penalty up to life deters one would-be murderer, so we punish only one actual felon at the cost of life imprisonment (which, say, is on average some 25 years). Bearing in mind how high the value of one averted murder is, this seems acceptable. The point is that if we knew that all would-be murderers would be deterred by a low penalty, we would not set a penalty higher than necessary. But because we do not know precisely we decide rather not to risk a mistake of low penalties, if higher penalties might be an efficient deterrent.

⁸⁴ The fact that the maximum penalty for the worst crime defines all other penalties as well may explain why the question of abolishing death penalty is so vivid. Abolishing death penalty would mean the general shift in penalties downward. It will have then consequences for all crimes, not just murder.

⁸⁵ In fact, following this logic, von Hirsch declares that in his scheme of penalties, there would be no higher penalty than 3 years, or 5 years in murder cases. von Hirsch (1993, p. 43).

be 1,000 times lighter than the maximum possible penalty (which would probably be a kind of death penalty or life imprisonment). In such a case, both retributivists and consequentialists would apply all of the possible range of penalties, ranging from the death penalty or life imprisonment to a few days in prison or alternative sanctions in order to save the principle of proportionality.

Thus, it seems quite important to look more closely at the perceived relative seriousness of crime; this is the topic of the next section.

4.2.1 Social Perception of the Seriousness of Crime

Social perception of the seriousness of crime has been analyzed at least since the 1920s (see Thurston 1927). The first widely known study was that of Sellin and Wolfgang (1964). This and subsequent studies give support to the thesis that there is a consensus among members of the public about the relative seriousness of crime, although there is still some discussion over the scope of the consensus.⁸⁶

Social perception of the seriousness of crime is measured by surveys. The sample may be a representative sample taken from the population, or a non-representative sample, typically criminology students.⁸⁷ The wording of questions may play some role as well as some details about the event that may be given, or not, to the respondents, e.g. the number of offenders involved, the place of event, the relationship between the victim and the offender and so on (see Stylianou 2003, p. 40). Three different measurement scales have been used in such surveys. The first method generates an ordinal scale, as people are asked to rank crimes from the least serious to the most serious one. The second method gives a magnitude estimation, where one crime has a seriousness level fixed by the researcher and respondents are asked to assess the seriousness of other crimes accordingly. The third scale is based on a comparison of pairs of crimes, where people choose which crime is worse than the other, and then the results of all possible comparisons are unified into one scale (ratio).

It is interesting to note that the most often used technique of the ordinal scale leads to an artificial compression of the available range of the seriousness. For example, in a survey of Rossi et al. (1974), participants were asked to attach a number from one to nine, according to the perceived seriousness of the offence (Rossi et al. 1974, p. 226). Predefined minimum and maximum levels of seriousness thus precluded respondents from assessing that some crime may be more than nine times more serious than the other. Such a compression of the scale eventually led to small

⁸⁶ For a comprehensive review, see Stylianou (2003). Those arguing for the existence of a social consensus, are, for example, Sellin and Wolfgang (1964), Rossi et al. (1974), Wolfgang et al. (1985). But see Carlson and Williams (1993), arguing that this consensus regards only crimes resulting in death or serious injuries, or Kwan et al. (2002), arguing that while there is a substantial consensus among the public, there is nevertheless some variation depending on socio-demographic factors.

⁸⁷ Non-representative samples are problematic, but the hypothesis of a broad consensus allows to project the results from non-representative sample onto society as a whole.

differences between the levels of seriousness of different crimes, often making differences within a given class of offences (for example, violent crimes) statistically insignificant.⁸⁸

Magnitude estimation techniques allow more flexibility, by setting only a reference point, i.e. by setting the seriousness of a selected crime at a given level, and then asking people about the seriousness of other crimes in relation to a given value of the pre-selected crime.⁸⁹ This leads to a higher variability within the ranking.

Paired comparison methodology is based on the frequency of one crime to be selected as more serious than another one. The scope of the scale in such a case is limited by the number of potential comparisons. This also leads to the artificial suppression of the seriousness scale, although not to such an extent as the ordinal scale.

As was mentioned above (Sect. 3.10.1), the estimates of costs of crime reveal more variability. Table 4.1 presents ranking of crimes according to both estimates of the cost of crime and surveys of the public perception of the seriousness of crime. For comparability, each ranking has been normalized in such a way that theft is always given a value of 1. Within each ranking, the number shows how many times a given crime is more serious than theft.

Table 4.1 shows that costs of crime estimates generate higher estimates of the relative seriousness of crime than do seriousness of crime surveys. This is particularly true in respect of murder, which is ranked to be at least 40 times more serious according to costs of crime estimates than in public perception of crime surveys. Rape is considered to be at least twice more serious. Armed robbery and serious assault are also generally considered to be more serious by costs of crime estimates, but the differences are less substantial. Property crimes are ranked similarly.

This evidence may support a hypothesis that public surveys underestimate the relative seriousness of the most violent crimes, particularly murder. This may be due to the restricted variability in such surveys, as discussed above, or to the fact that costs of crime estimates better capture the huge public willingness to avoid the worst crime, i.e. murder, and, to some extent, other violent crimes.

However, a competitive hypothesis may be formulated, i.e. that costs of crime estimates overstate the public perception of seriousness of crime. For example, according to willingness to pay methodology, people are asked how much they will pay for some percentage reduction in, say, homicides and thefts. What they are not told is that a percentage reduction of, say, 10% translates into thousands less of thefts, and only dozens less of homicides, simply because there is much less violent crimes than property ones.⁹⁰ People are of course aware that there are more

⁸⁸ Rossi et al. (1974, p. 228, Table 1). Due to high variance, differences between different crimes are often statistically insignificant what means that the real ranking of crimes due to their seriousness is, to some extent, unknown.

⁸⁹ For example. Wolfgang et al. (1985) set the seriousness of bicycle theft at 10 and then ask one to assess the seriousness of other crimes accordingly (p. vi).

⁹⁰ In Cohen et al. (2004), respondents have been found willing to pay \$104 for a 10% reduction in burglaries, \$110 in armed robberies, \$121 in serious assaults, \$126 in rapes and sexual assaults, and \$146 in murders. What makes a real difference is that the 10% reduction means that there would

Table 4.1 Costs of crime estimates versus seriousness of crime surveys

Study	Costs of crime estimates			Seriousness of crime surveys			
	Miller et al. (1996)	Cohen et al. (2004)	Dubourg et al. (2005)	Thurston (1927)	Sellin and Wolfgang (1964)	Wolfgang et al. (1985)	Kwan et al. (2000)
Methodology	Mixed	WTP	Mixed	Paired comparison	Ratio	Ratio	Paired comparison
Country	US	US	UK	US	US	US	Hong Kong
Crime:							
Murder	11,488.0	1,162.3	1,566.2 (1)	7.9 (1)	26.0 (7)	21.0 (12)	15.0
Rape and sexual assault	340.0	28.4	33.8 (2)	8.2	11.0 (8)	15.2 (13)	11.3
Armed robbery	74.0	27.8	7.8 (3)	–	5.0 (9)	9.7 (14)	9.4 (3)
Serious assault	94.0	8.4	9.4 (4)	1.5 (6)	7.0 (10)	7.0 (15)	6.4
Burglary	5.0	3.0	3.6 (5)	1.6	3.0	1.8 (16)	3.0
Theft	1.0	– (*)	1.0	1.0	1.0 (11)	1.0 (17)	1.0

Notes: All values have been normalized by setting seriousness of theft at the value of one. (*) Cohen et al. (2004) do not report a value for theft: in this case, a value for burglary has been set at 3. (1) Described as homicide; (2) described as “sexual assaults” what included rape; (3) Including all robberies, not only armed ones; (4) described as “wounding”; (5) described as “Residential burglary”; (6) described as “Assault/Battery”; (7) described as “Assault (death)”; (8) described as “Rape (forcible)”; (9) described as “Robbery \$5 (weapon); (10) described as “Assault (hospitalized); (11) described as “Larceny \$1”. The same value for “Larceny \$5”; (12) described as “A person stabs a victim to death”; (13) described as “A man forcibly rapes a woman. No other physical injury occurs”; (14) described as “A person robs a victim of \$1,000 at gunpoint. The victim is wounded and requires treatment by a doctor but not hospitalized”; (15) described as “A person intentionally injures a victim. The victim is treated by a doctor and hospitalized”; (16) described as “A person breaks into a home and steals \$100”; (17) described as “A person steals property worth \$10 from outside a building”.

property crimes than violent ones, but may not be so sure about the relative frequency of them. Whether they would pay the same amount were they told that, is an open question, and is worth testing empirically. Nevertheless, such a lack of knowledge of the public should not lead us to the rejection of the willingness to pay methodology. Firstly, even if the public is not fully informed, we do not know how the full knowledge would alter their perception. Secondly, for a political choice, i.e. for a crime policy, rather the actual perception of the problem is important than a hypothetical one. While the government may try to inform people about the real level of the problem (as it does, for example, by informing about many adverse consequences of smoking), it would not be very wise to ignore the beliefs of people simply on the grounds that they are misinformed, and their fears are thus unreasonable. Thirdly, other cost of crimes methodologies generally support the results of the willingness to pay studies. Therefore, the high implied cost of murder is not the result of a calculation trick, but rather an expression of the horror that this crime brings, even if its occurrence is relatively rare. And there is nothing counterintuitive in saying that (according to Cohen et al. 2004) people are willing to spend the same amount of money to prevent one murder as 300 burglaries.

4.2.2 Criminal Law and Public Opinion

Normative seriousness of crime is given in criminal law in the form of a punishment scheme set by legislators. The difficulty of relating the seriousness of crime to punishments has been long recognized. For example, Bentham noted: “Establish a proportion between crimes and punishments, has been said by Montesquieu, Beccaria, and many others. The maxim is, without doubt, a good one; but whilst it is thus confined to general terms, it must be confessed it is more oracular than instructive” (Bentham 1843, p. 399). Yet, the ability of a punishment theory to generate the punishment scheme is considered to be crucial for the importance of such a theory. It might be even said that a theory of punishment is incomplete if it is unable to generate a punishment scheme – this lack of completeness of many theories has been noticed earlier, but not resolved fully.⁹¹

As has been noted at the very beginning of this book, the very definition of criminality may be perceived as either consensual or conflicting.⁹² Consensual understanding rests on the assumption that provisions of law, and in this case sanctions of the criminal law, follow the values of the public. A conflict approach views law as an instrument of oppression of one group over others. Being quite prominent in the 1970s, conflicting theories are now rather on the decline, and it is commonly held that there is consensus regarding the relative seriousness of crimes.⁹³ There is not

be more than 400,000 burglaries less, but only 1,500 murders less (Cohen et al. 2004, Table 2, p. 98).

⁹¹ See Bedau 1985, p. 102, notes 28–31 and accompanying Sect. 4.1.2.

⁹² See Sect. 2.1.

⁹³ See note 86 and accompanying text.

much consensus about the absolute seriousness of crime, though, in the sense of a consensus regarding the absolute severity of sanctions for given crimes (see Ristroph 2006, p. 1303 ff). Notwithstanding problems with setting “anchoring points” of the punishment scheme, it seems that perceived seriousness of crime may shape the punishment scheme in criminal law.

Some authors question the validity of public surveys in the context of crime policy. For example, Golash and Lynch (1995) argue that the public perception of seriousness of crime has only a limited importance for setting penalties. Considering consequentialist theories, they argue that the public may be misguided about the true costs of crime, for the unknown relationship between a certain class of offences, like smuggling aliens, and the resulting harm. Nevertheless, they agree that the seriousness of crimes with direct costs to victims, like assault, rape, and murder, is probably accurately reflected in the surveys (Golash and Lynch 1995, pp. 708–709). It is true that the public may not recognize many casual relationships between events, and has to be informed about them. The evolution of the sentencing policy reflects, perhaps, the growing body of public knowledge. Harsh sentences for child molesters are probably a good example of the recognition that such a crime causes long term consequences for a victim. As was shown earlier (see Chap. 3), however, it is impossible to measure the ‘true’ costs of crime independently of people’s subjective assessment. Even if the consequences of a given crime may be expressed in terms of market value (say, criminal damaging of property of the market value of x), this market value is formed on the basis of people’s subjective preferences as well.⁹⁴

As for retributive theories, they claim that “community perceptions again have validity only as a surrogate for something more fundamental – the actual wrongness of the conduct” (Golash and Lynch 1995, pp. 713–714). Such a position may be defended solely on the basis that there is no other way to know the true wrongness of crime than by appealing to moral intuition of people. Even if it were possible, to have an impact on the criminal law of the society, one has to be either a dictator who is able to impose his beliefs or a very persuasive person to convince other people to adopt values that are not their own. And when people do adopt these values, they become their own values, and may be revealed in the public surveys.

Nevertheless, there is some difference in the role of the seriousness of crime surveys may have in consequentialist and retributive theories.

When the aim of punishment is “just desert”, it is appropriate not only to ask about the seriousness of an offence, but also about the just punishment. Instead of asking about seriousness, people may rather be asked about the appropriate punishment for given offences, and the punishment they have agreed on would be just. The relative seriousness of crime is not a sufficient measure of just punishment, because the perceived harshness of punishments may not necessarily be linearly proportional to the seriousness of crimes. When people rank burglary to be three times more serious than theft, it may mean that they demand for the former a punishment that is three times more severe than for the latter. But it does not follow that they demand

⁹⁴ In fact, it may be claimed that all goods have a higher value for the actual possessors than the market value; if it were otherwise, wouldn’t they sell it and derive more utility from the money they get than from the goods themselves, unless transaction costs do not make it unprofitable?

a three times longer prison term, for the relation between severity of the sentence and its length does not need to be linear.⁹⁵ Asking people about the appropriate sentence presupposes that people can evaluate the severity of sanctions, although this is problematic. People can probably correctly assess the severity of sanctions as a tool of general deterrence. However, for specific deterrence, e.g. among those already convicted, criminals' views of severity are important, not that of lay persons, and they may differ.⁹⁶ In sum, surveys of the seriousness of crime, and costs of crime estimates, are of only auxiliary help in assisting legislators in setting the punishment scheme under retributive theory of punishment. For what is needed in retributive theory is the empirical finding of what is perceived by people as a just punishment for a given crime (and in given circumstances, e.g. the amount of harm and blameworthiness of an offender), and this may be asked for directly, without resorting to the question of the seriousness of the crime.

The situation is different under consequentialist theories of punishment. The common goal of all consequentialist theories, whether they use deterrence, incapacitation or rehabilitation, is the reduction in crime. Not all crimes are equal in their weight, though. In fact, surveys of the seriousness of crime and costs of crime estimates reveal great diversity of relative seriousness of different crimes. The value of the reduction in crime substantially depends then on what kind of crimes is less frequent due to the operation of the legal system, and the relevant weights are given by either the seriousness of crime ranking or by costs of crime estimates. The following example will clarify the point.

Let us assume that there are two (and only two) possible crime policies, crime policy A and crime policy B. Under policy A, the number of burglaries will decrease by 1,000 and the number of murders will decrease by 10. Under policy B, the number of burglaries will decrease by 100, and the number of murders will decrease by 20.

As can be easily noticed, both policies are effective, i.e. they lead to a reduction in crime. Under policy A, the reduction in crime is 1,010 in total, while under policy B, the reduction is 120 crimes. The total reduction in crime is, then, greater under policy A, but such a conclusion is not sufficient to lead one to the conclusion that such a policy should be chosen.

This is so because there is a tradeoff between the two crimes, i.e. under policy B there is ten murders less than under policy A, but 900 burglaries more.⁹⁷ The crucial

⁹⁵ For example, people may discount longer terms of imprisonment, so 15 years imprisonment is less than 3 times harsher than 5 years. But they also may consider short imprisonment as trivial, so 1 week in jail would be more than 3 times lenient than 3 weeks.

