Ruhr-Universität Bochum (RUB)
Faculty of Social Sciences
Dissertation

COST OF CRIME
TOWARDS A MORE HARMONIZED, RATIONAL AND HUMANE CRIMINAL (JUSTICE) POLICY IN GERMANY

A scientific inventory of cost of crime research and practice, and the implications of comprehensive estimates for guidance in decision-making

by

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## Abbreviations

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<th>Full Form</th>
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<tbody>
<tr>
<td>ABC</td>
<td>Activity Based Costing</td>
</tr>
<tr>
<td>ABS</td>
<td>Australian Bureau of Statistics</td>
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<tr>
<td>ACCS</td>
<td>Adult Criminal Court Survey (in Canada)</td>
</tr>
<tr>
<td>AIC</td>
<td>Australian Institute of Criminology</td>
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<tr>
<td>AIF</td>
<td>Annual International Forum for Crime Prevention within the GCOCP (in Germany)</td>
</tr>
<tr>
<td>AUD</td>
<td>Australian Dollars</td>
</tr>
<tr>
<td>BaSiD</td>
<td>Barometer of Security in Germany <em>(Barometer Sicherheit in Deutschland)</em></td>
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<tr>
<td>BDK</td>
<td>Federation of German Criminalists <em>(Bund Deutscher Kriminalbeamter)</em></td>
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<tr>
<td>BCS</td>
<td>British Crime Survey</td>
</tr>
<tr>
<td>BKA</td>
<td>Federal Criminal Police Office <em>(Bundeskriminalamt)</em></td>
</tr>
<tr>
<td>BIGS</td>
<td>Brandenburg Institute for Research on Society and Security <em>(Brandenburgisches Institut für Gesellschaft und Sicherheit)</em></td>
</tr>
<tr>
<td>BITCOM</td>
<td>Federal Association for Information Technology, Telecommunications and New Media <em>(Bundesverband Informationswirtschaft, Telekommunikation und neue Medien)</em></td>
</tr>
<tr>
<td>BMBF</td>
<td>Federal Ministry of Education and Research <em>(Bundesministerium für Bildung und Forschung)</em></td>
</tr>
<tr>
<td>BMFSFJ</td>
<td>Federal Ministry for Family Affairs, Senior Citizens, Women and Youth <em>(Bundesministerium für Familie, Senioren, Frauen und Jugend)</em></td>
</tr>
<tr>
<td>BMI</td>
<td>Federal Ministry of the Interior <em>(Bundesministerium des Innern)</em></td>
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<tr>
<td>BMJ</td>
<td>Federal Ministry of Justice <em>(Bundesministerium der Justiz)</em></td>
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<tr>
<td>bn</td>
<td>Billion</td>
</tr>
<tr>
<td>BVerfG</td>
<td>Federal Constitutional Court <em>(Bundesverfassungsgericht)</em></td>
</tr>
<tr>
<td>CAD</td>
<td>Canadian Dollars</td>
</tr>
<tr>
<td>CAF</td>
<td>Latin American Development Bank</td>
</tr>
<tr>
<td>CBA</td>
<td>Cost-Benefit Analysis</td>
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<tr>
<td>CBAU</td>
<td>Vera Institute's Cost-Benefit Analysis Unit</td>
</tr>
<tr>
<td>CBKB</td>
<td>Cost-Benefit Knowledge Bank for Criminal Justice</td>
</tr>
<tr>
<td>CCJEP</td>
<td>Centre for Criminal Justice Economics and Psychology (in York)</td>
</tr>
<tr>
<td>CCPCJ</td>
<td>UN Commission on Crime Prevention and Criminal Justice</td>
</tr>
<tr>
<td>Acronym</td>
<td>Description</td>
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<td>----------</td>
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<tr>
<td>CCTV</td>
<td>Closed Circuit Television</td>
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<tr>
<td>CEA</td>
<td>Cost-Effectiveness Analysis</td>
</tr>
<tr>
<td>CEN</td>
<td>European Committee of Standardization</td>
</tr>
<tr>
<td>CEPEJ</td>
<td>European Commission for the Efficiency of Justice</td>
</tr>
<tr>
<td>CEPS</td>
<td>Centre for European Policy Studies (in Brussels)</td>
</tr>
<tr>
<td>CIHI</td>
<td>Canadian Institute for Health Information</td>
</tr>
<tr>
<td>CJS</td>
<td>Criminal Justice System</td>
</tr>
<tr>
<td>CPA</td>
<td>Cost-Performance Accounting</td>
</tr>
<tr>
<td>CPTED</td>
<td>Crime Prevention Through Environmental Design</td>
</tr>
<tr>
<td>CRCC</td>
<td>Crime Repression Costs in Context</td>
</tr>
<tr>
<td>CRI</td>
<td>NBER's Working Group on the Economics of Crime</td>
</tr>
<tr>
<td>CRIM</td>
<td>European Parliament's Special Committee on Organised Crime, Corruption and Money Laundering</td>
</tr>
<tr>
<td>CRIMPREV</td>
<td>Assessing Deviance, Crime and Prevention in Europe</td>
</tr>
<tr>
<td>CRP</td>
<td>Home Office Crime Reduction Programme</td>
</tr>
<tr>
<td>CSR</td>
<td>Corporate Social Responsibility</td>
</tr>
<tr>
<td>CSS</td>
