

MMECC Annotated Bibliography

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Basic Principles for Costing Crime

Before estimating costs of crime it is important that the analyst specify the underlying goal of the exercise – whose costs are being estimated and for what purpose? If the underlying purpose is to estimate the cost to taxpayers, that is a much different exercise than estimating the cost to victims or the cost to society as a whole. **While there are certainly legitimate reasons why one might want a less than comprehensive accounting, one generally should start from the perspective of estimating the full “social costs” or “external costs” (discussed below) of crime. Most important, however, the analyst should explicitly state the underlying concept being estimated and the methodology.**

5.1.1 Social Costs versus External Costs

Economists generally start with a presumption that they want to estimate the “social costs” of harmful activities such as pollution or crime. However, (Cohen 1998) argues that the relevant concept for analysis of crime control programs is that of “external” costs. The concepts of social costs and external costs are closely related but not identical. “External costs” are simply the costs imposed by one person on another, where the latter person does not voluntarily accept this negative consequence – often termed an “externality” by economists. “Social costs” are costs that reduce the aggregate well-being of society.

While oftentimes external and social costs are identical, this is not always the case. The value of stolen property is an often cited example. Some economists have argued that stolen property is an “external” but not technically a “social” cost, since the offender can enjoy the use of the stolen property. For example, Cook (1983) argues that the relevant concept should be the “social cost” - which would exclude transfers of money or property. By excluding transfers, Cook (1983) is considering the offender a member of society and thus worthy of inclusion in the social welfare function. In contrast, Trumbull (1990) argues that those who violate the criminal law are not entitled to have their utility counted in the social welfare function, i.e., their gain or loss is to be ignored. Similarly, in the case of victimless crimes (e.g. drug abuse, prostitution, and gambling), one might argue that the “social costs” of these crimes are zero or small (once factoring in the welfare of the participants who enjoy these activities). Yet, as Cohen (2005) argues, these activities impose significant external costs (such as reduced quality of neighbourhoods, medical costs borne by taxpayers, etc.)

Authors are not in agreement about whether to use external or social costs. Cohen (1988a), French et al. (1991), Miller et al. (1996), Brand and Price (2000), Dubourg et al. (2005), and

others have argued in favor of the external cost approach.¹ Anderson (1999) takes the opposite approach and explicitly takes transfers out of his cost estimates – although they are shown as a separate item. **Whichever conceptualization of costs is ultimately adopted, it is important to explicitly describe the underlying approach and, if possible, provide estimates utilizing both – i.e. identify both the full costs as well as the portion that are determined to be outside the scope of the exercise so that the reader can make her own choice about which concept to use. Thus, if transfer payments are to be excluded from the final estimates, they should at least be identified.**

5.1.2 Aggregate versus Individual Costs

While most efforts to estimate the costs of crime focus on individual crime types, some authors (see e.g. Anderson 1999) have attempted to estimate costs from aggregate data such as total government spending on police, courts, and the criminal justice system; private expenditures on security alarms and other precautionary expenditures. Such an approach might also look at aggregate victimization costs from government or hospital surveys. These approaches might be useful for understanding the magnitude of the crime problem relative to other measures such as health expenditures or GDP. They are not suitable for other purposes, however, such as comparing harm by types of crimes or conducting benefit-cost analyses of programs designed to reduce certain types of crimes. Of course, some crime costs are more easily estimated on an aggregate basis (especially general government expenditures that are not targeted towards one type of crime). However, even in these cases, methodologies exist to apportion the costs by type of crime. **Thus, while estimating the aggregate costs of crime might be a useful first step – and might be less resource intensive – estimating the costs (and prevalence) of individual crimes is ultimately preferable.**

5.1.3 Taxonomy of Crime Cost Types

Various authors have categorized the burdens of crime in slightly different – yet complementary ways. The economics of crime literature has traditionally distinguished between three types of costs (Demmert, 1979: 2-5):

- (1) costs caused directly by criminal behaviour (i.e., external costs imposed by the offender),

¹ Becker (1968) also would include property transfers but he theorized that they approximate true social costs if the market for fencing was competitive.

- (2) costs society incurs in response to crime to deter or prevent future incidents or to exact retribution, and
- (3) costs incurred by the offender (such as the opportunity cost of the offender's time while either engaging in the offence or being punished, if he or she otherwise could have been employed in productive activity).