⁹⁶ For example, there is some evidence that experts in the criminal justice system, e.g. judges, tend to perceive imprisonment as less severe than the public. See Tremblay et al. (1994, p. 418). See also evidence that criminals already exposed to the operation of the criminal system rank severity of sanctions differently than legislators; in particular, they do not perceive short term imprisonment as more severe than alternative sanctions. Wood and Grasmick (1999).

⁹⁷ Even if there is no tradeoff, i.e. if under one policy the reduction is greater across all categories, the other policy may be chosen if the costs of the greater reduction are unacceptable and people prefer having a smaller reduction for a lower cost than a greater reduction for a higher cost. See note 96.

Table 4.2 Crime policies comparison

	Policy A	Policy B
Reduction in burglaries	1,000	100
Reduction in murders	10	20
Total reduction in crime	1,010	120
Seriousness of crime (1):	Burglary – 3.1	Burglary – 3.1
	Murder – 35.7	Murder – 35.7
Total reduction in crime weighted by seriousness	$3,100 + 357 = 3,457$	$310 + 714 = 1,024$
Cost of crime (2):	Burglary – \$25,000	Burglary – \$25,000
	Murder – \$9.7 million	Murder – \$9.7 million
Total reduction in cost of crime	$\$25 \text{ million} + \$97 \text{ million} = \$122 \text{ million}$	$\$2.5 \text{ million} + \$194 \text{ million} = \$196.5 \text{ million}$
Cost of policy	\$100 million	\$200 million
Net benefit	+\$22 million	–\$3.5 million

Notes: (1) Weights according to Wolfgang et al. (1985). Murder described as “A person stabs a victim to death”; Burglary described as “A person breaks into a home and steals \$100.” (2) Cost of crime according to Cohen et al. (2004).

point is the assessment of which reduction is more valuable: 10 murders or 900 burglaries. Weights given by seriousness of crime rankings and costs of crime estimates provide information that is necessary for one to compare and choose between these two competing outcomes, although recommendation given by these two methods may differ.

Table 4.2 summarizes the results.

There are not many differences between the surveys of the public perception of the seriousness of crime and cost of crimes estimates when one just compares the outcomes of different schemes of punishment (although they may generate different recommendations, due to differences in their assessments of seriousness). Both methods allow ranking the outcomes in the order of their usefulness. The advantage of costs of crime estimates is that it allows one to check whether the benefits of a given crime policy outweigh the costs.

In the above example, policy B is recommended over policy A, because it provides a greater reduction in the cost of crime. Let us assume however that the costs of these two policies differ: policy A costs \$100 million while policy B costs \$200 million. It follows then that policy B should be rejected because it is not cost effective, i.e. the positive outcome has been obtained at too great a cost. On the contrary, policy A is cost effective and should be implemented.⁹⁸ Costs of crime estimates therefore provide a tool for choosing between competing policies which is absent - this is not possible by using only seriousness rankings. The ranking of seriousness is unable to discriminate between different crime policies and is therefore of limited value for public policy.⁹⁹

⁹⁸ If both policies are cost ineffective, both should be rejected.

⁹⁹ It has been used however to weight crime trends, so as to give a better picture of whether crime is rising or dropping according to the perceived seriousness of such a change. Such a weighted index may behave differently than an index of the number of crimes. See Kwan et al. (2000).

One may ask whether costs of crime estimates will be as useful when both policies will generate the net benefits. Let us assume that the cost of policy B is \$190 million rather than \$200, so that the net benefit of policy B is \$6.5 million (and the net benefit of policy A stays at \$22 million). Policy B is cost effective now, but as much so is policy A, and policy A should be preferred over policy B, if one has to choose between them. One may question whether such a small difference in the net benefit of two policies should lead to the rejection of the policy that may save ten lives (a greater reduction of murders). However, to say that policy B should be anyway chosen because this would save more lives would be simply to assess that the ratio between costs of murder and burglary is different that previously presumed, so, in fact, policy B is more preferable. In the end, however, some ratio has to be set, and a policy will be chosen accordingly.

The above reasoning shows an important advantage that costs of crime estimates have over the seriousness of crime rankings. While both methods are able to compare the outcomes of different crime policies, the former ignores the costs. Of course, costs of crime estimates, as such, do not provide an assessment of net benefits. Nevertheless, monetizing the benefits of crime policy, which is what is done with costs of crime estimates, allows one to compare the benefits with the costs. Therefore, both methods can guide crime policy under a retributive theory, but only costs of crime estimates are useful under consequentialist theories of punishment, when such estimates constitute a valid method of assessing and choosing the best possible outcome of many available crime policies.

The next step in the analysis will be a discussion of all elements of crime policy, and the role that costs of crime estimates can play in them. A given country's crime policy is determined by the relevant provisions in its criminal code, its sentencing practice, and the practice of the criminal justice system itself, for example the practice of law enforcement agencies. All these elements will be discussed in the next three sections.

4.2.3 Normative Seriousness of Crime

By normative seriousness of crime I mean the penalty scheme as set by legislators in criminal statutes. The penalty scheme provided for in a penal code reflects legislators' views on the relative and absolute seriousness of different crimes.

The relative perception of seriousness is given by the comparison of penalties provided for crimes within the system. If a theft is punishable by 1 month in prison, and rape is punishable by 60 months, it means that within this particular jurisdiction, a standard case of rape is considered to be 60 times more serious than a standard case of theft.¹⁰⁰

The absolute perception of seriousness flows from the fact that penalties are not only comparable with each other, but also, or mainly, constitute hard treatment for

¹⁰⁰ Due to the discounting process, an increase in the length of the sanction means a less than proportional increase in the severity.

offenders. If in one jurisdiction theft and rape are punishable by 1 month and 60 months of imprisonment respectively, while in the other they are punishable by 2 and 120 months respectively, it means that in both jurisdictions rape is considered to be 60 times more serious than theft, but also that in the second jurisdiction both crimes are considered to be twice as serious as in the first jurisdiction.

The social perception of crime seriousness, based on costs of crime estimates, should be reflected in the structure of penalties in criminal law. As has been said above, by setting a punishment scheme that is in line with the social perception of crime seriousness, legislators do not stand for any particular theory of punishment, for it is preferable to follow the recommendation of the social perception of crime seriousness according to all theories.

In the preceding sections punishment theories have been described and it has been shown that many of them do not generate a punishment scheme, at least not in any obvious way. However, whatever weaknesses punishment theories have, penal codes cannot overlook the question of a punishment scheme, as this is the core of the code. As public surveys suggest there is a broad consensus about the seriousness of crime – it might be useful to check whether there is a consensus among different penal codes as to the relative and absolute order of punishments.

Table 4.3 summarizes the penalties provided in a couple of penal codes.¹⁰¹ For England and Wales, and for Pennsylvania, sentencing commissions' recommendations were also given.¹⁰²

Not surprisingly, homicide is punishable by the maximum allowed sentence, which is usually a life sentence (the death penalty, which among the analyzed countries is allowed only in the US, in practice often turns into life imprisonment). Life sentence is of an indeterminate length, and even if there is a possibility of parole, some felons are never granted it. However, convicts can usually apply for an early release after a half of his determinate sentence, or after a specified period in the case of life imprisonment; this allows for a comparison of these two types of sentences. In France, an early release is possible after 1/2 of the sentence (18 years in the case of life imprisonment), in Germany after 2/3 (after 15 years in case of life imprisonment), in Pennsylvania after a minimum term, set by a judge, which cannot be longer than 1/2 of the sentence, in England and Wales after 5/6, in Poland after 1/2 (25 years in the case of life imprisonment). It means that, looking at the time when a convict is eligible for an early release, a life sentence is an equivalent to 22.5 years of imprisonment in Germany, 36 years in France, 50 years in Poland. There is no such clear relationship in England and Wales and in Pennsylvania, as courts determine a part of the sentence to be served on a case-by-case basis. This shows

¹⁰¹ England and Wales, which is one of jurisdictions in the United Kingdom (others being Scotland, Northern Ireland and canal islands), does not have one penal code: English criminal law has been written down but not been codified yet, and consists in many different criminal statutes.

¹⁰² Sentencing commissions have been created to provide more fair and equal treatment to offenders who commit similar offences in similar circumstances. Their recommendations are semi-obligatory, i.e. deviation from them is possible only when in a particular case some factors that are not specified in the guidelines occur. After the Booker case (125 S. Ct. 738 (2005)), guidelines are considered rather advisory than mandatory, but the question will probably be discussed for some years to come.

Table 4.3 Penalties provided for different crimes in selected countries

	England and Wales	France	Germany	Pennsylvania, USA	Poland
Homicide					
Standard case	Life	1–30 years	5–15 years or life	20–40 years	8–15 years or 25 years or life
Aggravated case	Life	Life	Life	Life or death penalty	25 years or life
Rape					
Standard case	Up to life (rec. 4–8 years)	1–15 years	1–15 years	Up to 20 years (rec. 4–5.5 years)	2–12 years
Aggravated case	Up to life (rec. 11–19 years)	Up to 20 years	2/3/5–15 years	Up to 30/40 or life	3/5–15 years
When a victim dies	Life	Up to 30 years	10–15 years or life	Life or death penalty	Not specified
Serious assault					
Standard case	Up to life (rec. 7–10 years)	1–15 years	3–15 years	Up to 20 years	1–10 years
Aggravated case	Up to life (rec. 10–16 years)	Up to 20/30 years	Not specified	Not specified	Not specified
When a victim dies	Life	Life	3–15 years	Life or death penalty	2–12 years
Robbery					
Standard case	Up to life (rec. 3 years)	Up to 7 years	1–15 years	Up to 7 years	2–12 years
With use of deadly weapon	Up to life (rec. 2–7 years)	Up to 20 years	5–15 years	Up to 10 years	3–15 years
When a victim suffers serious bodily injuries	Up to life (rec. 7–12 years)	Up to 15 years	Not specified	Up to 20 years	Not specified
When a victim dies	Life	Life	Life	Life	Not specified
Burglary in a dwelling					
Standard case	Up to 14 years (rec. 9 months)	Up to 5 years	3 months to 10 years	Up to 20 years (rec. 6–14 months)	1–10 years
Theft					
Standard case	Up to 7 years (rec. community sentence or short imprisonment)	Up to 3 years	Up to 5 years	Up to 5 years (rec. restorative sanction or short imprisonment)	3 months to 5 years

Notes: Standard case involves a premeditated act committed by an adult (not a repeat offender)

that life imprisonment is a rough equivalent of the determinate sentence of 20–50 years, with the important exception that for some prisoners life imprisonment either has been imposed without the possibility of parole or they actually never get it.

The next is rape and serious assault which is punishable by 10–20 years of imprisonment. It therefore implies that these crimes are punishable by a penalty of 0.2–1.0 of that provided for homicide. Robbery is punishable by a sentence of 7–15 years (which is 0.35–0.75 of the punishment for homicide). Burglary in a dwelling is punishable by a maximum of 10 years, (0.2–0.5 of the punishment for homicide), and theft is punishable by a maximum of 5 years (0.1–0.25 of the punishment for homicide).

This structure reveals the fact that crimes are punishable by substantially higher sanctions than are justified on the basis of the seriousness of crime.

For example, murder is considered to be at least several times (and up to more than a thousand times) more serious than theft (see Table 4.1), according to the crime seriousness surveys, but is punishable, at least theoretically, by a sentence that is just 4–10 times more severe. Were the punishment scheme set by the seriousness of crime rankings, homicide would be certainly at the top, but then there would be a huge gap, then violent crimes, another gap, and property crimes.

Apparently, the punishment scheme does not follow the seriousness of crime rankings. Why is this so? This may be due to several reasons. Firstly, the maximum sanction that is provided in criminal law is usually not the most often, or even often, used. In practice, only the worst cases are punished by the harshest sanctions, so the maximum punishment provided in books is of no practical importance, save in exceptional cases (with a possible exception of homicide, which is often punished by the harshest sentence.) The next section deals with the practice of sentencing in more detail.

Secondly, one conduct may violate multiple criminal provisions. If one act constitutes both, say, robbery and rape, the offender will be sentenced for both offences, but whether he can receive two sentences is a question of a particular legal system. For example, under the German Criminal Code, an act that violates more than one penal provision is punishable only once, according to the provision that provides for the most severe punishment.¹⁰³ In such circumstances, the maximum penalty for one crime has also to cover the most villainous *modus operandi* of the offender. If an offender has committed both rape and robbery during one act, under German law he may receive only one penalty, so the relevant punishment for rape has to include also the punishment for robbery. This leads to an increase in the upper limit of the punishment that is meant for those exceptional cases when one act constitutes multiple violations of criminal provisions.

Under the Model Penal Code and statutory merger rules, however, a merger of sentences is necessary only when one offence is a part of another (the lesser included rule) or when the same facts are enough to prove both crimes.¹⁰⁴ Therefore, one act may lead to multiple punishments, and if so, there is no need to increase the upper

¹⁰³ Sec. 52 of the German Criminal Code.

¹⁰⁴ In case law, more than this two merger rules appear. See, for example, a discussion of the Pennsylvania case law in Hoagland (1989).

limit of punishment provided for each crime when punishments may be summed up. Table 4.3 does not reveal, however, any coherent pattern and it is unclear whether differences in the rules of legal classification of an act play any role.

Thirdly, punishments provided for in criminal codes constitute only a theoretical threat. For them to be imposed, offenders have to be caught and sentenced. The differences in apprehending patterns may generate absolutely different threats of punishment in practice, even if the penalty for two different crimes is the same.¹⁰⁵ The differences in actual probabilities of apprehension will be discussed in the next section.

4.2.4 Judicial Perception of Seriousness of Crime

Two important points are discussed in this section. The first is the question whether a judge should follow the actual costs of a tried crime in sentencing. Secondly, there is a question whether the general practice of punishment is in line with cost of crimes estimates.

4.2.4.1 Sentencing and Actual Cost of Crime

General estimates of costs of crime have already been discussed. Nevertheless, any particular crime has its own costs as well. The question is whether the costs of a given crime should be important for sentencing. When by costs of crime we understand all consequences of crime – and this is the meaning of this term when used throughout this book – costs of crime have a similar meaning as harm. Section 4.1.1 provides a discussion of the role of harm and culpability and their relations to the cost of crime. When conduct has been intentional, the amount of harm simply reflects the criminal intent of the offender, and constitutes the basis for the proportional reaction of law. In the case of negligent conduct, it has been argued that the actual level of harm is important for the criminal law, because it is a proxy of faulty behavior, which has been unobserved.¹⁰⁶ Still, there is a question what is the relation between the actual harm of a given crime compared to the amount of harm usually inflicted by a given class of conduct.

Consider the following example. When a man has been murdered, there is a harm that can be described in general terms as a loss of human life. But there is also a more

¹⁰⁵ For example, many crimes were punishable by death in Imperial China. Nevertheless, only few executions actually took place. Many people originally sentenced to death were pardoned by lottery; so, while the law provides the same punishment for many crimes, the actual probability of being executed differed. See Shapiro (1981, pp. 157–193). See also Friedman (1995) to see the similar pattern in eighteenth century England, where many crimes were punishable by death, but – for many reasons – far fewer executions actually took place.

¹⁰⁶ For example, a doctor can be held responsible for negligent treatment usually only when some adverse effect occurs (i.e. his patient dies), but in all other cases, his negligence passes by unnoticed.

specific harm that consists of the loss of that particular human life. The methods of measuring the cost of crimes usually provide aggregate measures – so, for example, we can say that according to some methodology, one murder has on average a cost of, say, \$9 million. But some methodologies allow us to also measure an individual cost – for example, the risk compensation methodology. This methodology (see Sect. 2.3.1.3), which measures the monetary equivalent (in terms of increased wage for a dangerous job, or a price of some safety device) of an increase risk of injury, can measure a compensatory income both on average (i.e. for all the population) and for any given individual. The same is true for lost production methodology (see Sect. 2.3.1.2), which is able to measure both the average loss of production due to a given crime, and a loss of production due to a particular crime and victim. It is almost inevitable that an average and individual cost will differ. Is such a disparity important?