<td>Australian Crime and Safety Survey</td>
</tr>
<tr>
<td>CVM</td>
<td>Contingent Valuation Method</td>
</tr>
<tr>
<td>CVS</td>
<td>Commercial Victimization Survey (in England and Wales)</td>
</tr>
<tr>
<td>DARE</td>
<td>Drug Abuse Reduction Education</td>
</tr>
<tr>
<td>DBDD</td>
<td>German Monitoring Office for Drugs and Drug Addictions (Deutsche Beobachtungsstelle für Drogen und Drogensucht)</td>
</tr>
<tr>
<td>Destatis</td>
<td>Statistisches Bundesamt</td>
</tr>
<tr>
<td>DIW</td>
<td>German Institute for Economic Research (Deutsches Institut für Wirtschaftsforschung)</td>
</tr>
<tr>
<td>DOCA</td>
<td>Designing Out Crime Assessment</td>
</tr>
<tr>
<td>DVS</td>
<td>German Foundation for Crime Prevention and Offender Support (Deutschen Stiftung für Verbrechensverhütung und Straffälligenhilfe)</td>
</tr>
<tr>
<td>EBP</td>
<td>Evidence-Based Practice</td>
</tr>
<tr>
<td>ECOSOC</td>
<td>Economic and Social Council of the United Nations</td>
</tr>
<tr>
<td>ECPI</td>
<td>European Criminal Policy Initiatives</td>
</tr>
<tr>
<td>E-DOCA</td>
<td>European Designing out Crime Association</td>
</tr>
<tr>
<td>EIU</td>
<td>Economist Intelligence Unit</td>
</tr>
</tbody>
</table>
ESC European Society of Criminology
ESS European Social Survey
EfUS European Forum of Urban Security
EU European Union
EUCPN European Crime Prevention Network
EU-ICS European Crime and Safety Survey
EUR Euros
EURO-JUSTIS Scientific Indicators of Confidence in Justice
EUSECON European Network of Security Economics
FBI Federal Bureau of Investigations (in the United States)
FCA Full Cost Accounting
FIA Fiscal Impact Analysis
FP6 Sixth Framework Programme for policy-oriented research
FP7 Seventh Framework Programme for policy-oriented research
GCOCP German Congress on Crime Prevention (Deutscher Präventionstag - DPT)
GDP Gross Domestic Product
GPI Genuine Progress Index
GSS General Social Survey
HEFC Higher Education Funding Council for England
HEUNI European Institute for Crime Prevention and Control
ICSS Integrated Correctional Services Survey
ICPC International Crime Prevention Centre (in Montreal)
ICVS International Crime Victim Survey
IDB Inter-American Development Bank
IFC International Financing Cooperation
IOM Integrated Offender Management
ISC International Society of Criminology
ISEW Index of Sustainable Economic Welfare
IKOC Improving Knowledge on Organized Crime
IMF International Monetary Fund
KFN Criminological Research Institute of Lower Saxony (Kriminologisches Forschungsinstitut Niedersachsen)
ProPK  Police Crime Prevention at State and National Level (*Polizeiliche Kriminalprävention der Länder und des Bundes*)
PSB    Periodic Safety Report (*Periodischer Sicherheitsbericht*)
PTSD   Post-Traumatic-Stress-Disorder
QALY   Quality-Adjusted Life-Year
RCT    Randomized Control Trials
RDS    Home Office Research, Development and Statistics Directorate
RegKrimDA  Regional Crime and Prosecution Statistics (at TU Darmstadt)
ROI    Return on Investment
SCP    Situational Crime Prevention
SDG    Sustainable Development Goals
SDSN   Sustainable Development Solutions Network
SHR    Supplementary Homicide Reports (in the United States)
SIB    Social Impact Bonds
Sifo   BMBF research program on security (*Sicherheitsforschungsprogramm*)
SMS    Maryland Scientific Methods Scale
SOEP   German Socio-Economic Panel
SSH    Socio-economic Sciences and Humanities Programme
SSP    Scientific Support to Policy
StVStat Criminal prosecution statistics (*Staatsanwaltsstatistik*)
SVORI  Serious and Violent Offender Reentry Initiatives
SWF    Social Welfare Function
SWI    Sellin-Wolfgang Index
tn     Trillion
TOC    Transnational Organized Crime
TOPS   Treatment Outcome Prospective Study
UCR    Uniform Crime Reporting
UNDP   United Nations Development Programme
UNODC  United Nations Office on Drugs and Crime Prevention
UNICRI United Nations Interregional Crime and Justice Research Institute
USD    US Dollars
VAP    Violence against a person
VFM  Value for Money
VLE  Virtual Learning Environment
VSL  Value of a Statistical life
WBG  World Bank Group
WHO  World Health Organization
WISIND  Economic-Scientific Indicator for Measuring Security and Security Industry in Germany (Wirtschaftswissenschaftliches Indikatoren-system zur Messung von Sicherheit und Sicherheitswirtschaft in Deutschland)
WSIPP  Washington State Institute for Public Policy
WTP  Willingness-to-pay
YCJE  York Criminal Justice Economics
YIPS  York Index of Public Safety
ZEW  Centre for European Economic Research (Zentrum für Europäische Wirtschaftsforschung)
1. Introduction

