



## Cost of crime: A systematic review



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### ABSTRACT

**Purpose:** This study aims to systematically search and review all the relevant studies that have estimated the cost of crime of adult offenders.

**Methods:** Fifteen databases were searched for published studies and grey literature. We included studies that estimated the cost of crime of adult offenders. Due to high heterogeneity results were synthesised descriptively. **Results:** Twenty-one studies estimated the cost of crime. There was considerable variance in the estimated total costs of crime and studies from the United States consistently reported the highest total costs. All the studies consistently included robbery and burglary in the total cost estimate. Homicide was ranked as the most costly offence and accounted on average for 31% of the total cost of crime, followed by drug offence (21%) and fraud (17%). Crime categories that involved violence to a person were associated with large intangible costs.

**Conclusions:** While it is difficult to precisely determine what caused the large variance in the total cost estimates, we think that it could be due to changes in unit costs, changes in crime trends, and variations in the methods used to estimate costs. The findings from this systematic review highlight the need for more up-to-date studies with better reporting standards.

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### Introduction

Crime imposes significant costs and negative consequences to people globally. In 2013, the police recorded approximately 3.7 million crimes in England and Wales (Ministry of Justice, 2014a). In addition, re-conviction rates have also continued to be high. According to the Ministry of Justice, approximately half of all crimes committed in the United Kingdom were perpetrated by adults who have already been convicted by the Criminal Justice System (Ministry of Justice, 2010). Higher prevalence of crime imposes huge costs to society with serious negative long-term consequences to victims, households, and businesses (Brand & Price, 2000; Macmillan, 2001). (See Tables 1–3.)

For the purpose of this review, cost of crime is defined as “all costs that would not exist in the absence of illegal behaviour” (Anderson, 2012, p. 5). Calculating accurate estimates for the full societal cost of crime is challenging because of limited availability of data, difficulty of measuring the actual rate of crime and the unknown long-term consequences of crime. Nevertheless, several studies have estimated the cost of crime in the United Kingdom and other developed countries. The objective of conducting this review is to systematically search the literature to identify all published studies that estimated the cost of crime imposed by adult offenders.

Estimating the cost of crime is important for several reasons. First, there is a financial imperative to target resources to the most cost-effective crime prevention interventions. Since crime imposes huge costs on society, effective crime prevention interventions can provide considerable cost savings to society (Cohen, Piquero, & Jennings, 2010). Cost of crime data can be utilized by policymakers to prioritize crime prevention efforts relative to the severity of the crime type (Cohen, 2000). For instance, if violent crime imposes a heavy burden to society, more resources can be utilized to reduce such crimes. Therefore, compiling cost of crime estimates has important policy implications.

Second, cost of crime studies can be utilised to conduct economic evaluations (i.e. cost-effectiveness studies or cost-benefit studies) of existing programs (Ludwig, 2010). These studies can not only be important for resource allocation, but also important to determine if the benefits of crime prevention programs outweigh the costs. For example, we intend to use the results of this systematic review to assess the cost-effectiveness of care farms compared to community orders in improving health and wellbeing and reducing reconvictions of adult offenders.

Finally, to address the problem of high reoffending, the government is introducing the transforming rehabilitation reform where payment incentives will be given to market providers for real reductions in reoffending (Ministry of Justice, 2014b). The payment by performance model would require valuation of reoffending outcomes that are being evaluated for investors to determine the rate of return on their investment (Fox & Albertson, 2011). This highlights the importance of

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gathering accurate cost of crime estimates that are comprehensive and up-to-date.

Estimating the cost of crime is complex, as a result authors have used a number of different methods to measure the cost of crime. For example, some classify cost of crime into different crime categories which vary from assault to serious traffic offenses and within these categories costs can be subdivided into direct, indirect and intangible costs. Direct costs can be distinguished from indirect and intangible costs as there is a monetary exchange involved. For example, if car owners repair their vehicle as a result of criminal damage, the cost of the repair is a direct cost, and is straightforward to measure as there is a market value for repairs. Indirect costs refer to the economic value of consequences of crime that do not involve a direct monetary exchange. These include lost productivity of both offenders and/or victims, and the value of volunteer time. Often lost productivity is estimated by calculating the forgone productivity as a result of the offence. For example, lost productivity can be determined by multiplying hourly average income with the number of hours a victim has spent out of work as a consequence of a crime. Intangible costs are costs incurred by victims, potential victims and society which include fear, pain, suffering, and lost quality of life. These costs are the most difficult to quantify as there is no market value or monetary exchange. As a result, intangible costs are usually inferred by revealed or stated preference-based methods such as willingness-to-pay (WTP) or contingent valuation.