In fact, in some countries, notably in Anglo-Saxon jurisdictions, an informal description of the cost of a particular crime has been put into the law of criminal procedure in a form of the Victim Impact Statement.¹⁰⁷ The clear aim of such a statement is to provide the description of consequences of the crime for the particular victim. A statement, delivered by the victim, includes the description of harm and trauma suffered, lists any economic losses stemming from the crime, and provides some recommendations regarding sentencing.

The introduction of the Victim Impact Statement has been, however, controversial, as it is not clear whether information included in the statement should matter for sentencing. Opponents argue that victims will exaggerate their harm and will demand harsher sentencing than is justified.¹⁰⁸ Proponents highlight the increased accuracy of the sentence, due to information provided by victims, and also, by providing the description of consequences, keep magistrates close to the reality of life.¹⁰⁹ These are important points, particularly as regards procedure. Even assuming that people do not behave strategically (so victims will not exaggerate their losses), and that judges do not differ in their attitudes to crime from the general public, there is still a question of whether the actual harm, as, for example, described in the Victim

¹⁰⁷ The Victim Impact Statement was introduced in the U.S. in the mid 1970s, and in Australia and Canada in 1988. Under the name of the Victim Personal Statement Scheme it was also introduced in the U.K. in 2001. See Garkawe (2006).

¹⁰⁸ See, e.g., Ashworth (1998). There is, of course, nothing wrong in demanding harsh punishment as it only expresses the preferences of some people. The problem may arise when people who have *ex ante* agreed on some punishment scheme, now – as victims – demand more harsh, or more lenient, treatment of an offender. In the former case, they try to free ride, by fulfilling their personal punitive feelings at the expense of others (marginal costs of the harsher treatment of one offender are negligible for the society). In the latter case, by suggesting more lenient treatment, the actual victims undermine general deterrence, and provide offenders with an opportunity to illegally influence the behavior of the victims. But some arguments for compassion have been made in the English case law, see Edwards (2002, p. 691 ff).

¹⁰⁹ Professional judges are not representative for society as a whole, and, unless their verdicts are publicly discussed, may not necessarily follow public feelings. This is not to say that they ought to follow public opinion in any particular case, but rather to say that they have to follow public opinion in general. For when they deviate substantially from public opinion, the criminal justice system loses its credibility.

Impact Statement, should matter for sentencing, when it differs from the usual harm associated with a given class of conduct.

If the actual harm matters, then Victim Impact Statements and individual costs of crime estimates are important for sentencing, as they provide crucial information about the amount of harm. If, however, the actual harm is not relevant for sentencing, as the latter should rather be based on the usual harm associated with a given crime, then individual costs of crime estimates should be ignored.

The actual amount of harm may be due to factors that an offender had known (or at least should have known) before he committed the crime, or to factors unknown to the offender (for example, a particular characteristic of the victim). This introduces the question of foreseeability: an offender should be responsible for the foreseeable consequences of his conduct, but not for accidental ones. For when he is responsible for accidental consequences, he neither deserves the punishment (there is no fault on his side), nor can he avoid the dangerous behavior (he could not choose differently, for he could not expect what would happen).¹¹⁰ What is foreseeable depends of course on the knowledge that an offender had before committing a crime, or what he should have known, if he had observed due care.

When an offender is responsible only for the foreseeable harm, the actual amount of harm is irrelevant. In standard cases, the actual amount of harm is what could have been foreseen, so there is no discrepancy (after all, what is foreseeable is based on what usually happens). In those atypical cases when the actual amount of harm is different from what could be expected, it either is the good luck of a victim that is not relevant for the offender or the bad luck, for which the offender cannot be held responsible as well. The former case is similar to the discussion of attempts (see Sect. 4.1.1), when I have argued that attempts should be punished on an equal footing with completed acts.¹¹¹ The latter simply states that the offender does not deserve to be punished for the accidental consequences of his act, or that it is not useful to punish him for that.

When one assumes that only foreseeable results can form the basis for punishment, there is little place for individual costs of crime estimates. Such estimates will either confirm that the results are standard ones, so this is irrelevant for sentencing, or will reveal that in this particular case, the results deviate from the foreseeable ones, but such a deviation is again irrelevant for sentencing.¹¹²

However, sometimes, criminal codes provide for different punishment according to different negligent results that stem from the same intentional conduct. This was called a “curious feature” by Hart (Hart 1968, pp. 134–135) and is barely understandable according to the above reasoning. Take as an example the German Criminal Code provisions. Bodily injury is punished by imprisonment of not more

¹¹⁰ Yet, in some jurisdictions strict (or absolute) liability exists. Strict liability means liability for an effect, even if there was no offender’s fault in the behavior. The existence of such liability, particularly in criminal law, remains highly controversial.

¹¹¹ It is worth noticing that, for strategic reasons, criminal codes provide for more lenient treatment of those offenders who abort their action, and stop at the stage of attempt.

¹¹² In the context of the Victim Impact Statement, for the same argument see Ashworth (1993, p. 502 ff).

than 5 years. When the result of such an injury is serious (for example, loss of a limb), the maximum punishment increases to 10 years, and when the result is death, the maximum punishment is 15 years.¹¹³ The results in both cases are due to negligence,¹¹⁴ but the punishment is different. One may argue, however, that whether the result of bodily injury is a serious bodily injury or death is rather a matter of luck, so the disparity of punishments is unjustified.¹¹⁵ An offender should be responsible for intentionally inflicting bodily injury and negligently causing more severe results, whatever exactly these results were. This is not so and this fact requires explanation – a likely reason is that the particular result is a proxy for negligence in the first place. The reasoning is that it is much harder to kill someone than to cause serious injury, so death is probably the result of a higher level of negligence than serious injury. Therefore, the higher punishment for a more serious result does not imply responsibility for the result itself, but rather responsibility for the level of negligence – and the result is assumed (correctly or not) to be a proxy for negligence.¹¹⁶

Sometimes, atypical results are not a product of chance, but rather of some inherent factors, e.g. the particular characteristics of an act or a victim. For example, children suffer more than adults, so the criminal law punishes more severely those who attack children.¹¹⁷ But in such cases, where a victim was particularly vulnerable, it is not the amount of harm that matters, but rather the fact that an offender having known these personal characteristics has nevertheless committed a crime. The atypical amount of harm indicates atypical characteristics of the victim, and whether it matters for sentencing purposes depends on the knowledge of this fact by an offender.

¹¹³ Sec. 223, 226, and 227 of the German Criminal Code.

¹¹⁴ Were they intentional, in the first case it would be punished by a maximum term of 15 years of imprisonment, and in the second case, as a homicide, by life imprisonment.

¹¹⁵ Assume for example that as a result of beating someone up there is 1% probability of death, 9% probability of serious injury and 90% probability of just temporary injuries. Whether death or serious injury results, they both were perfectly foreseeable before, and whichever happened to occur was simply a matter of chance.

¹¹⁶ Assume that beating someone up may be done in two ways: light and serious (depending on the number and places of hits, their strength, etc.). If it is a light beating, the probabilities of result are as in the above footnote. If it is a serious beating, the probability of death is 10%, probability of serious injury is 30%, and 60% probability of temporary injuries. It follows that death or serious injury is a more probable result of a serious beating, so we may be compelled to assume that when such a result does occur, the beating was more likely serious than light. On probabilistic grounds such reasoning is, however, incorrect, because it ignores the pattern of underlying behavior. Assume there is 1,000,000 light and 1,000 serious beatings. There will be 1,000 (1%) deaths as the result of the former, and 100 (10%) deaths as the result of the latter. Having found a dead person, it is then more probable that he was a victim of a light beating than the serious one.

¹¹⁷ This is particularly true in the case of sexual crimes. The victim's age being below a certain threshold is a statutory aggravating factor. It is worth noticing that other types of crimes do not use such a distinction, albeit the age of a victim may likely contribute to the increased suffering in those cases as well. It is then a question of whether such a distinction is based on the amount of harm (retributive justification) or on the better protection of the most vulnerable (utilitarian justification).

It has been argued that when results are atypical due to the particular characteristics of a victim, but the characteristics had been known to the offender before he committed a crime, then it is justified for one to take these results into account (Garkawe 2006, p. 8 ff). In some sense, these results may be not regarded as “atypical”, but rather “typical” given the particular circumstances, and are important for sentencing if an offender had known them before. Because what is a typical result depends on what usually happens as a result, or rather on what people know that will happen, it is important to disseminate information about the actual results. Therefore, the Victim Impact Statement should be allowed in every case, or at least in every serious cases, even if not in every case it will matter for sentencing purposes (see Erez 1999 and Garkawe 2006).

Costs of crime estimates may provide relevant information on general grounds. For example, the fact that violent crimes are so costly is an important piece of information not only for policy makers, but also for would-be offenders. But can individual costs of crime estimates play such an informative role? The answer seems negative: many methodologies (for example, property prices, or risk compensation) are based on the analysis of a set of data and an analysis of one individual will not give any meaningful results. Other estimates, while capable of giving meaningful results even in individual cases (e.g. willingness-to-pay), use preferences that can hardly be known to an offender. Probably only one methodology is both capable of giving individual estimates and is based on the factors that may be known to an offender – this is a lost productivity approach. The occupation of a victim may be known in advance so her losses due to crime may be taken into account for sentencing, as the offender knew, at least approximately, the amount of losses his crime would make. But as it has been discussed earlier, a lost productivity approach cannot measure the amount of harm for oneself, but it rather measures the tangible losses for others. So, that methodology can only approximate some part of the costs of a particular crime. And, of course, sentencing based on the amount of such losses would produce great inequality in punishments: crimes against those victims who have good jobs will be punished much more severely than those against the young, the poor, and the elders. This is not what happens in practice,¹¹⁸ and would be clearly unacceptable from the ethical standpoint. Thus, individual costs of crime estimates offer no help even in that case.

4.2.4.2 Actual Sentencing and Cost of Crime

As has been noted above (see Sect. 4.2.3), penalties provided for in criminal codes do not reflect the seriousness of crime, as given by costs of crime estimates, and provide for much more severe punishment for property crimes than seems to be justified on the basis of seriousness.

¹¹⁸ See, however, Glaeser and Sacerdote (2003) for evidence that victims’ race, gender and age influence the punishment, even in vehicular homicides. Nevertheless, the sentencing pattern they have found is not in line with the lost productivity approach, for example, those who kill women get higher sentences, than those who kill men, although men earn more on average.

Table 4.4 Average time spent in prison (in days) per every committed crime

	Vehicle theft	Residential burglary	Assault	Robbery	Rape	Homicide
Average time spent in prison (in days) per every committed crime						
England and Wales	0.6	1.4	1.6	2.9	102.0	1,840.8
USA	2.2	4.1	13.1	20.2	210.6	2,013.0
Australia	1.4	0.8	0.7	7.1	31.8	1,360.0
Netherlands	9.0	2.2	0.9	2.6	59.0	1,134.0
Switzerland	2.6	1.9	0.8	1.1	61.3	1,467.6
Poland	n.a.	0.9	n.a.	5.0	n.a.	n.a.
Time spent in prison as a multiple of a time spent for residential burglary						
England and Wales	0.4	1.0	1.1	2.1	72.3	1,305.5
USA	0.5	1.0	3.2	4.9	51.4	491.0
Australia	1.7	1.0	0.9	9.0	40.3	1,721.5
Netherlands	4.1	1.0	0.4	1.2	27.2	522.6
Switzerland	1.4	1.0	0.4	0.6	32.8	784.8
Poland	n.a.	1.0	n.a.	5.6	n.a.	n.a.

Source: Farrington et al. (2004). For Poland, Czabański (2007): burglary covers also non-residential ones.

The normative threat is just a theoretical one, though. The criminal law has also to cover atypical cases, for example when one act violates many provisions of the criminal code. The practice of law, however, deals with typical cases (or rather they are typical because are dealt with), and should be more in line with the perceived seriousness.

Moreover, it is not only the penalty for apprehended crime that matters. The probability of apprehension is not equal across all crime categories; for example, the police much more vigorously follow a homicide case than a theft. As a result, even when penalties for different crimes are the same, punishment for actually committed crimes may differ. For example, the same penalty of 1 year imprisonment is not the same if one kind of crimes has an arrest rate of 100% and the other of 50%.

To fully understand differences in actual severity of punishment for different crimes it is important to include not only actual sentencing patterns, but also data on the probability of apprehension. At the end, the sentence given is not the sentence executed. Parole or early release is an important part of every criminal justice system and affect the actual burden of sentences. The data on actual time in prison has to be included as well. Table 4.4 includes such data and compares the average time spent in prison for a few crimes in selected countries.

As usual, international data comparisons have to be done cautiously.¹¹⁹ Therefore, the differences between countries are not as important as a general pattern. This general pattern is that homicide is on the extreme end of punishment, followed by a huge gap, then rape, then a gap, then other violent crimes (robbery and

¹¹⁹ With all the authors' efforts to provide comparability, there are still some differences in definitions, and statistics. See Farrington et al. (2004).

assault) and then property crimes (vehicle theft and residential burglary.)¹²⁰ This general pattern confirms the pattern found in costs of crime estimates as reported in Table 4.1, where homicide is on the extreme end, then other serious violent crimes (rape, robbery, serious assault), and then the rest.

Criminal code provisions narrow the range of penalties provided for crimes in a manner that is incoherent with costs of crime estimates of the crime's seriousness. However, when one takes criminal justice practice into account, better coherence is revealed. The actual practice of punishment is in line with the perceived seriousness of crime, as measured by costs of crime estimates.

This supports a thesis that costs of crime estimates accurately reflect punishment schemes people want to use in practice.¹²¹ Not only should costs of crime estimates guide sentencing patterns, they also do in practice.

One may question whether it is justified, under a retributive theory of punishment, to punish according not only to the severity of an act, but also taking the probability of apprehension into account. The principle of proportionality postulates that it is the gravity of the offense that matters, not the actual probability of apprehension. At the end, either an offender is caught and punished according to the very crime he committed, or is not caught and is not subject to criminal punishment at all.

Two counter arguments may be put forward. The first is that intuitively people take the probability of apprehension into account when they assess the seriousness of the conduct. Therefore, when one acts secretly, premeditatedly, by poison or in any other fashion that increases the chances of escape, people perceive such conduct as more grave than it would be otherwise. The argument therefore simply states that people already include the probability of apprehension into their perception of the seriousness and there is no need to do it again.

The second argument is that retribution is required for all crimes committed, and it would be naïve to simply ignore the probabilities of apprehension.¹²² Take an example of vehicle theft. The simple fact that only 1.3% of vehicle thieves are apprehended¹²³ makes simple restitution out of the discussion, as it would mean that thieves can retain the stolen assets in 98.7% of cases. The punishment for vehicle theft has to be higher then. In some cases, however, such punishment may be excessive. That is the case when someone has committed only one crime, had a bad luck and been caught. The penalty that he faces, which is the penalty set accordingly

¹²⁰ Vehicle theft is an aggravated case of theft, so it may not necessarily be perceived as less serious than residential burglary. Assault also includes minor cases. These facts blur the difference between violent and property crimes in Table 4.4.

¹²¹ This is not, of course, to say that the practice of punishment in every country at any time precisely reflects public attitudes. On the contrary, the very existence of sometimes hot political debates over crime policy reveals some tension between the actual practice and public attitudes. But the differences are not so substantial as one may expect.

¹²² The fact of low apprehension rates is sometimes put forward as the very rationale for the existence of criminal sanctions. See Becker (1968), Posner (1985).

¹²³ The ratio reported for vehicle theft in the U.S. in 1996 by Farrington et al. (2004, p. 75).

to the average number of crimes, in his case is obviously excessive.¹²⁴ This may explain why criminal law treats the first time offenders leniently, and recidivists much harsher – the probability of mistake in attribution of other crimes than the one actually tried for is greater in the former than in the latter case.¹²⁵

If the above reasoning is correct, under both theories of punishment, actual probability of apprehension should be taken into account, as indeed it is.