An alternative formulation by Brand and Price (2000) is:

- (1) costs incurred in anticipation of crime (e.g. prevention and insurance administration)
- (2) costs incurred as a consequence of crime (e.g. victimization), and
- (3) costs in response to crime (e.g. criminal justice expenditures)

The Brand and Price (2000) characterization largely focuses on the first two of Demmert's crime cost types and ignores offender costs. It also ignores some of the more difficult costs that Cohen, Miller and Rossman (1994) identified – such as the cost to victim's families, justice or over-deterrence. While this categorization has some intuitive appeal and has been followed by subsequent Home Office reports, note that it is often difficult to sort out which category costs belong to. For example, while Brand and Price (2000) include criminal justice expenditures in their “response to crime” category –it may also have an “avoidance/deterrent” role beyond pure incapacitation and hence look more like a cost “in anticipation” of crime.

Cohen, Miller and Rossman (1994), Cohen (2000, 2005) started from the Demmert (1979) list and progressively expanded it into a comprehensive taxonomy. Tables 5.1 and 5.2 regroup that taxonomy into the three types of crime costs suggested by Brand and Price (2000). Thus, Tables 5.1 and 5.2 provide a comprehensive taxonomy that is consistent with the Brand and Price approach. The first table includes costs in anticipation and the consequences of crime. The second table details society's response to crime. **Regardless of how these costs are grouped, it is useful to start with a comprehensive listing – which allows researchers and policy makers to understand which costs are included and which are not.** Enumerating costs or benefits that are **not** monetized is a fundamental principle of benefit-cost analysis (see for example Zerbe and Bellas, 2006). Tables 5.1 and 5.2 also include information on “who bears the cost” of crime, which is the subject of the next section.

5.1.4 Who bears the burden of crime?

Aside from the primary goal of estimating the social or external costs of crime, a secondary goal that is often of interest to policy makers is to identify specific components of costs based on who bears the burden. Which costs are enumerated will depend upon the intended audience and policy prescriptions. For example, government agencies might be interested in the tax implications of criminal justice policies. Potential victims (including businesses) might be interested in the effect of increased crime on their avoidance behaviour or prevention expenses. Insurance companies might be interested in estimating changes in loss experiences. While useful, it should be recognized that these are narrowly defined goals – not social benefit-cost analyses. Thus, they should ideally be conducted in the context of first identifying all costs and secondly identifying who bears the burden.

One issue that has not been studied widely is the incidence of the burden of crime. While researchers have estimated the cost of crime to victims, for example, they have not focused on the burden on victims relative to their income or wealth. While some victimization studies have focused on the socio-demographics characteristics of victims, cost of crime studies have generally not yet made this correspondence to fully understand the burden of crime.

5.1.5 “Top down” versus “Bottom up” approaches

There are two basic approaches to estimating the costs of crime. The most prevalent to date has been a “bottom up” approach that attempts to piece together the various component crime costs enumerated in Tables 5.1 and 5.2. That is the approach taken by Cohen (1988a) who estimated the cost of crime to victims. Cohen et al. (1994), Brand and Price (2000) and Dubourg et al. (2005) added the cost of prevention and the criminal justice system to victim costs. However, as noted by Nagin (2001), all of these “bottom up” approaches ignored some very important components of the costs of crime – including the “fear of crime,” expenditures or actions taken by the public to avoid the risk of crime, as well as any residual loss to the community in terms of social cohesion, community development, etc. Recent papers by Dolan et al. (2005) and Moore (2006) have attempted to estimate the cost of “fear of crime,” but these approaches are still being refined and still do not fully encompass all of the cost categories enumerated in Tables 5.1 and 5.2, nor the full characterization sought by Nagin (2001).

An alternative approach is thus to estimate costs from the “top down.” Although there are several methodologies that can be adopted (discussed further below), these ‘holistic’

approaches attempt to elicit information on the public's willingness-to-pay for reduced crime. Examples include Ludwig and Cook (2001), Cohen et al. (2004), and Atkinson et al. (2005).