The cost imposed by crime can be measured from different cost perspectives and depending on the chosen cost perspective authors can include or exclude certain types of costs as the perspective determines who bears the cost. Costs could be calculated according to victim's perspective, government perspective and societal perspective. Victims' perspective consists of costs incurred by the victim such as out of pocket medical costs, lost productivity, pain and suffering. Government perspective includes costs incurred by the Criminal Justice System. Societal perspective is comprised of both victims and government perspective costs and includes costs to tax payers and offenders. Out of the different perspectives that can be used to calculate cost of crime, the societal perspective is the most comprehensive as it includes all possible costs hence, it is the category least likely to underestimate the overall costs of crime.

To the best of our knowledge, a systematic review of the cost of crime has never been conducted. Several authors have conducted reviews of the cost of crime (Albertson & Fox, 2008; Ludwig, 2010; O'Brien, 2010; Webber, 2010) but they all focused on analysing a couple of recent articles that estimated the cost of crime. The aim of this review is to systematically search the literature to select and review all existing and relevant studies that estimate the cost of crime.

## Methods

### Search strategy

The literature search aimed to identify studies on the health and societal costs of offending. Health, social science, criminal justice, published and grey literature sources<sup>1</sup> were selected to provide representative set of studies.

We searched the following databases in December 2013 from their inception dates to present: Embase, Health Management and Information Consortium, Medline, Medline-in-Process, PsycInfo (all Ovid); ASSIA, National Criminal Justice Reference Service Abstracts, Sociological Abstracts, Social Services Abstracts (all ProQuest); CINAHL, Criminal Justice Abstracts (all EbscoHost); The Campbell Library; NHSEED (Cochrane Library, Wiley); RePeC Ideas; and Conference Proceedings Citation Indexes- Science, Social Science and Humanities (Web of Science, Thomson Reuters). Searches were designed to identify studies of the health and societal costs of offending by combining the search concept 'offending' with the concepts 'health costs' or 'societal costs'. Where possible studies of juvenile offending were identified and removed from

the search results. Full details of the search strategy for Medline database is presented in Appendix A and full search strategies for all databases are available from the author on request. Searches of NHSEED contained the 'offending' search terms only since this database only contains studies related to health care costs. Test searches of Green file (EbscoHost) were run however no relevant hits were seen on title screening of these search results and the database was then deemed inappropriate for this search question. In addition, grey literature was sought by scanning the UK government website (<https://www.gov.uk/>) and by screening bibliographies of included studies or literature reviews.

### Inclusion or exclusions criteria

To be eligible for inclusion we considered studies that quantified the cost of crime. We excluded studies that primarily reported qualitative data, literature reviews, policy papers and studies that only discussed methodology of costing crime. In addition, economic evaluations of crime prevention interventions were excluded. Moreover, studies that only reported costs for juvenile offenders were excluded as the focus of our review was to assess costs imposed by adult offenders. The literature suggests that the costs imposed by adult offenders differ considerably compared to juvenile offenders, for example, the types of crimes juveniles commit generally tend to be less serious compared to adult offenders, thus juveniles may not receive a prison sentence (Richards, 2011). In addition, the interventions delivered to adults and juveniles tend to vary considerably, for instance the juvenile correction system is generally focused on rehabilitation whereas the adult system is typically focused on punishment and the costs of delivery of these different interventions vary considerably (Richards, 2011). Consequently, we decided to focus on the costs of adult offenders. Furthermore, included studies for this systematic review were searched spanning 17 years (1996–2013) because we found that older studies presented cost data that were outdated. Only studies published in English were included in the systematic review due to limited capacity. Studies not conducted in high-income countries were also excluded as our aim was to identify results relevant to the United Kingdom.

### Data collection and analysis

Titles and abstracts were screened based on the inclusion criteria to select studies for the review and Endnote software was utilised to manage references. When the decision to include or exclude a study was not straightforward, a second reviewer was consulted to resolve uncertainty. The detailed process of articles selection was presented in a PRISMA chart (see Appendix A). Once the included studies were identified, data were extracted using a data extraction form developed for this purpose. For each study we extracted the following: cost perspective, cost category, study population, country, source of cost data, currency, cost year, discounting, estimated direct, indirect, intangible, and total costs and limitations. As studies varied considerably when estimating the cost of crime, results were synthesised descriptively and presented according to crime category. Cost data were not adjusted for the current year instead it was presented with cost year and currency.

## Results

The literature search yielded 8520 potentially relevant studies. After removal of duplicates 6265 were identified for screening. In addition, five studies were identified from scanning reference lists of included studies and seven from searching grey literature. In total 6277 titles and abstracts were screened of which 6211 studies were excluded and sixty-six possibly relevant studies were retrieved for full-text assessment. During full-text review, 21 studies were included in the analysis and 45 studies were excluded. Studies were excluded for the following reasons: literature reviews of other cost studies, economic evaluations, focus on juvenile offenders, report of qualitative data, and absence of

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