The general conformity of the actual practice of punishment to recommendations of costs of crime estimates prompts us to seek other fields in which costs of crime estimates may be useful.

4.3 Crime Prevention

Estimates of cost of crime may be useful in shaping sentencing patterns, as has been shown earlier. Their potential applications are, however, broader. Whatever position one takes as regards punishment theory, punishing offenders is only one of many ways of tackling crime. It is clear under consequentialist theories that punishment may, and sometimes ought to, be replaced by other measures, for example treatment or education. But also retributivists do not claim that there is any obligation to test the moral integrity of persons by allowing crime prone circumstances to exist in order to detect those people who deserve to be punished. Under both theories, it is a good thing to avoid crime being committed in the first place.

Society has many means of reducing crime: education, treatment, child and social care, housing policy, police presence are all available *ex ante* and are, to some extent, competing with punishing the offenders *ex post*. There also exist many options within sentencing process: fines, community sanctions, probation, and imprisonment. All these measures have different costs and yield different results. Yet, some of them have to be chosen, some have to be preferred to others.

4.3.1 *Cost-Benefit Analysis in Criminal Law*

Cost-benefit analysis has been used for some time, particularly in the fields of environmental and competition law. Since the 1980s it has been explicitly implemented

¹²⁴ This may be even worsened by the fact that the first time offenders are caught more often than the others. It asks for an even more lenient penalty, given the probability of apprehension. See Braithwaite and Petit (1990, p. 45).

¹²⁵ Retributive theories have difficulties in explaining why recidivists are subject to harsher treatment. The above reasoning offers a plausible explanation why such a harsher treatment may be justified.

in the legislation process in the US¹²⁶ and is of growing importance in the E.U.¹²⁷ The use of it in criminal law is still a matter for discussion (see Brown 2004, p. 326). As an applied form of consequentialist moral theory, it can be criticized on these grounds alone.¹²⁸

The question of how to choose the best means to deal with crime is a part of the broader issue of how society should choose a social policy. Two possible answers can be given. First is that policies should be chosen accordingly to some priorities set in advance, for example the importance of interests that policies aim to protect.¹²⁹ Different interests have different priorities, and it is important to protect the most important interests first. Proponents of this view create lists of priorities that social policy should protect, and social policies should be chosen accordingly.¹³⁰ One problem with this approach is that there is no one list of priorities that is acceptable for all.¹³¹ But even more importantly, policies are competing with one another, and hard choices have to be made. Due to budgetary constraints, not all policies aimed at protecting the same level interests can be realized. Also, some policy may protect important interests but only to a very limited extent, while the alternative one protects not so important interests but much more effectively. Intuitively, life should be protected over property, so Policy A reducing the number of homicide by one should be preferred to Policy B that reduces the number burglaries also by one. But it is also quite clear that we would prefer Policy B, if it eliminates all burglaries. And if so, there is some point at which we would be indifferent between Policy A (one homicide less) and Policy B (some number of burglaries less), even if life is generally more important than property. Such trade-offs are unavoidable, and a list of priorities with only ordinal, not cardinal, order cannot guide social choices.¹³²

¹²⁶ The executive Order No. 12291 of Ronald Reagan, 12 February 1981, required that “regulatory action shall not be undertaken unless the potential benefits to society from the regulation outweigh the potential costs to society”.

¹²⁷ Following the Göteborg European Council in June 2001 and the Laeken European Council in December 2001, the E.U. implemented impact assessment as a tool to consider the effects of policy proposals in economic, social and environmental dimensions. See Commission’s Communication COM(2002)276 of 5 June 2002 on Impact Assessment.

¹²⁸ See, for example, Hansson (2007) for a list of philosophical problems with cost-benefit analyses.

¹²⁹ The first criticism of utilitarianism was made by Rawls (1971) who argued for taking the pattern of distribution into account, and to allow departure from equality only when the worst-off benefit as a result. This criticism has been subsequently developed by Sen and his theory of capabilities. See generally Nussbaum and Sen (1993).

¹³⁰ That approach was used by Von Hirsch and Jareborg (1991) in assessing the seriousness of crime (see Von Hirsch and Jareborg 1991, p. 2).

¹³¹ Lists of Sen, Nussbaum, Finnis, Griffin and others differ. An even more troubling question is who should define such a list? When it is an individual, this approach reduces to preference satisfaction. When it is the society or any other source, it is hard to argue that “objectively” life would be better for someone, even if he strongly disagrees with relevant choices. See Adler and Posner (2006, pp. 31–33).

¹³² See Frank (2000): “Scarcity is a simple fact of the human condition. To have more of one good thing, we must settle for less of another. Claiming that different values are incommensurable

And when one allows for comparability between different goods and values, such an approach becomes a comparison of costs and benefits.

The first reason why costs and benefits of crime policies should be assessed and compared is that by choosing the most effective policies we can get the best results within a set budget. Many crime policies are financed by the state budget, so their costs can be approximated fairly correctly.¹³³ This is the case, for example, with imprisonment or police forces, whose costs are readily available from the state accounts.¹³⁴ But whatever the costs of crime policy are, there are some benefits too. The first of them is the reduction in crime, the other is the satisfaction derived from the fact that justice has been done, i.e. from retribution.¹³⁵ For many years, the benefits of crime prevention, while obvious, had not been quantified, while the costs of crime prevention had. This led to some disproportion: for example, supporters of the limitation of imprisonment might claim their policy would save some money to which their opponents had no good answer and could only resort to arguments about justice.¹³⁶ Apart from having the best results at a given budget, there are also other advantages of cost-benefit analysis in crime policy, but before analyzing them the most common objections to cost-benefit analysis shall be discussed.

Criticism of the potential application of cost-benefit analysis in choosing social policies very often is based on three main arguments: that cost-benefit analysis (a) discriminates against the poor, (b) takes all preferences into account, however evil they might be (see, for example, McPherson and Hausman 1996, p. 149 ff), and (c) by attaching a price to moral values, degrades them (see, particularly, Ackerman and Heinzerling 2004).

These arguments are even more powerful in the field of criminal justice, where the notions of equality, fairness, and justice are fundamental ones. As has been argued earlier, costs of crime estimates may be useful in shaping sentencing patterns quite independently of their use as a component of cost-benefit analysis. Their application in cost-benefit analysis requires however the justification of cost-benefit analysis itself in the field of criminal policy.

simply hinders clear thinking about difficult trade-offs. Notwithstanding their public pronouncements about incommensurability, even the fiercest critics of cost-benefit analysis cannot escape such trade-offs" (p. 914).

¹³³ Still, some long term consequences, for example, a decrease in human capital, may not be so evident as a cost of crime policy. See Brown (2004, p. 343 ff).

¹³⁴ Many policies of course have other costs than the direct costs of financing. For example, imprisonment may decrease the human capital of convicts, impoverish relatives of the offender and so on. (Brown, 2004). Other policies generate their own indirect costs as well.

¹³⁵ It is an interesting question whether retributivists will still support their theory if punishment were found to be ineffective, or even counter-effective, in tackling crime, i.e. there would be less crime if we did not punish offenders, and by punishing offenders we would only fulfill our sense of revenge.

¹³⁶ This danger has been noted quite early. See note 42 in Chap. 2 and accompanying text.

4.3.1.1 Discriminating Against the Poor

It is a popular claim that willingness to pay discriminates against the poor. The willingness to pay depends on wealth, so rich people are willing to pay more than the poor. In the final analysis, the wishes of the rich are more important than those of the poor. But the meaning of that fact is not always as suspicious as it appears.¹³⁷ In the context of costs of crime estimates, research supports a claim that the rich are willing to spend more on neighborhood safety than the poor.¹³⁸

Given the fact that safety is mostly a public good, it means that the rich are willing to buy not only safety for themselves, but also for the poor. The higher willingness to pay of the rich is beneficial for the poor as well in terms it provides them with more safety, at least when the rich actually pay the larger share of the costs, i.e. when taxes are progressive (see Durham 1988, p. 132). It is even more important when one realizes that the poor face a higher risk of victimization than the rich. In the context of crime prevention it would be quite perverse not to allow the rich to finance a policy that benefits mostly the poor, in the name of equity.

But there is another question. The rich attach a higher value to crime reduction than the poor, so in the end one murder less is worth, say, \$10 million for the rich, and \$1 million for the poor. Assuming that people care mostly about themselves, does it mean that the life of the rich is worth ten times more than that of the poor?

There is a couple of issues here. First is the question of choosing among crime policies. When crime policy is decided and financed locally, the income differences between regions influence the choice, and – as a matter of necessity – poorer regions can spend less on crime policies than more affluent ones. In practice, such a problem is not acute, as poorer regions enjoy lower crime rates, so they do not need to spend much on crime policies.¹³⁹

Another question is the role of wealth within sentencing process. In history, it was not uncommon to have the amount of punishment depend on the social status of a victim, as it was the case in North Eastern Europe in the early medieval period.¹⁴⁰ Nevertheless, it is hardly acceptable now, and no criminal code discriminates between the rich and the poor. Still, there is empirical evidence that the characteristics of a victim matters for sentencing. While the earlier discussion (see Garkawe 2006,

¹³⁷ Basically, the fact that the wishes of the rich are more important is rather a question of definition. In the market context, the rich are rich precisely because their wishes are more important than those of other buyers. The objection is thus rather to the scope of such power, so the claim is that the rich in one context (a market one) ought not to be so in another (for example, a political one).

¹³⁸ Cohen et al. (2004, p. 101) find the wealth of the respondents positively correlated to their willingness to pay for reduction in all crimes but rape.

¹³⁹ Sometimes different sources of financing may create problems with the distribution of penalties. For example, imprisonment is usually financed by the central government, while community service is financed locally. This creates an incentive to substitute the latter for the former.

¹⁴⁰ One of such institutions was *wergeld*, which was used in the early medieval Europe. *Wergeld* was an amount due to the victim or her family in the case of crimes or negligent harms, and depended on the social status of a victim and the amount of harm. It was abandoned in the late medieval period. See Madden (2006).

p. 8 ff) may explain why it so when the offender knew this characteristics earlier, the wealth of a victim is not among the factors criminal law allows one to take into account. While non-legal factors have been found to influence sentencing,¹⁴¹ it seems that wealth has been excluded as a sentencing factor on normative grounds. When this is the choice, it follows that only aggregate cost of crimes should be used in cost-benefit analysis.

4.3.1.2 Who and What Has the Standing

For economists all preferences are equally good, or rather are beyond good and evil. When maximizing utility is the aim, the source of utility is not relevant, so even evil preferences may contribute to the utility of an individual – so a sadist will be happier having tortured his victim. This is troubling from the moral standpoint, when cost-benefit analysis, including preferences of sadists, will dictate the course of action. Therefore, some other proposals have been made, for example Adler and Posner propose imposing restrictions on preferences (Adler and Posner 2006, p. 35 ff). In their view, the individual's well being increases only when preferences survive idealization (which basically eliminates all evil, ignorant or adaptive preferences) and are self-interested (which means that preferences for things happening far away should not be counted).

As regards ignorant preferences, if the public is misinformed about, say, the impact of crime, it is better to inform people than to correct their choices regarding crime policy. It is even less understandable why one should ignore altruistic willingness to pay for crime reduction for others.

What should be maximized and what preferences should be important is a question that was dealt with in some detail in Sect. 4.1.3.1, where I argued that the problem with interpersonal comparability of utility was not with preferences, but with the question of transferability. Sadistic preferences, for example, count insofar as sadists are able to pay a victim a sufficient amount of money to obtain her consent.¹⁴² In modern moral theories there is little doubt that what happens among two consenting adults is their own business, even if legal systems sometimes take another position.¹⁴³

¹⁴¹ See Glaeser and Sacerdote (2003), who find that the race and gender of victims significantly affect the length of sentence in vehicular homicides, when the identity of a victim is random.

¹⁴² When a partner of a sadist derives pleasure from the act, i.e. is not a victim, it is obvious that such a behavior, benefiting two parties, is not immoral. Therefore, it is not a question of sadistic preferences that is troubling, but the question of the consent of the other party.

¹⁴³ Legal systems prohibit many so-called victimless crimes, e.g. prostitution or drug dealing. The need for the criminalization of such behavior is highly controversial among philosophers. The explanation may be time inconsistency of choice. All people may agree ex ante on having a criminal law, even if ex post some of them are made worse off by being punished (see Güerker et al. 2006). The same might be true with victimless crimes. If we know that prostitution is harmful for ourselves, we would be likely to forbid it and therefore create yet another barrier (apart from our moral outrage) to overcome a temptation that is likely to come at some point in future. It is an Odysseus-like strategy to bound oneself in expectation of the weak will in the future.

If one is to accept this point, laundering preferences is inappropriate. It is not important to decide what wishes of other people are acceptable or not, a procedure that is prone to be arbitrary, but it is vital to check whether compensation can be paid to secure the consent of the other party. This is why the benefits of a rapist should not count,¹⁴⁴ as well as the benefits of a thief.¹⁴⁵

Therefore, criminal gains have no standing in cost-benefit analysis simply because a potential compensation does not exist in such cases.¹⁴⁶ In fact, one may argue that this is the very reason why a particular subset of activities has been made unlawful.¹⁴⁷ This is in sharp contrast with other harmful but productive activities. For example, when a factory pollutes the environment, there exists, at least theoretically, an amount of compensation that may be paid in order to secure the consent of all affected. Obtaining such consent in particular circumstances may be unfeasible, due to transaction costs, but in principle, is possible. When the actual compensation that should be paid exceeds the profits of the factory, the activity in question does not pass the cost-benefit analysis test and should be rejected. In the case of crimes, an inability to pass the potential compensation criterion has been a constitutive feature of the very definition of crime.

Yet, in discussions about the proper limits of criminalization, transferable benefits of would be offenders should be taken into account. Let us take an example of a person who being under duress steals some food from a shelter. While there was no prior consent to that taking, it is highly probably that the parties would have agreed on the transaction had they had a chance to negotiate. In such rare circumstances, when an offender would probably secure the victim's consent the law does not usually treat such behavior as criminal, or at least limits the criminal responsibility (see Posner 1985, pp. 1205–1206).

Another important question of standing is a question of foreigners, i.e. people who do not belong to the community which takes decisions. When people who benefit from a police are not the people who pay the costs, there is an incentive to free ride. In the context of crime policy, one may argue this is why richer people tend to favor lenient (i.e. cheaper in terms of budgetary costs) crime policy – they save on

¹⁴⁴ The fact that cost-benefit analysis is based on potential compensation implies the potential consent. Overcoming the resistance of a victim may be a source of additional satisfaction for an offender, but there is no potential compensation – for one cannot agree to falsely resist.

¹⁴⁵ Some argue that the benefits of a thief should be counted, e.g. Becker (1968), so the property stolen should be treated as a mere transfer, not the loss. But such an approach fails to recognize that thieves cannot compensate, even hypothetically, their victims in any other way than returning the stolen things, i.e. by annulling the activity.

¹⁴⁶ When one accepts the concept of summing the utilities across people, it follows that a decrease in one's utility may be compensated by an increase in utility of another. But such an approach ignores the fact that utility is not transferable across people.

¹⁴⁷ Trumbull (1990, pp. 210–214), argues that cost-benefit analysis has to follow the social constraints, and therefore criminal gains should not have standing. The above argument shows why such social constraints exist. See also Zerbe (1991) (arguing for settling cost-benefit analysis on the predetermined pattern of rights).

taxes, while the burden of crime falls mostly on the lower classes.¹⁴⁸ The discrepancy between those who pay and those who benefit are also seen in the context of sentencing choices (when courts may be willing to impose imprisonment instead of community service, because it is financed by the central government, not locally), and mutual recognition of sentences (when Country A may tend to punish offenders from Country B more severely, obtaining a higher deterrence at the expense of others who will have to pay for imprisonment).¹⁴⁹ The solution for cost-benefit analysis is to include all persons who belong to the relevant political community, for the political community is a forum of spreading gains and losses of different social policies, and this is an appropriate arena where potential compensations become actual ones.