In theory, the 'top down' and 'bottom up' approaches should lead to the same estimates if the latter is all inclusive. The extent to which these two approaches yield similar results has been explored by Cohen (2008a), who concludes that to date, the bottom up approaches have not fully captured the costs of crime. Nevertheless, there is merit in both approaches. While the top down approach is likely to be more comprehensive, it does not allow for a disaggregation of crime cost components. **Since there will oftentimes be considerably interest in many of these cost components – especially the cost to victims and the government – it is recommended that both approaches be utilized and further developed. This has the added benefit of applying two different methodologies that allow for some bounding of the cost of crime estimates.**

5.1.6 Opportunity Cost

Many costs are not observable as direct monetary exchanges. Economists have long recognized the notion of "opportunity costs" as being the conceptual approach to valuing such burdens. The opportunity cost of a good or service is simply its value in the next best alternative – or put differently, what must be given up in exchange for that good or service. Thus, for example, if a victim must spend on average 10 hours meeting with police, prosecutors, and attending court proceedings, it is important to include the opportunity cost of the victim's time. In this case, the opportunity cost would generally be based on the hourly earning capacity of victims. Additional opportunity costs that should be estimated include the value of pain, suffering and lost quality of life to victims, as well as fear to the public at large. **Cost of crime estimates should endeavour to include opportunity costs – not only the financial burden of crime.**

5.1.7 "Incidence" versus "prevalence" based costs

The health economics literature generally distinguishes between "incidence-based" and "prevalence-based" costs. An "incidence-based" cost of crime estimate would attempt to look at each individual crime episode and identify all of the costs. An injury that is sustained today may continue to have consequences and impose costs for many years. Thus, if one is interested in the cost of crime in any one year, it is important to decide whether this should be defined as the costs actually incurred during that year ("prevalence" based costs), or the costs imposed that year even if they are not realized until many years down the road ("incidence" based costs). Cost estimates based on incidence count both present and future costs in the year in which the

injury-cost stream began (Hartunian et al., 1981). Costs based on prevalence count all costs of injury that were incurred in a given year, regardless of when the injuries occurred. **Incidence-based estimates** indicate how much could be saved by preventing future incidents and are thus most relevant for criminal justice policy analysis. **Prevalence-based estimates** may be used to provide insight into the cost savings attainable through improved treatment of existing injuries and are of more interest to those in the public health community interested in estimating medical care needs.

5.1.8 Discounting to Present Value

Costs incurred in the future (i.e., more than one year post-victimization) must be discounted to "present value." Most 'cost of crime' studies to date have used a rate of between 2% and 3.5% per year, which is consistent with the "real" (i.e., net of inflation) discount rate for worker wages over time, and the real consumer interest rate over time. Cohen (1988a), Cohen et al. (1994), and Miller et al. (1999) use a 2% discount rate. Brand and Price (2000) and Dubourg et al. (2005) use a 3.5% rate.

Statistical modelling suggests workers apply a two percent discount rate when they trade off possible loss of future life years against extra earnings in the present (see Moore and Viscusi, 1989). In the U.S., the Congressional Budget Office concluded from a review of the economic evidence that the most appropriate discount rate for public decision making was 2% (Hartman, 1990). A similar consensus appears to have developed around a 3% net discount rate in health care economics (Gold et al., 1996). In the U.S., some government agencies have routinely used higher net discount rates of around 10%, and the Office of Management and Budget (1992) requires a 7% discount rate for regulatory policy analysis. The U.K. government uses a 3.5% discount rate for analysis of public spending projects (U.K. HM Treasury, 2003).

5.1.9 Transferability of Cost Estimates

In most costing exercises, some cost components will be unavailable due to lack of data or resource constraints. In some instances, it might be appropriate to transfer information from other countries to fill these gaps. Which cost categories are reasonably transferable might depend upon which country has data and which is being estimated. For example, if two countries have very similar court systems but different wage rates, it might be reasonable to transfer the estimated number of hours spent by court personnel but use the home country's wage rates to estimate actual costs.

5.1.10 Confidence Intervals, Uncertainties and Missing Costs

All cost of crime estimates are subject to uncertainties – that is why they are “estimates.” Depending upon the source of data and methods of collection, some of the uncertainties can be modeled and confidence intervals can be constructed. Alternatively, estimates might be expressed as ranges if reasonable assumptions would provide such alternatives. **Whenever possible, the “best estimate” should be provided along with either a range or confidence intervals.**