The provision of a criminal justice system is a central function of the modern state where the cost of running such a system calls for effective and efficient institutional arrangements (University of York, 2008). Information on budgetary funding of the criminal justice system is retrievable from government data, but these figures are mostly expressed in a condensed format and are broken down into traditional state and administrative functions. Compared to previous years, the fluctuations in spending often only give general hints on new priority settings. Most of the currently available numbers are of little practical use for evaluation purposes and when deciding on whether a change in investment of public resources is actually worth the added costs (or the other way around). The lack of information on the rate of return of operations often dampens arguments in the process of developing, finding and sustaining appropriate and effective measures of crime control and prevention. Consequentially, decisions on the allocation of resources are often based on the perceived ‘social alarm’, which is often the result of particularly hateful episodes and the associated media coverage (Weatherburn & Indermaur, 2004) rather than true social costs of criminal activity (Detotto & Vannini, 2010, p. 421).

In 2014, total offences committed in Germany peaked to a figure of above 6 million cases: More than 2.4 million robbery crimes and 180,955 violent crimes (including 7,345 cases of rape and sexual assault, and 2,179 cases of murder and manslaughter) were reported in the German police crime statistics (BMI, 2015, p. 7). What is the amount of harm by these offenses that is caused to society? Are the costs of murder and manslaughter greater than the costs that arise due to thefts? How much efforts and expenses should the state put into curbing these or other types of crimes? Do investments in early childhood education have a greater preventive effect on crime prevention than investments and expenditures for correctional facilities? Are fines or community sentences more effective than prison sentences? An objective or objectifiable answer can only be given to these questions if all costs and benefits (or cost-benefit ratios) of the assessed measures or alternatives are available and compared under a common unit or metric (Thomsen, 2015, p. 19-20).

The often impressively high cost estimations of crime that are entering the public discourses deserve careful attention. In Germany alone for the year 2012, the total
amount of all recognized offenses in the police crime statistics (PCS)\(^1\) amounted to almost EUR 7.7 billion (BKA, 2012, p. 9), of which EUR 3.8 billion represent the amount lost due to *economic crime* (around 50 percent of all registered crimes) (BKA, 2012, p. 4). In 2011, *cybercrime* was recognized by the PCS and led to an estimation of EUR 71.2 million lost (BKA, 2012, p. 4). Numbers in that range can serve as alarming figures of crime and related security ‘threats’ to society, but how valid are these estimates as a cost impact measurement? In how far do these estimates allow conclusions on the magnitude of the crime ‘problem’? The dubiousness about the officially reported cost estimates at their current state in Germany should not be underrated.

On a political level, cost impact assessments of the public sector are important to support arguments on sustaining economic growth and welfare. And, as crime represents one ‘problem’ with significant impact to society (Detotto & Otranto, 2010, p. 330), a more profound knowledge on the measurement (data sources) and costs (common metric) of crime becomes apparent. Policymakers face difficult decisions when they allocate resources, so that the role of research on informing evidence-based and cost-effective decisions about the use of funds and resources (including labor, materials and equipment, skills of workers) are becoming relevant (Downey & Roman, 2014, p. 3).