The above reasoning supports the claim that willingness to pay is a correct measure of the costs of crime, while others methods are not (see Sect. 3.10). Willingness to pay is based on real preferences, assumes the possibility of compensation, and measures all consequences of crime as feared by people. What is even more important, willingness to pay also measures altruistic attitudes, and ethical preferences, which are lost when one looks only at tangible costs of crime.¹⁵⁰

4.3.1.3 Pricing the Priceless

Some people may feel offended when the price label is being attached to moral values. Market values are incommensurable with ethical considerations, putting a price on moral values degrades them, and at the end, mixing market values with moral values makes no good (see, particularly, Ackerman and Heinzerling 2004). Such criticism may be warranted, when cost-benefit analysis does not include moral preferences of people. For example, when only tangible costs of crime are included, or when altruistic preferences are excluded, the results of cost-benefit analysis may be overridden by ethical consideration in political process.

One has also to be careful when asking questions – for example respondents would feel absurdity in being asked how much would they like to get for being murdered. That intuition is correct – almost no one would be willing to be murdered, no matter what the compensation.¹⁵¹ In fact, people may not dispose of their bodies in certain ways – for example, they may not agree to be killed, seriously injured, or to have their organs taken, when their consent is driven by remuneration. While there is some discussion whether this approach is correct (particularly as regards

¹⁴⁸ Rich people tend to be less punitive (see note 78.) But they are able – and willing – to pay more than the poor for crime reduction.

¹⁴⁹ Such fears have been expressed in the E.U. context. See the European Commission's "Green paper on the approximation, mutual recognition and enforcement of criminal sanctions in the European Union", COM/2004/0334 final.

¹⁵⁰ See Zerbe (2007, pp. 20–24) arguing for including moral preferences into the concept of efficiency.

¹⁵¹ Although there is anecdotal evidence of suicides in order to provide one's family with insurance compensation. See also a report of practices in India, in which wealthy criminals would buy replacements to be hanged in their stead. Zerbe (2007, p. 56).

selling organs, tissues, and blood), the concept that human body is non marketable is widely held.¹⁵²

Estimates of costs of homicides, rapes, serious injuries, burglaries, and so on, are not meant to be like a price on the market. They do not represent any particular license to commit a crime,¹⁵³ and when someone is prone to commit many crimes, he does not get rebates, like on the market, but rather life sentence quite quickly. Moreover, the price fully compensates the seller, while the punishment, although may give some satisfaction for a victim, has other purposes. This reveals why the analogy between punishment and price is false – price aims to maximize the surplus of producers and consumers, while punishment tries to eliminate the incidence of crime altogether. Surveys of the public perception of the seriousness of crimes (see Sect. 4.2.1) show the diversity of the seriousness of different crimes, so some crimes are perceived as worse than others, but all are equally undesired (so people are not willing to say that some crimes are *better* than others). We are not going to accept criminality as a matter of principle – but we have to as a matter of practice.

Therefore, the correct question is not about the value of any single crime, but the value of crime reduction. As has been argued above, hard choices are necessary in practice, and not all policies may be realized. There is a trade-off between safety and costs, and while we all would like to be perfectly safe, we also have to prioritize our actions.

Moreover, ignoring costs of crime may easily lead to abandoning policies that are costly, but would be accepted by people. This point shall be discussed in some detail in the next section.

4.3.2 *Benefits of Cost-Benefit Analysis*

Some argue that, bearing in mind the broad confidence interval, cost benefit-analysis are not going to be very fruitful. For example, when the net result of a policy is assessed to be any value between -50 to $+1$ million, it is not only hard to say whether a policy should be adopted, but also whether conducting cost-benefit analysis has been reasonable itself.¹⁵⁴

It is true that cost-benefit analysis is a costly procedure itself. Assessing what would have happened if a given policy were not introduced, or what would happen if a policy is to be implemented, requires complex econometric models, and results are often unstable across specifications.

¹⁵² Why people do not allow themselves to freely dispose of their bodies is a question outside the scope of this book. One possible answer is that people, who care not only about their absolute but also their relative position within society, impose restrictions on how one can get this position in order to prevent a situation where at the end, the relative position of people is unchanged but all are lacking some parts of their bodies. See Frank (1985) for the concept of restrictions on freedom of choice in order to prevent such a race to the bottom.

¹⁵³ For that concept, see Davis 1992, p. 238 Sect 4.1.2.3.

¹⁵⁴ See Verchick (2005) for that argument.

The basic benefit of crime policies is crime reduction. What is the effect of different crime policies on crime rates is an empirical matter. While the existence of a deterrent effect of the death penalty is contested,¹⁵⁵ the negative effects of imprisonment,¹⁵⁶ rehabilitation and police¹⁵⁷ on crime are obvious, at least as regards the direction of the relationship, if not the magnitude of the effect. The fact that empirical evidence supports the intuitive thesis that crime policies reduce crime is certainly not enough to guide public choices. One may expect some positive effects of a given policy on theoretical grounds alone. What is important is to check whether the benefits of a given policy exceed the costs.

For many years the main element of potential benefits, the cost of avoided crimes, had been omitted or miscalculated. For example, the President's Report of 1967 claimed that costs of lost or damaged lives, of fear and of suffering cannot be measured solely in dollars and cents, then declined to measure them in any way, and then moved swiftly to recommendations (see President's Commission on Law Enforcement and Administration of Justice 1967). By excluding the costs of violence, such an approach found that the most expensive crime is illegal gambling (because of tax losses), but no sensible public policy could follow such recommendations. No doubt that in such circumstances ethical considerations might easily override the conclusions of cost-benefit analysis, and cost-benefit analysis itself might be perceived as a meaningless play with numbers.

However, when the government faces a problem whether some policy conforms with public preferences, it may use other measures, for example referendum, instead of monetizing some intangible benefits of a possible policy. In such a way, public preferences will be revealed without a controversial task of monetizing the benefits of crime reduction.

4.3.2.1 Cost-Benefit Analysis Versus Referendum

One may argue that the political process itself correctly expresses public wishes, without the need to monetize the potential results of a policy in question. Even if logrolling and the activities of interest groups may corrupt the process, referendum is possible.

Experts may provide the public with the description of the likely results of a policy, given in their natural metric, and the public may take a reasoned decision.

¹⁵⁵ For recent studies see Dezhbakhsh et al. (2003) (arguing for the existence of a deterrent effect), Sunstein and Vermeule (2005) (arguing that if the death penalty deters, we are morally required to use it), and Donohue and Wolfers (2005) (arguing that statistical findings are still not reliable).

¹⁵⁶ See Levitt (1996) (arguing that, on margin, one prisoner more for a year results in 15 crimes less).

¹⁵⁷ See Marvell and Moody (1996) (finding of a substantial effect of police on crime size) and Levitt (1997) (arguing that more police in electoral years reduces crime, in particular violent crimes) (see Martinson 1974 (nothing works) and Sherman et al. 1996 (something works)).

For example, considering the project of street monitoring, at the cost side there are: 1 million expenditures on CCTV plus the reduced privacy of people, and at the benefit side there is a likely reduction of thefts by 10%. Instead of doing cost-benefit analysis and looking at costs and benefits, one may simply ask people in referendum (in this case, a local one) whether they are willing to adopt such a policy or not.

In fact, referenda on crime issues are not uncommon – for example, by referendum criminal sanctions for drug possessions were abolished in Italy in 1993 (Arnao 1994), California three strikes laws were introduced in 1994¹⁵⁸ and the death penalty was abolished in 2001 in Ireland.¹⁵⁹ Should all of these issues have been resolved by resorting to cost-benefit analysis results? It seems they should not. cost-benefit analysis is not a panacea for making hard decisions, it is not a technocratic tool that dictates to people what they should do. In many situations, a referendum is a better solution to the problem than cost-benefit analysis – for example, in the context of the death penalty, many people would favor its abolishment even if it does have a deterrent effect. They object to the death penalty not on the grounds that it does not lead to the desired results, but rather that it uses unacceptable means.¹⁶⁰ These preferences against cruel means have to be taken into account, and a referendum is a tool for doing so. Costs of crime estimates are a tool for monetizing the results of a policy, in this case crime reduction, whatever means have been used to obtain them. Normally, it is up to the experts to decide which means are the most effective in delivering the results. Sometimes, however, people intentionally exclude some means, or there is controversy on their potential application to the problem. When there is serious disagreement about the means, cost-benefit analysis itself cannot justify the use of them simply on the basis that they are cheaper.

Many times, however, a referendum is not possible. The death penalty is a vital – so to speak – issue in crime policy, but crime policy is constituted of many more choices that are of lesser importance. The question which community based initiatives are promising in dealing with crime is a matter of expert opinion and constitutes a political choice, but it is hardly a topic for referendum. People may indeed expect not to be bothered in any single case, but rather they expect politicians to deliver the desired results in a given period of time. It is a politician's job to know how to manage things, and by asking people politicians may appear to be shifting this responsibility. Leeway politicians enjoy may nevertheless be limited by voters, or by politicians themselves.

¹⁵⁸ Jones (1999). In fact, three strikes laws were introduced a few months earlier by the state legislature and then voted on again in a referendum.

¹⁵⁹ The last execution in Ireland took place in 1954. In 1964 the law was changed to provide the death penalty for murdering police or prison officers. The Constitutional ban on death penalty was proposed and accepted in 2001. See <http://www.electionsireland.org/results/referendum/refdetail.cfm?ref=200121R>

¹⁶⁰ The same may be said about corporal punishment, public executions', etc.

4.3.2.2 Cost-Benefit Analysis and the Principle of Proportionality

Constitutional rules impose limits on politicians, and the requirement of cost-benefit analysis may be thought to be yet another constitutional restraint on legislatures. So far, the requirement of cost-benefit analysis has not been implemented on the constitutional level, but some elements of it have – in particular the principle of proportionality. The principle of proportionality dictates that the means used should be proportionate to the ends, and effectively restricts the power of legislature. In the European Union, this requirement is contained in the art. 5 of the Treaty establishing the European Community and limits the power of the E.U. legislature over national legislative bodies.

At the national level, the principle of proportionality may be found, for example, in the German constitution or in the Canadian Charter of Rights and Freedoms, where it is used to assess whether an intrusion into the sphere of rights and freedom is proportionate to the legitimate end (see Engel 2001). Such a principle forces the Constitutional Court to operate as an evaluation institution, although not equipped with the required expertise. Nevertheless, the principle of proportionality may be thought of as introducing some elements of cost-benefit analysis into the constitutional framework.

It was the case in Canada where in the case of *R. v. Oakes*, the Supreme Court declared unconstitutional and void a provision providing for a reversed onus of proof in drug trafficking cases (precisely, it was up to defendant to prove the drugs he was caught with were not for trafficking, but for his own personal use).¹⁶¹ The Court verdict was based on the belief that such a tool was not proportionate to the legitimate end, and as such violated the proportionality principle embodied in the Charter of Rights and Freedoms.¹⁶²

On a constitutional level, costs of crime estimates may illuminate some benefits of crime policy, and then inform the decision. However, given very crude measures applied in the proportionality tests by constitutional judges, it seems that there is no need to fully monetizing the results of cost benefit analysis. It might be, for example, quite satisfactory to inform about the relative seriousness of crimes as perceived by people in order to argue for a particular legal tool to be applied.

There is no proportionality test in the U.S. in the above sense. However, in the context of crime policy, the Eighth Amendment to the U.S. Constitution forbids cruel and unusual punishment, and therefore constitutes the proportionality principle as regards punishment. This principle has so far been understood by the Supreme Court as not being very restrictive. In *Solem v. Helm*, the Court described the criteria according to which the issue of proportionality of the sentence should be judged

¹⁶¹ [1986] S.C.J. No. 7, [1986] 1 S.C.R. 103.

¹⁶² For the origins and development of the proportionality test in the Canadian Supreme Court case law, see Choudhry (2006).

and found that life imprisonment without parole is disproportional for a non-violent felony, even for a recidivist.¹⁶³

4.3.2.3 Cost-Benefit Analysis and the Principal-Agent Problem

Monetizing the benefits of crime reduction may be more fruitful at a lower level, i.e. at the executive level. With a requirement to perform cost-benefit analysis, executive agencies are limited in their power to propose regulations and in conducting policies that may not necessarily be economically justified. It is worth noticing that cost-benefit analysis has been originally perceived as a tool for reaching an agreement about political decisions (Zerbe 2007, p. 9). As applied in the U.S. Army Corps of Engineers at the beginning of the twentieth century, cost-benefit analysis was used to eliminate wildly uneconomic projects which might nonetheless be accepted due to logrolling.

The use of cost-benefit analysis in such a context might be a solution to the principal-agent problem – ruling politicians by forcing their agencies to use cost-benefit analysis control their behavior and prevent them from pushing their own interests.¹⁶⁴ The principal-agent problem stems from the lack of full information. It is the agent that has the full information, but it is the principal who makes decisions and is responsible for it. By requiring cost-benefit analysis, the principal obtains the full information from the agent and may make a reasoned choice.

Seen in such a perspective, costs of crime estimates may be an effective tool for controlling criminal justice agencies. Crime is one of the most important problems people care about, and the president, or the prime minister, cannot ignore the cry for street safety. But on the other side, costs of crime policy are also enormous, and many other social projects compete with crime policy for public funding. By forcing criminal justice agencies to use costs of crime estimates and performing cost-benefit analysis for assessing their policy, the principal may be sure that, at least, the most problematic policies will be thrown out. This benefits the principal who may conduct more projects within the same budget and gain more support in the next elections.

4.3.3 Cost of Crime Estimates in Assessing Crime Policies

The potential fields for the application of cost-benefit analysis include: policing tactics, sentencing patterns, early release policy, and rehabilitative programs. All these

¹⁶³ (463 U.S. 277, 1983). But see the verdict in the California three strikes law case, where the Court did not find life imprisonment for stealing golf clubs to be disproportional (*Ewing v. California*, 538 U.S. 11, 2003).

¹⁶⁴ See Posner (2001): “The purpose of requiring agencies to perform cost-benefit analysis is not to ensure that regulations are efficient; it is to ensure that elected officials maintain power over agency regulation.” (p. 1141).

programs compete for state funds, and policy makers have to choose among them. Using costs of crime estimates, they may make their choice in a reasoned way, in a way that allows them to obtain the highest possible crime reduction at a given budget. The following examples will illuminate the role costs of crime estimates may play in assessing crime policies.

4.3.3.1 Policing

The very general question of the cost-effectiveness of police forces has been assessed by Levitt (1997). He finds that the increased number of police causes crime to go down, and that the costs of hiring one additional police officer are lower than the benefits of crime reduction. However, while it could appear that the number of police is below the optimal level, the imprecision of estimates prevents strong policy recommendations (Levitt 1997, pp. 285–286).

More specific policing tactics have also been researched. An example is a study on the use of CCTV to monitor places particularly vulnerable to crime.¹⁶⁵ The installation of CCTV in 13 areas in the U.K. has been assessed in terms of their effectiveness in crime reduction, and whether the obtained results have been cost-effective in terms of cost of averted crimes. Although CCTV systems did reduce crimes, the ratio between benefits of crime reduction to the costs was only 1.24 and in only 3 out of 7 areas CCTV proved to be cost effective. Given unfavorable financial evaluations, the authors concluded that “policy-makers could be forgiven for concluding that CCTV should not be continued”. Nevertheless, they went on to say “However, this would be premature. First, changes in crime levels are a poor measure of the success or failure of a system. Second, this would ignore the many other benefits of CCTV, which have no easily identified monetary value. Third, the economic evaluation was based on imperfectly implemented systems, which, had they been operated better, might have had a greater impact on overall crime levels and therefore produced a cost-benefit” (Gill and Spriggs 2005, p. 114). This apparent aversion of a criminal justice agency to admit that some projects have failed short of the planned goals is an important argument for forcing agencies to use costs of crime estimates as a check on the overall benefit of conducted policies.

Availability of guns is a striking feature of the U.S. as compared with Europe. Ludwig and Cook (2001) found that Americans are willing to pay as much as \$24.5 billion to reduce the number of gun assaults by 30%. Their approach, although it did not inquire into any specific gun controlling policy, showed that increasing regulation of guns might gain some support, if it led to crime reduction.

4.3.3.2 Sentencing Patterns

Criminal punishment in order to reduce crime rates works through three main channels: deterrence, incapacitation, and rehabilitation. The threat of punishment

¹⁶⁵ Gill and Spriggs (2005). They have used cost of crime estimates of Brand and Price (2000).

prevents people from committing crimes, imprisonment incapacitates them, and rehabilitation makes them less crime-prone in the future.

Deterrence is theoretically the cheapest way to prevent crimes. Were people so afraid of punishment that they did not commit crimes, law enforcement would have been costless. For many reasons this is not true, so deterrence works through imposing harsh sentences that have to be executed. By imprisonment, some criminals are incapacitated, and cannot commit crimes. Imprisonment therefore has the double effect, and there is no consensus in the literature on the relative strength of either one. This creates difficulties in assessing the cost effectiveness of particular crime policies, for example targeting recidivists or violent offenders.

On the general level, Zedlewski (1985), using very rough costs of crime estimates, found that prisons should be expanded. Levitt (1996) found that on margin one additional prisoner prevents some 15 crimes per year, either because of deterrence or incapacitation. Comparing with estimated costs of crime, Levitt concluded that incarceration rates were below their optimal level at that time. Given that since that time the incarceration rate in the U.S. has risen substantially, his conclusion might not hold true now.¹⁶⁶

If a deterrent effect of the threat of punishment is substantial, some crime policies may be particularly attractive. For example, when the “three strikes and you’re out” law was introduced in California, proponents argued that most would-be criminals would refrain from crime due to deterrence, while the opponents feared that the only result of the law would be a growing population of old criminals, whose incapacitation had no sense as they would not commit crimes anyway. Who was right depends on the empirical results. Shepherd (2002a) found an important deterrent effect, and concluded that the introduction of the three strikes law in California saved almost \$900 million (in terms of crimes averted) in 2 years after implementation (Shepherd 2002a, pp. 192–193). However, the costs of the policy (particularly of the lengthy imprisonment of the growing number of prisoners) have not been calculated, so the net benefits remain unclear.

It is worth noticing that even when a given policy is cost effective, it might nonetheless not be optimal when another, better, policy is available. It would be nonsense to imprison people when the same reduction in crime could be obtained in a cheaper way.

4.3.3.3 Early Release Policy

Austin (1986) found that the early release of over 21,000 inmates in Illinois contributed to less than a one per cent increase in crime rates, and using out of pocket estimates of cost of crime concluded that such a policy had been cost-effective. Cohen (1988), substituting his new estimates for the old ones, reversed this conclusion, and found the early release program to be quite costly. This is an interesting case, not because recommendations have changed due to improved data, but because it shows why it is important to take people’s preferences into account. The approach

¹⁶⁶ Levitt and Miles (2007) doubt whether the current level of imprisonment in the U.S. is optimal.

taken by Austin (1986) was to include only direct costs. But that led to the approval of the early release program, while the public attitude, based on a much broader notion of costs, might easily be negative.

In another study of early release, Raphael and Stoll (2004) did not find a substantial influence of early release on crime rates, although they noticed that states should be careful about releasing violent offenders, for they tended to commit similar crimes more often. Given the high costs of violent crimes, and parole boards' poor ability to predict future criminality, the inclusion of costs of crime estimates may likely lead to different recommendations.

4.3.3.4 Rehabilitative Programs

Donohue and Siegelman (1998) reviewed many early intervention programs and found that some of them would save money if used instead of imprisonment. However, they only looked at the reduction in crime, and ignored varying benefits of averting different crimes. Even a huge reduction in the number of property crimes may not outweigh costs of the program, or the costs of an increase in the number of violent crimes.

Welsch (2004) reviewed a few correctional treatment programs and found most of them passing the cost-benefit criterion. Nevertheless, almost all of the reviewed studies included only the direct costs of crime to victims, and thus seriously understated the true costs. The above example of Austin (1986) suggests that inclusion of the full costs may dramatically change recommendations.

Farrington et al. (2002), using more comprehensive estimates of costs, found one of the programs of intensive rehabilitation of youth offenders very profitable. The benefit to cost ratio was five to one, which was a result of lower recidivism among participants, and also changing pattern of crimes they continue to commit.

Cohen (1998) found that restraining one youth at risk from committing crimes in the future was worth between \$1.7 and \$2.3 million, and thus even those early intervention programs, which had low success rate, might nevertheless pass a cost-benefit test.

4.3.3.5 Discussion

This review of the available literature on the use of costs of crime estimates for assessing crime policy allows for some concluding remarks.

High costs of crime justify undertaking costly countermeasures by public authorities. In fact, one may argue that by not taking them, politicians make themselves vulnerable to public criticism and potential defeat in elections.¹⁶⁷

Notwithstanding the popular cry about the costs of prisons, imprisonment, although by far the most expensive way of dealing with crime, has been found to pass

¹⁶⁷ Having in mind that for many years the costs of crime to victims had been undervalued, this may explain why people tend to vote for "tough on crime" politicians.

the cost-benefit test. Seen in this light, the increased use of imprisonment all over the world is not so surprising.¹⁶⁸ The fact that imprisonment seems to be cost-effective does not mean that this is the optimal way of dealing with crime. Given high benefits of averted crimes, other costly policies, e.g. increased police presence, might prove to be even more cost effective.

Rehabilitative programs, although deemed not to be very effective, do not need to attain high rates of success in order to be cost effective. Even a small success in averting violent crimes would justify substantial expenditures.

More generally, targeting especially violent crimes seems to be particularly attractive.¹⁶⁹ Violent crimes drive people's fear and anxiety, and people are willing to sacrifice considerable amount of resources to reduce their prevalence. Recidivists statutes, reducing violence rehabilitative programs, education and behavioral programs for youth at risk – all these represent promising tools for increasing people's satisfaction with the criminal justice system.

Assessment of the effectiveness of crime policy programs using costs of crime estimates facilitates the decision whether a program should be continued or abandoned. While programs that do not reduce crime will not be continued any way, in the absence of cost of crime measures, there is a risk that programs effective in reducing crime, but which benefits do not exceed costs, will be maintained due to organizational pressure.

For programs that aim not at crime reduction, but at the reduction of public expenditures, like early release programs, costs of crime estimates provide crucial data on the extent to which reductions in expenditures really save money. Seen from a budgetary perspective, the lack of data on social costs of crime easily may lead to unjustified reduction in public expenditures on criminal justice system. Costs of crime estimates help to keep the balance in between elections.

¹⁶⁸ Currently, more than 9 million people are held in penal institutions throughout the world. In the last number of years, the number of prisoners has risen in more than 70% of countries. See Walmsley (2006).

¹⁶⁹ There is evidence that the public is much more punitive in regard to violent offenders, while more prone to alternative sanctions for others. For example, Cullen et al. summarize the result of public opinion surveys in following words: "Placing dangerous people in the community is not understandable. However, almost any option – except pro forma, unsupervised probation – is open for discussion when weighing what to do with the so-called nonviolent offender, even those who have been habitually criminal." Cullen et al. (2000, p. 59).

Chapter 5

Conclusions

In this book I have argued that the development of costs of crime estimates makes them a valuable, and indeed irreplaceable, tool in criminal law and crime policy. While the concept of monetizing pain and suffering, which are necessarily connected with crime, for many people seem unfeasible, and maybe even unreasonable, such calculations have many advantages over more intuitive approach that has been in use so far.

Averting crimes has always been the aim of crime policy. The lack of reliable estimates as to the real benefits of averting crimes led to the biased perspective of the criminal justice system. Costs of the system were easily seen, as they were borne mainly by state budgets. At the same time, the benefits eluded quantification.

Lives lost, pain and suffering, costs of healthcare, property damaged and stolen – all these constitute direct costs of crime. Yet, this list is far from being comprehensive – behavioral responses, changing patterns of life, counter-crime measures, and reduced quality of living all comprise another part of the costs of crime. And the emergence of the criminal justice system with its own costs of police, courts, and prisons make the final part of the total costs. The enormous burden that crime imposes on societies for long was as obvious as vaguely quantified.

It was not long after quantitative methods emerged in statistics and economics that the first estimates of the costs of crime appeared. It soon became clear that then-available methods were insufficient. Summing up only the tangible costs of crime resulted in highly biased estimates. When costs of crime studies reported theft to be more costly than homicide, the results were met with justified suspicion. Absurd results did not help costs of crime estimates in gaining credibility, and relevant studies were seldom done.

New methodologies were urgently required. Nevertheless, between the 1960s and the 1990s many estimation techniques were used without any substantial success, and flawed methodologies did not produce meaningful results. Neither measuring a

direct economic impact of crime nor looking at property prices could fill the gap in measuring the benefits of crime reduction.

The perfect measurement of the costs of crime has to address several important points. It has to include all costs of crime, tangible and intangible. It should allow disaggregating the results according to different crimes, and to assess the impact of particular types of crime separately. If it is dedicated to guiding crime policy, it should be prospective, looking from an *ex ante* perspective. It should reflect people's preferences about the relative importance of crime. Finally, it should be an incremental evaluation, i.e. the assessment of marginal changes in crime rates.

The development of contingent valuation methodology in environmental economics offered a fresh perspective on the problem of costs of crime evaluation. Contingent valuation – a kind of survey, in which respondents are asked about their willingness to pay for a given good or service – has proven to give meaningful results, with straightforward implications for criminal law and crime policy. This methodology covers all kinds of costs, more or less tangible. Such an approach circumvents the pitfalls of measuring only economic consequences of crime, and allows for inclusion of the pain and suffering component, what is particularly important in case of violent crimes. Although it focuses on public spending on crime enforcement only, and ignores private willingness to protect oneself, its development allows the wide use of costs of crime estimates in criminal law doctrine and in the practice of criminal law agencies.

Estimates of costs of crime may fulfil the gap in the core area of criminal law, which is a theory of punishment. Whether it is a retribution principle, a just response for a wrong that has been done, or as an instrumental response, by which some other goals are to be achieved, either theory of punishment apparently lacks any evident way of providing a punishment scheme.

Costs of crime estimates may inform retributive legislators about the relative seriousness of crimes, and do it in a more convincing manner than any other solution that has been proposed so far. The fact that contingent valuation methodology is based on people's preferences supplies the results of such surveys with a manifest moral appeal, and offers sufficient foundations for the amount of punishment required by retribution.

Costs of crime estimates are even better suited for consequentialist theory of punishment. In the calculus of costs and benefits, the lack of reliable estimates of the benefits of crime reduction has been particularly clear. Costs of crime estimates fill this gap, and form the basis for comparison of the benefits of reducing various types of crime. Contingent valuation methodology allows for aggregating willingness to pay for crime reduction, and in this way circumvents the pitfalls of a Benthamite calculus of the total utility.

An inquiry into existing sentencing patterns suggests that the practice of the criminal justice system conforms to the seriousness of crime as expressed by costs of crime estimates. Punishment for different crimes reflects their relative seriousness, as measured by costs of crime estimates, particularly when one takes the factual

probability of apprehension into account. This indirectly supports the thesis that costs of crime estimates correctly measure people's preferences as regard punishment of offenders.

Basing a sentencing system on costs of crime estimates does not require one to move in the direction of objective liability for the results of one's actions. The principle of foreseeability remains in force, and sentencing patterns based on costs of crime estimates help communicate the level of dangerousness of one's conduct. The divergence in assessment of the dangerousness between violent and property crimes also explains why negligent conduct is criminalized usually as regards the danger to life and limb, and not to property.

Sentencing, although important, is just one part of crime policy. Apart from deterrence and incapacitation that flow from the sentencing process, other crime policies affect crime rates. Policing, early release, rehabilitation and early interventions influence the behavior of criminals (or would be criminals), and their effects may be assessed in cost-benefit terms. The use of costs of crime estimates is a necessary step in any such analysis. Without such estimates, the results of many social programs dealing with crime will not be comparable, and policy makers will be unable to maximize the beneficial results at given budget constraints. The comprehensiveness of contingent valuation methodology, and the fact it is based on people's preferences, minimizes the ethical risk such analysis may present. While moral reasoning cannot be put aside and costs of crime estimates will never be a technocratic black box for solving important political questions, they nonetheless help to control the behavior of crime control agencies. This constitutes an advantage of costs of crime estimates over the political process itself in which people's preferences are also taken into account. Drafting legislation, for example, is a political process that may be deemed to follow preferences of a given constituency. Nevertheless, within a given set of rules, crime control agencies enjoy a wide discretion in pursuing their own policies. The consistent use of such estimates within the criminal justice system reduces principal-agent problems, and prevents agencies from continuing programs of negative value for society.

Costs of crime estimates ought to become a standard tool within the criminal justice system for assessing the cost effectiveness of crime reducing interventions and imprisonment policy. They should also be implemented in those programs that aim at the most dangerous offenders. Studies that have already been made using costs of crime estimates reveal that these estimates help to discriminate between policies generating positive outcomes, and those which are harmful for the society at large.

The true burden of crime on human society remains unknown. A hypothetical world of no crime would be so different from that in which we live that no comparison can be made. Yet, the development of measurement techniques, from calculating the direct losses to assessing the economic impact of crime on market prices to investigating people's preferences, has eventually made costs of crime estimates an important part of studying crime.

Costs of crime estimates are a necessary element in any cost-benefit analysis of crime policy, and help to indicate programs whose maintaining is beneficial for society. Their use may also be illuminative for analyzing criminal law doctrine and existing sentencing patterns. While they will never replace the political process of drafting criminal law, they may bind law enforcement agencies to follow preferences of their constituencies. This makes costs of crime estimates an important tool for controlling the institutions which act on behalf of society.