For many years, on a political and research level, much time and effort has been given to the notion of ‘what works’, while less attention has been directed to the monetary aspects or to ‘what is worthwhile’ (Moolenaar, 2009, pp. 309-310). Nowadays, criminal justice policy makers are faced with questions, such as “*is it better to invest in developmental prevention, situational prevention, more police, or more prisons?*” (Farrington, 2013, p. 296). In order to address these questions, information on knowing ‘what works’ as well as the return on related investments (ROI) of funding the corresponding intervention activities are coming to the fore (the ROI of ‘what works’). However, while the economic *cost-benefit* (CBA) or *cost-effectiveness analyses* (CEA) toolkits have been applied to various areas of the public sector, such as in social and urban planning, or concerning education, health or environmental issues, it is not a self-

\[^{1}\text{Polizeiliche Kriminalstatistik (PKS) in German.}\]
evident strategy for criminal justice policy (Rosenberg & Mark, 2011, p. 1). The *return*, achieved or achievable *value* is a matter of grounding the discussion.

In response to the combined growing interest in economic analysis of crime control and prevention efforts, the importance of good cost estimates and their political implications are becoming recognized by government policy analysts and researchers around the world (Cohen, 2000; Cohen, 2005; McCollister, French & Fang, 2010): “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” (Czabanski, 2008, p. 2). In that sense, the rather new and very practical-oriented approach to capturing the harm caused by crime, the framework behind, and knowledge on the proper utilization of cost of crime estimates are subject for thorough analysis.

Cost of crime research and practice has been predominated by the work of scientists and practitioners from the United Kingdom, United States, Australia and New Zealand, particularly due to a better data situation and interdisciplinary research setting. Building on the initiatives by the European Crime Prevention Network (EUCPN) and as part of the 6th Framework Programme (FP6) supporting policy oriented research, the Crime Repression Costs in Context (CRCC) and Mainstreaming Costs of Crime Estimation Methods (MMECC) projects took on the task of assisting EU Member States with the development and use of cost of crime estimates. The results of a review on the application of CBA in the criminal justice setting however confirmed that, “it is only very recently that EU countries have started generating figures on the cost of crime, and methodological problems still exist in developing the methods of calculating these costs” (CRCC, 2009, p. 2; Alfé & de Wever, 2011, p. 26). Hesitation in attempts might be due to issues with the general idea of putting a monetary value on crime, particularly on crime types such as violence, rape, or murder due to their larger intangible cost components. Nevertheless, precisely because of these types of crime, this research branch is becoming increasingly important.

Overall, cost of crime research and practice is at an infant stage and estimates remain debatable in their methodology and use. Due to the substantial technical complexities that have to be confronted when conducting cost of crime estimates beyond the purely economic domain, the literature on costs of crime draws on a wide spectrum of fields ranging from abstract concerns about legal philosophy and the nature of the state to very
narrow technical issues (University of York, 2008). The implementation of cost of crime methodologies and categorization of costs requires comprehensive knowledge on what actually constitutes crime, its causes and consequences. In that sense, for the proper application of crime measurement techniques it is therefore absolutely crucial to find an agreement on definitions and methodological design. In most countries, the limited availability of good crime statistics and conservative crime measurement practices hinder the successful implementation of cost of crime methodologies. Beyond that, countries like Germany are faced with differing research settings, particularly with regard to the influence of criminological research on policy outcomes. As a result of the limited, but certainly necessary interdisciplinary engagement between criminologists and economists, most researchers are not well acquainted with the available methodologies and practices.

In Germany, despite early discussions about the applications of CBA on criminal policies (Klingemann, 1978; Luzius, 1979), proposing a more rational drug policy (Hartwig & Pies, 1995), and the efficient use of resources in crime control (Maennig, 2008; Schellhoss, 2004), empirical research on the costs of crime remains scarce and very centered in approach. Aside individual economic or econometric studies (see Spengler, 2004), a systematic assessment of the cost of crime is missing (Entorf, 2014, p. 2). In the recent evaluation on the costs and benefits of prevention in the economic analysis in preparation for the 20th German Congress on Crime Prevention (GCOCOP) the author is speaking of a substantial negligence of the topic (Thomsen, 2015, p. 6). The criminological discourse in Germany has unfortunately largely ignored the topic. In fact, there has been little systematic reflection within criminology on criminal harms or their identification, evaluation, and comparison (Paoli & Greenfield, 2013, p. 359). As cost-neutral or even cost-saving approaches are indispensable (Kühne, 2003, p. 24), the introduction of evaluation policies that look at monetary aspects (Dölling, Hermann, & Entorf, 2014; Dünkel & Scheel, 2006, pp. 162-166) are promising first steps to put CBA in criminal policy into practice (van Soomeren, Wever, Pascoe, Monahan & Oxley, 2005, p. 3).