Bibliography

- Ackerman, Frank; Heinzerling, Lisa (2004), *Priceless: On Knowing the Price of Everything and the Value of Nothing*, The New Press, New York
- Adams, David M. (1996), "Review: Fitting Punishment to Crime," 15 *Law and Philosophy* 407
- Adler, Mathew D.; Posner, Eric A. (2006), *New Foundations of Cost-Benefit Analysis*, Harvard University Press, Cambridge, MA
- Allen, Francis A. (1981), *The Decline of the Rehabilitative Ideal*, Yale University Press, New Haven/London
- Allgood, Sam; Mustard, David B.; Ronald, S. Warren, Jr. (2000), "The Impact of Youth Criminal Behavior on Adult Earnings," (unpublished, available at <http://www.terry.uga.edu/~dmustard/earnings.pdf>)
- Anderson, David A. (1999), "The Aggregate Burden of Crime," 42 *Journal of Law and Economics* 611
- Arnao, Giancarlo (1994), "Italian Referendum Deletes Criminal Sanctions for Drug Users," 24 *Journal of Drug Issues* 483
- Arrow, Kenneth; Solow, Robert; Portney, Paul R.; Leamer, Edward E.; Radner, Roy; Schuman, Howard (1993), "Report of the NOAA Panel on Contingent Valuation," 58 *Federal Register* 4601
- Ashworth, Andrew (1988), "Criminal Attempts and the Role of Resulting Harm Under the Code, and in the Common Law," 19 *Rutgers Law Journal* 725–772
- Ashworth, Andrew (1993), "Victim Impact Statements and Sentencing," *Criminal Law Review* 498
- Ashworth, Andrew (1995), *Sentencing and Criminal Justice*, Butterworths, London
- Ashworth, Andrew (1998), "Victims' Rights, Defendants' Rights and Criminal Procedure," a paper presented at the *International Conference on Integrating Victim Perspectives in Criminal Justice*, in York, (July 17–18, 1998)
- Atkinson, Giles; Healey, Andrew; Mourato, Susana (2005), "Valuing the Costs of Violent Crime: A Stated Preference Approach," 57 *Oxford Economic Papers* 559
- Austin, James (1986), "Using Early Release to Relieve Prison Crowding: A Dilemma in Public Policy," 32 *Crime and Delinquency* 404
- Austin, James (1996), "Are Prisons Really A Bargain? The Use of Voodoo Economics," 69 *Spectrum: The Journal of State Government* 6
- Avinor, Shaul (2004), "The Fallacy of the Conventional Theory on the Historical Development of the Concept of Criminal Liability," 15 *Criminal Law Forum* 411
- Avio, K.L. (1993), "Economic, Retributive and Contractarian Conceptions of Punishment," 12 *Law and Philosophy* 249
- Beccaria, Cesare (1995 [1764]), *On Crimes and Punishments, and Other Writings* [ed. by R. Bellamy and tr. by R. Davies et al.], Cambridge University Press, New York

- Becker, Gary S. (1968), "Crime and Punishment – Economic Approach," 76 *Journal of Political Economy* 169
- Bedau, Hugo A. (1985), "Classification-Based Sentencing: Some Conceptual and Ethical Problems," *NOMOS XXVII: Criminal Justice* 89
- Bentham, Jeremy (1843), *The Works of Jeremy Bentham*, published under the superintendence of his executor, John Bowring, vol. 1, Principles of Penal Law, Edinburgh
- Bentham, Jeremy (1982 [1789]), *An Introduction to the Principles of Morals and Legislation* [ed. by J.H. Burns, H.L.A. Hart], Methuen, London/New York
- Black, Donald (1983), "Crime as Social Control," 48 *American Sociological Review* 34
- Blumstein, Alfred; Cohen, Jacqueline (1980), "Sentencing of Convicted Offenders: An Analysis of the Public's View," 14 *Law and Society Review* 223
- Bovbjerg, Randall R.; Sloan, Frank A.; Blumstein, James F. (1989), "Valuing Life and Limb in Tort: Scheduling 'Pain and Suffering'," 83 *Northwestern University Law Review* 908
- Braithwaite, John; Petit, Philip (1990), *Not Just Deserts. A Republican Theory of Criminal Justice*, Clarendon, Oxford
- Brand, Sam; Price, Richard (2000), *The Economic and Social Costs of Crime*, Home Office Research Study 217, London
- Brodeur, Jean-Paul; Ouellet, Geneviève (2004), "What Is a Crime? A Secular Answer" [in:] *What is a Crime?: Defining Criminal Conduct in Contemporary Society* [ed. by Law Commission of Canada], University of British Columbia Press, Vancouver
- Brown, Darryl K. (2004), "Cost-Benefit Analysis in Criminal Law," 92 *California Law Review* 323
- Burnham, William (1999), *Introduction to the Law and Legal System of the United States*, West
- Buss, David M. (2005), *Murderer Next Door. Why the Mind is Designed to Kill*, Penguin, New York
- Byrd, Sharon B. (1989), "Kant's Theory of Punishment: Deterrence in Its Threat, Retribution in Its Execution," 8 *Law and Philosophy* 151
- Carlson, James M.; Williams, Tricia (1993), "Perspectives on the Seriousness of Crime," 22 *Social Science Research* 190
- Carson, Richard T.; Flores, Nicholas E.; Meade, Norman F. (2001), "Contingent Valuation: Controversies and Evidence," 19 *Environmental and Resource Economics* 173
- Choudhry, Sujit (2006), "So What Is the Real Legacy of Oakes? Two Decades of Proportionality Analysis Under the Canadian Charter's Section 1," 34 *Supreme Court Law Review* 501
- Christopher, Russell L. (2002), "Deterring Retributivism: The Injustice of 'Just' Punishment," 96 *Northwestern University Law Review* 843
- Cohen, Mark A. (1988), "Pain, Suffering, and Jury Awards: A Study of Cost of Crime to Victims," 22 *Law and Society Review* 537
- Cohen, Mark A. (1998), "The Monetary Value of Saving a High-Risk Youth," 14 *Journal of Quantitative Criminology* 5
- Cohen, Mark A. (2000), "Measuring the Costs and Benefits of Crime and Justice" [in:] *Measurement and Analysis of Crime and Justice* [ed. by D. Duffee], vol. 4, U.S. Department of Justice, Washington, DC
- Cohen, Mark A.; and Ted R. Miller, "Willingness to Award' Nonmonetary Damages and the Implied Value of Life from Jury Awards," 23 *International Review of Law and Economics* 165
- Cohen, Mark A.; Rust, Roland T.; Steen, Sara; Tidd, Simon T. (2004), "Willingness-To-Pay For Crime Control Programs," 42 *Criminology* 89
- Cohen, Mark A. (2005), *The Costs of Crime and Justice*, Routledge, New York
- Comande, Giovanni (2005), "Towards a Global Model for Adjudicating Personal Injury Damages: Bridging Europe and the United States," 19 *Temple International and Comparative Law Journal* 241
- Cook, Philip (1983), "Costs of Crime" [in:] *Encyclopedia of Crime and Justice* [ed. by Sanford H. Kadish], Free Press, New York

- Cook, Philip J.; Ludwig, Jens (2000), *Gun Violence: The Real Costs*, Oxford University Press, Oxford
- Cook, Bree; David, Fiona; Grant, Anna (1999), *Victims' Needs, Victims' Rights: Policies and Programs for Victims of Crime in Australia*, Australian Institute of Criminology, Canberra, ACT, Australia
- Cullen, Julie B.; Levitt, Steven D. (1999), "Crime, Urban Flight, and the Consequences for Cities," 81 *Review of Economics and Statistics* 159
- Cullen, Francis T.; Fisher, Bonnie S.; Applegate, Brandon K. (2000), "Public Opinion About Punishment and Corrections," 27 *Crime and Justice* 1
- Czabański, Jacek (2007), "Faktyczna karalność przestępstw w Polsce," 5 *Ius et Lex* 341
- Darley, John M.; Carlsmith, Kevin M.; Robinson, Paul H. (2000), "Incapacitation and Just Deserts as Motives for Punishment," 24 *Journal Law and Human Behavior* 659
- Davis, Michael (1983), "How to Make the Punishment Fit the Crime," 93 *Ethics* 726
- Davis, Michael (1992), *To Make the Punishment Fit the Crime. Essays in the Theory of Criminal Justice*, Westview Press, Boulder, CO
- Dezhbakhsh, Hashem; Rubin, Paul H.; Shepherd, Joanna M. (2003), "Does Capital Punishment Have a Deterrent Effect? New Evidence from Postmoratorium Panel Data," 5 *American Law and Economics Review* 344
- Di Tella, Rafael; Galiani, Sebastian; Schargrodsky, Ernesto (2006), "Crime Distribution and Victim Behavior During a Crime Wave" (November 2006), William Davidson Institute Working Paper No. 849 (available at SSRN: <http://ssrn.com/abstract=948236>)
- Diamond, Peter A.; Hausman, Jerry A. (1994), "Contingent Valuation: Is Some Number Better than No Number?" 8 *Journal of Economic Perspectives* 45
- The Distinction between 'Mala Prohibita' and 'Mala in se' in Criminal Law, Note (1930), 30 *Columbia Law Review* 74
- Dolan, Paul; Peasgood, Tessa (2007), "Estimating the Economic and Social Costs of the Fear of Crime," 47 *British Journal of Criminology* 121
- Dolan, Paul; Loomes, Graham; Peasgood, Tessa; Tsuchiya, Aki (2005), "Estimating the Intangible Victim Costs of Violent Crime," 45 *British Journal of Criminology* 958
- Dolinko, David (1997), "Retributivism, Consequentialism, and the Intrinsic Goodness of Punishment," 16 *Law and Philosophy* 507
- Donohue, John J.; Siegelman, Peter (1998), "Allocating Resources Among Prisons and Social Programs in the Battle Against Crime," 27 *Journal of Legal Studies* 1
- Donohue, John J.; Wolfers, Justin (2005), "Uses and Abuses of Empirical Evidence in the Death Penalty Debate," 58 *Stanford Law Review* 791
- Dubourg, Richard; Hamed, Joe; Thorns, Jamie (2005), *The Economic and Social Costs of Crime Against Individuals and Households 2003/04*, Home Office Online Report 30/05
- Duff, Antony (2001), *Punishment, Communication, and Community*, Oxford University Press, Oxford
- Durham, Alexis M. (1988), "Severity: An Assessment of Social Attitudes," 5 *Justice Quarterly* 132–153
- Durkheim, Emile (1933 [1893]), *The Division of Labor in Society*, Macmillan, New York
- Durkheim, Emile (1982 [1895]), *The Rules of Sociological Method*, Free Press, New York
- Edwards, Ian (2002), "The Place of Victims' Preferences in the Sentencing of "Their" Offenders," *Criminal Law Review* 689
- Ellickson, Robert C. (1991), *Order Without Law: How Neighbors Settle Disputes*, Harvard University Press, Cambridge, MA
- Engel, Christoph (2001), "The Constitutional Court – Applying the Proportionality Principle – As a Subsidiary Authority for the Assessment of Political Outcomes," MPI Collective Goods Preprint No. 2001/10 (available at SSRN: <http://ssrn.com/abstract=296367>)
- Epstein, Edward J.; Wong, Simon Hing-Yan (1996), "The Concept of 'Dangerousness' in the People's Republic of China and Its Impact on the Treatment of Prisoners," 36 *British Journal of Criminology* 472

- Erez, Edna (1999), "Who's Afraid of the Big Bad Victim? Victim Impact Statements as Victim Empowerment and Enhancement of Justice," *Criminal Law Review* 545
- Erhlich, Isaac (1996), "Crime, Punishment, and the Market for Offenses," 10 *Journal of Economic Perspectives* 43
- Farrington, D.P.; Ditchfield, J.; Hancock, G.; Howard, P.; Jolliffe, D.; Livingston, M.S.; Painter, K.A. (2002), Evaluation of Two Intensive Regimes for Young Offenders, Research Study 239 (available at <http://www.homeoffice.gov.uk/rds/pdfs2/hors239.pdf>)
- Farrington, David; Langan, Patrick; Tonry, Michael (eds.) (2004), *Cross-National Studies in Crime and Justice*, U.S. Department of Justice, Washington, DC
- Fehr, Ernst; Gächter, Simon (2000), "Fairness and Retaliation: The Economics of Reciprocity," 14 *Journal of Economic Perspectives* 159
- Feinberg, Joel (1984), *The Moral limits of the Criminal Law. vol. I. Harm to Others*, Oxford University Press, New York
- Finnis, John (1980), *Natural Law and Natural Rights*, Clarendon, Oxford
- Fletcher, George P. (1971), "Theory of Criminal Negligence: A Comparative Analysis," 119 *University of Pennsylvania Law Review* 401
- Frank, Robert H. (1985), *Choosing the Right Pond: Human Behavior and the Quest for Status*, Oxford University Press, Oxford
- Frank, Robert H. (2000), "Why Is Cost-Benefit Analysis So Controversial?" 29 *Journal of Legal Studies* 913
- Frank, Robert H. (2006), *Microeconomics and Behavior*, McGraw-Hill/Irwin, New York/IL, USA
- Freeman, A. Myrick, III (2003), *The Measurement of Environmental and Resource Values* (2nd edn), Resources for the Future, Washington, DC
- Frey, Bruno S.; Stutzer, Alois (2002), "What Can Economic Learn from Happiness Research," 40 *Journal of Economic Literature* 402
- Friedman, David (1995), *Making Sense of English Law Enforcement in the Eighteenth Century*, The University of Chicago Law School Roundtable (Spring/Summer 1995)
- Friedman, David (1999), "Why Not Hang Them All: The Virtues of Inefficient Punishment," 107 *Journal of Political Economy* S259
- Garkawe, Sam (2006), "The Effect of Victim Impact Statement on Sentencing Decisions," paper presented to the conference *Sentencing: Principles, Perspectives, and Possibilities*, Canberra 10–12 February, 2006 (available at <http://law.anu.edu.au/missl/Garkawe.pdf>)
- Garvey, Stephen P. (1998), "Can Shaming Punishments Educate?" 65 *University of Chicago Law Review* 733
- Gibbons, Steve (2004), "The Costs of Urban Property Crime," 114 *The Economic Journal* F441
- Gill, Martin; Spriggs, Angela (2005), Assessing the Impact of CCTV, Home Office Research Study 292 (available at <http://www.homeoffice.gov.uk/rds/pdfs05/hors292.pdf>)
- Glaeser, Edward L.; Sacerdote, Bruce (2003), "Sentencing in Homicide Cases and the Role of Vengeance," 32 *Journal of Legal Studies* 363
- Golash, Deirdre; and Lynch, James P. (1995), "Public Opinion, Crime Seriousness, and Sentencing Policy," 22 *American Journal of Criminal Law* 703
- Gould, William; Thaler, Richard (1980), *Public Policy Towards Life Saving: Maximize Lives Saved vs. Consumer Spending*, NBER Working Paper Series, Working Paper 419
- Gray, Charles M. (ed.) (1979), *The Costs of Crime*, Sage, Thousand Oaks, CA
- Gray, Charles M.; Joelson, Mitchell R. (1979), "Neighborhood Crime and the Demand for Central City Housing" [in:] *The Costs of Crime* [ed. by Charles M. Gray], Sage, Thousand Oaks, CA
- Gray, Charles M.; Conover, C.J.; Hennessey, T.M. (1978), "Cost Effectiveness of Residential Community Corrections," 2 *Evaluation Quarterly* 375
- Greenbaum, R.T.; Tita, G.E. (2004), "The Impact of Violence Surges on Neighbourhood Business Activity," 41 *Urban Studies* 2495
- Greene, Edie; Bornstein, Brian H. (2002), *Determining Damages. The Psychology of Jury Awards*, American Psychological Association, Washington, DC

- Grogger, Jeffrey (1995), "The Effect of Arrests on the Employment and Earnings of Young Men," 110 *Quarterly Journal of Economics* 51
- Gürerk, Özgür; Irlenbusch, Bernd; Rockenbach, Bettina (2006), "The Competitive Advantage of Sanctioning Institutions," 312 *Science* 108
- Hampton, Jean (1992), "Correcting Harms Versus Righting Wrongs: The Goal of Retribution," 39 *UCLA Law Review* 1659
- Hansson, Sven Ove (2007), "Philosophical Problems in Cost-Benefit Analysis," 23 *Economics and Philosophy* 163
- Hart, H.L.A. (1968), *Punishment and Responsibility: Essays in the Philosophy of Law*, Oxford University Press, Oxford
- Hawkins, E.R.; Waller, Willard (1936), "Critical Notes on the Cost of Crime," 26 *Journal of Law and Criminology* 679
- Hoagland, Jennifer (1989), "Double Jeopardy and Pennsylvania's Merger Doctrine," 62 *Temple Law Review* 663
- Hobbes, Thomas (1976 [1651]), *Leviathan*, J.M. Dent & Sons, London
- Honderich, Ted (2006), *Punishment. The Supposed Justifications Revisited*, Pluto Press, London
- Jones, Bill (1999), "Why the Three Strikes Law Is Working in California," 11 *Stanford Law and Policy Review* 23
- Kahneman, Daniel; Tversky, Amos (1979), "Prospect Theory: An Analysis of Decision Under Risk," 47 *Econometrica* 263
- Kahneman, Daniel; Knetsch, Jack L.; Thaler, Richard H. (1986), "Fairness and the Assumptions of Economics," 59 *Journal of Business* 285
- Kesteren, J. van; Mayhew, P.; Nieuwebeerta, Paul (2000), *Criminal Victimisation in Seventeen Industrialised Countries: Key Findings from the 2000 International Crime Victims Survey*, WODC, The Hague
- Kwan, Ying Keung; Ip, Wai Cheung; Kwan, Patrick (2000), "A Crime Index with Thurstone's Scaling of Crime Severity," 28 *Journal of Criminal Justice* 237
- Kwan, Ying Keung; Chiu, Lai Lin; Ip, Wai Cheung; Kwan, Patrick (2002), "Perceived Crime Seriousness. Consensus and Disparity," 30 *Journal of Criminal Justice* 623
- Lanier, Mark M.; Henry, Stuart (2001), "Crime in Context: The Scope of the Problem" [in:] *What is Crime? Controversies Over the Nature of Crime and What to Do about It* [ed. by S. Henry, Mark M. Lanier], Rowman & Littlefield Publishers, New York
- Levitt, Steven D. (1996), "The Effect of Prison Population Size on Crime Rates: Evidence from Prison Overcrowding Litigation," 111 *Quarterly Journal of Economics* 319
- Levitt, Steven D. (1997), "Using Electoral Cycles in Police Hiring to Estimate the Effect of Police on Crime," 87 *American Economic Review* 270
- Levitt, Steven D.; Miles, Thomas J. (2007), "The Empirical Study of Criminal Punishment," [in:] Polinsky, A. Mitchell; Shavell, Steven (eds.), *The Handbook of Law and Economics*, North-Holland, Amsterdam
- List, John A.; Gallet, Craig A. (2001), "What Experimental Protocol Influence Disparities Between Actual and Hypothetical Stated Values?" 20 *Environmental and Resource Economics* 241
- Lott, John R., Jr. (1998), *More Guns, Less Crime*, University of Chicago Press, Chicago
- Lott, John R., Jr.; Mustard, David B. (1997), "Crime, Deterrence, and Right-to-Carry Concealed Handguns," 26 *Journal of Legal Studies* 1
- Ludwig, Jens; Cook, Philip J. (2001), "The Benefits of Reducing Gun Violence," 22 *Journal of Risk and Uncertainty* 207
- Lynch, Allen, K.; Clear, Todd.; Rasmussen, David W. (2000), "Modelling the Cost of Crime" [in:] Nigel G. Fielding, Alan Clarke, Robert Witt (eds.), *The Economic Dimensions of Crime*, Macmillan, New York
- Madden, M. Stuart (2006), "Paths of Western Law After Justinian," 2 *London Law Review* (available at SSRN: <http://ssrn.com/abstract=918516>)
- Martin, J.P.; Bradley, J. (1964), "Design of a Study of the Cost of Crime Current Survey: Research and Methodology," 4 *British Journal of Criminology* 591

- Martinson, Robert (1974), "What Works? Questions and Answers About Prison Reform," 24 *The Public Interest* 25
- Marvell, Thomas; Moody, Carl (1996), "Specification Problems, Police Levels, and Crime Rates," 34 *Criminology* 609
- Mayhew, Pat (2003), "Counting the Costs of Crime in Australia," *Trends and Issues*, Paper No. 247, Australian Institute of Criminology, Canberra
- McPherson, Michael S.; Hausman, Daniel M. (1996), *Economic Analysis, Moral Philosophy and Public Policy*, Cambridge University Press, New York
- Miethe, Terance D.; Lu, Hong (2005), *Punishment. A Comparative Historical Perspective*, Cambridge University Press, New York
- Mikos, Robert A. (2006), "'Eggshell' Victims, Private Precautions, and the Societal Benefits of Shifting Crime," 105 *Michigan Law Review* 307
- Miller, Ted R.; Cohen, Mark A.; Wiersema, Brian (1996), *Victim Costs and Consequences: A New Look*, National Institute of Justice, Washington, DC
- Montesquieu (1794), *The Spirit of Laws*, London
- Moore, Michael (1997), *Placing Blame. A General Theory of the Criminal Law*, Clarendon, Oxford
- Moore, Michael (2007), "Four Reflections on Law and Morality," 48 *William and Mary Law Review* 1523
- Moore, Simon; Shepherd, Jonathan P. (2006), "The Cost of Fear: Shadow Pricing the Intangible Costs of Crime," 38 *Applied Economics* 293
- Morris, Herbert (1968), "Persons and Punishment," 52 *Monist* 475
- Moulton, Brent R. (1990), "An Illustration of a Pitfall in Estimating the Effects of Aggregate Variables on Micro Unit," 72 *Review of Economics and Statistics* 334
- Murphy, Jeffrie G. (1987), "Does Kant Have a Theory of Punishment?" 87 *Columbia Law Review* 509
- Nagin, Daniel S. (2001), "Measuring the Economic Benefits of Developmental Prevention Programs," 28 *Crime and Justice* 347
- National Commission on Law Observance and Enforcement (1931), *Report on the Cost of Crime and Criminal Justice in the United States*, Washington, DC
- Nozick, Robert (1974), *Anarchy, State, and Utopia*. Basic Books, New York
- Nussbaum, Martha; Sen, Amartya (eds.) (1993), *The Quality of Life*, Clarendon, Oxford
- Parisi, Francesco; Dari-Mattiacci, Giuseppe (2004), "The Rise and Fall of Communal Liability in Ancient Law," 24 *International Review of Law and Economics* 489
- Phillips, Llad; Votey, Harold L. (1981), *The Economics of Crime Control*, Sage, Thousand Oaks, CA
- Posner, Richard A. (1979), "Utilitarianism, Economics, and Legal Theory," 8 *Journal of Legal Studies* 103-140
- Posner, Richard A. (1980), "A Theory of Primitive Society, with Special Reference to Law," 23 *Journal of Law and Economics* 1
- Posner, Richard A. (1985), "An Economic Theory of the Criminal Law," 85 *Columbia Law Review* 1193
- Posner, Eric A. (2001), "Controlling Agencies with Cost-Benefit Analysis: A Positive Political Theory Perspective," 68 *University of Chicago Law Review* 1137
- Powdthavee, Nattavudh (2005), "Unhappiness and Crime: Evidence from South Africa," 72 *Economica* 531
- President's Commission on Law Enforcement and Administration of Justice (1967), *The Challenge of Crime in a Free Society*, Washington, DC
- Priest, George L. (1987), "The Current Insurance Crisis and Modern Tort Law," 96 *Yale Law Journal* 1521
- Primoratz, Igor (1997), *Justifying Legal Punishment*, Humanities Press, Atlantic Highlands, NJ
- Quinton, A.M. (1954), "On Punishment," 14 *Analysis* 133
- Rabin, Matthew (2002), "Inference by Believers in the Law of Small Numbers," 117 *Quarterly Journal of Economics* 0033

- Radzinowicz, Leon; Hood, Roger (1979), "Judicial Discretion and Sentencing Standards: Victorian Attempts to Solve a Perennial Problem," 127 *University of Pennsylvania Law Review* 1288
- Radzinowicz, Leon; King, Joan (1977), *The Growth of Crime: The International Experience*, Basic Books, New York
- Raphael, Steven; and Stoll, Michael A. (2004), "The Effect of Prison Releases on Regional Crime Rates," [in:] William G. Gale and Janet Rothenberg Pack (eds.), *The Brookings-Wharton Papers on Urban Economics Affairs, Volume 5*, The Brookings Institution: Washington, D.C
- Rawls, John (1955), "Two Concepts of Rules," 64 *Philosophical Review* 3
- Rawls, John (1971), *A Theory of Justice*, Harvard University Press, Cambridge, MA
- Renger, Johannes (1977), "Wrongdoing and Its Sanctions: On 'Criminal' and 'Civil' Law in the Old Babylonian Period," 20 *Journal of the Economic and Social History of the Orient* 65
- Ristroph, Alice (2006), "Desert, Democracy, and Sentencing Reform," 96 *Journal of Criminal Law and Criminology* 1293
- Rizzo, Mario J. (1979), "The Cost of Crime to Victims: An Empirical Analysis," 8 *Journal of Legal Studies* 177
- Robeys, Ingrid (2005), "Selecting Capabilities for Quality of Life Measurement," 74 *Social Indicators Research* 191
- Roper, Tim; Thompson, Andrew (2006), Estimating the Costs of Crime in New Zealand in 2003/04, New Zealand Treasury Working Paper 06/04
- Rossi, Peter H; Waite, Emily; Bose, Christine E.; Berk, Richard E. (1974), "The Seriousness of Crime: Normative Structure and Individual Differences," 39 *American Sociological Review* 224
- Sadurski, Wojciech (1988), "Theory of Punishment, Social Justice, and Liberal Neutrality," 7 *Law and Philosophy* 351
- Scarre, Geoffrey (2002), *Utilitarianism*, Routledge, New York
- Schelling, T.C. (1968), "The Life You Save May Be Your Own" [in:] *Problems in Public Expenditure Analysis* [ed. by B.C. Samuel Jr.], Brookings Institution, Washington, DC
- Seidman, Louis Michael (1984), "Soldiers, Martyrs, and Criminals: Utilitarian Theory and the Problem of Crime Control," 94 *Yale Law Journal* 315
- Sellin, Thorsten; Wolfgang, Marvin E. (1964), *The Measurement of Delinquency*, Wiley, New York
- Sen, Amartya (1982), "Choice Functions and Revealed Preference," [in:] Amartya Sen, *Choice, Welfare and Measurement*, Blackwell, Oxford
- Sen, Amartya (1987), *The Standard of Living*, Cambridge University Press, New York
- Shapiro, Martin (1981), *Courts: A Comparative and Political Analysis*, University of Chicago Press, Chicago
- Shepherd, Joanna M. (2002a), "Fear of the First Strike: The Full Deterrent Effect of California's Two- and Three-Strikes Legislation," 31 *Journal of Legal Studies* 159
- Shepherd, Joanna M. (2002b), "Police, Prosecutors, Criminals, and Determinate Sentencing: The Truth About Truth-in-Sentencing Laws," 45 *Journal of Law and Economics* 509
- Shepherd, J.P.; Shapland, M.; Pearce, N.X.; Scully, C. (1990), "Pattern, Severity and Aetiology of Injuries in Victims of Assault," 83 *Journal of the Royal Society of Medicine* 75
- Sherman, Lawrence W.; Gottfredson, Denise; MacKenzie, Doris; Eck, John; Reuter, Peter; Bushway, Shawn (1996), *Preventing Crime: What Works, What Doesn't, What's Promising. A Report to the United States Congress*, National Institute of Justice, Washington, DC
- Smilansky, Saul (1990), "Utilitarianism and the 'Punishment' of the Innocent: The General Problem," 50 *Analysis* 256
- Smith, Eugene (1901), "The Cost of Crime," paper presented at the *Annual Meeting of the National Prison Association, 1900*, Washington, DC
- Soares, Rodrigo R. (2006), "The Welfare Cost of Violence Across Countries," 25 *Journal of Health Economics* 821
- Sootak, Jaan (1996), "The Concept of Crime and Estonian Criminal Law Reform," 1 *Juridica Internationalis* 55

- Stuart, Charles (1984), "Welfare Costs per Dollar of Additional Tax Revenue in the United States," 74 *American Economic Review* 352
- Stuntz, William J. (2000), "Self-Defeating Crimes," 86 *Virginia Law Review* 1871
- Stylianou, Stelios (2003), "Measuring Crime Seriousness Perceptions: What Have We Learned and What Else Do We Want to Know," 31 *Journal of Criminal Justice* 37
- Sunstein, Cass R. (2002), "Probability Neglect: Emotions, Worst Cases and Law," 112 *Yale Law Journal* 61
- Sunstein, Cass R.; Vermeule, Adrain (2005), "Is Capital Punishment Morally Required? Acts, Omissions, and Life-Life Tradeoffs," 58 *Stanford Law Review* 703
- Sunstein, Cass R.; Hastie, Reid; Payne, John W.; Viscusi, W. Kip (eds.) (2002), *Punitive Damages: How Juries Decide*, University of Chicago Press, Chicago
- Taggart, Herbert F. (1931), "Report on the Cost of Crime: Comment," 30 *Michigan Law Review* 74
- Ten, C.L. (1987), *Crime, Guilt, and Punishment*, Clarendon, Oxford
- Tseloni, A.; Osborn, D. R.; Trickett, A.; Pease, K. (2002), "Modelling property crime using the British Crime Survey. What have we learnt?," 42 *British Journal of Criminology* 109
- Thaler, Richard (1978), "A Note on the Value of Crime Control: Evidence from the Property Market," 5 *Journal of Urban Economics* 137
- Thurston, L.L. (1927), "Method of Paired Comparisons for Social Values," 21 *Journal of Abnormal and Social Psychology* 384
- Tremblay, Pierre; Cordeau, Gilbert; Ouimet, Marc (1994), "Underpunishing Offenders: Towards a Theory of Legal Tolerance," 25 *Canadian Journal of Criminology* 407
- Trumbull, William N. (1990), "Who Has Standing in Cost-Benefit Analysis?" 9 *Journal of Policy Analysis and Management* 201
- Van den Haag, Ernest (1987), "Punishment: Desert and Crime Control," 85 *Michigan Law Review* 1250
- Verchick, Robert R.M. (2005), "The Case Against Cost Benefit Analysis," paper in Social Science Research Network (available at <http://ssrn.com/abstract=692221>)
- Viscusi, W. Kip (2002), "Do Judges Do Better?" [in:] *Punitive Damages: How Juries Decide* [ed. by Cass R. Sunstein et al.], University of Chicago Press, Chicago
- Viscusi, W. Kip; Aldy, Joseph E. (2003), "The Value of a Statistical Life: A Critical Review of Market Estimates Throughout the World," 27 *Journal of Risk and Uncertainty* 5
- Von Hirsch, Andrew (1985), *Past or Future Crimes: Deservedness and Dangerousness in the Sentencing of Criminals*. Rutgers University Press, New Brunswick, NJ
- Von Hirsch, Andrew (1992), "Proportionality in the Philosophy of Punishment," 16 *Crime and Justice* 55
- Von Hirsch, Andrew (1993), *Censure and Sanctions*, Clarendon, Oxford
- Von Hirsch, Andrew; Ashworth, Andrew (2005), *Proportionate Sentencing. Exploring the Principles*, Oxford University Press, Oxford
- Von Hirsch, Andrew; Jareborg, Nils (1991), "Gauging Criminal Harm: A Living Standard Analysis," 11 *Oxford Journal of Legal Studies* 1
- Walmsley, Roy (2006), *World Prison Population List* (7th edn), International Centre for Prison Studies, London, England
- Welsh, Brandon C. (2004), "Monetary Costs and Benefits of Correctional Treatment Programs: Implications for Offender Reentry" 68 *Federal Probation* 9
- Wilson, James Q. (1975), *Thinking About Crime*, Basic Books, New York
- Wilson, James Q.; and Kelling, George L. (1982), "Broken windows: The police and neighborhood safety," 249 *Atlantic Monthly* 29
- Wolfgang, Marvin E.; Figlio, Robert M.; Tracy, Paul E.; Singer, Simon I. (1985), *The National Survey of Crime Severity*, U.S. Department of Justice, Washington, DC
- Wood, Peter B.; Grasmick, Harold G. (1999), "Toward the Development of Punishment Equivalencies: Male and Female Inmates Rate the Severity of Alternative Sanctions Compared to Prison," 16 *Justice Quarterly* 19
- Yocom, James E. (2006), "Household Income and Punitive Attitudes in an International Context" (draft), <http://www.ssc.wisc.edu/~jyocom/icvs.paper.pdf>

- Zaibert, Leo (2006), *Punishment and Retribution*, Ashgate, Aldershot
- Zedlewski, Edwin W. (1985), "When Have We Punished Enough?" 45 *Public Administration Review* 771
- Zerbe, Richard O. (1991), "Comment: Does Benefit Cost Analysis Stand Alone? Rights and Standing," 10 *Journal of Policy Analysis and Management* 96
- Zerbe, Richard O. (2007), "Ethical Benefit-Cost Analysis," Working Paper (available at http://works.bepress.com/cgi/viewcontent.cgi?article=1002&context=richard_zerbe)
- Zimring, Franklin E.; Hawkins, Gordon (1995), *Incapacitation. Penal Confinement and the Restraint of Crime*, Oxford University Press, Oxford

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