Nevertheless, “estimates can easily be misinterpreted to support different political agendas” (Gowar & Farrington, 2013, p. 441). “On the political right, large dollar-cost estimates of the impact of crime are interpreted as justification for more punitive justice
policies, whereas on the left such cost estimates are seen as yet another reason to invest in early intervention methods to ward off the future consequences of criminal justice activity” (Welsh, Loeber, Stevens, Stouthamer-Loeber, Cohen & Farrington, 2008, p. 4). Among the main misconceptions with the topic is that “despite the rhetoric, neither small nor large cost-of-crime numbers demonstrate that the cost of building more prisons is justified or that alternatives to incarceration are better than more prisons” (Cohen, 2000, p. 269). Misbelieves can, for instance, be dissolved with a more transparent presentation of methodology and results of comprehensive cost of crime assessments, but only few countries are putting the required efforts into practice in a more systematic manner.

The foundational research on the economic and social costs of crime (or public value costs of crime\(^2\)) is cultivating in a presentational manner. Hereby, CBA is among the key tools aimed at not only researchers, but also practitioners and policymakers who use research to make choices about how to use limited resources (Downey & Roman, 2014, p. 3). In many ways, the cost of crime approach and its implication for social and urban planning or sustainable and welfare enhancing policy-making is an important reason, if not the main reason, for studying crime. In Australia, the United States, and the United Kingdom, the cost of crime assessment is already evolving into a standard assessment tool, and it will probably become so in Europe (Czabansky, 2008, p. 3). Meanwhile, researchers and practitioners have introduced new practically guiding instruments, such as RAND’s cost of crime calculator to foster excellence in policing, and virtual learning platforms (VLS) to assist researchers and practitioners in project planning and policy modeling, such as the Cost-Benefit Knowledge Bank for Criminal Justice (CBKB). Additionally, new priorities are being formulated in order to make economic analyses of prevention efforts easier to compare (with each other as well as other more traditional intervention measures) and more relevant to policymakers and community stakeholders (Crowley, Hill, Kuklinski & Jones, 2013).

In times of crisis or in the face of tightened resource constraints, many crucial sectors of the economy often suffer under budget cuts. In the contemporary culture of global austerity efforts, policy modeling and criminal justice administration are undergoing

\(^2\) The terminologies of economic and social costs and benefits are changing, as explicitely indicated in the CBA analysis guidance for local partnership: “economic and social benefits are now referred to as public value benefits” (HM Treasury, 2014, p. 6).
changes where economic arguments about resource allocation play an increasingly important role. Taxpayers’ money should not be wasted and crucial areas within the criminal justice system and related social sectors should avoid suffering from budget cuts in the first place, while ensuring that promising programs do not lose their desired fiscal support at the end. In light of its greater implications for a more efficient and effective approach to criminal justice matters other countries are following suit as well. In Germany however, the communicated goals of EU initiatives and proposals to develop a more profound body on the costs and benefits of crime, crime control and prevention do not seem to have arrived far enough in the academic and political discourse yet. Scientific inventories on cost of crime research and practice are scarce and frequent reviews on this topic are required. The analysis of this dissertation project, therefore, surrounds the following central questions:

- In what ways can comprehensive cost of crime estimates serve as a new indicator to help us better understand and approach the ‘problem’ of crime?
- In which directions have the cost of crime estimates developed so far? What is the current academic standing in Germany?
- Why is it, in its current state in Germany, that it is still difficult to comply with the different components of the taxonomy of crime cost categories as presented in the MMECC model (or European cost of crime assessment model)?
- What are the rationales behind CBA as a strategic decision-making tool in criminal justice (policy) interventions? What are the greater implications of the development of the cost of crime approach for criminal policy in Germany?
- Why is a more applied-oriented framework for the cost of crime approach necessary and what could it look like in the German case? And how could the generation of figures on the costs of crime further be enhanced in Germany?

In response to the pending need to develop a more profound body of knowledge on the costs of crime in Germany, the aim of this dissertation project is to develop a better understanding of what costs of crime actually are and how credible estimates can help to develop better arguments on strategies for the reduction of harm, including the social costs of victimization and costs of fear as a result of crime, and overall enhance the effectiveness and efficiency of the criminal justice system. In an evaluative approach, it conducts a review on the distinctive developments of the costs of crime with respect to
the validity or robustness, comparability and the level of use of available comprehensive estimates. The review of the European initiatives and the MMECC model further assist in the compilation of a set of criteria needed to enhance the generation of more comprehensive cost estimates and in turn allow for a better use of CBA (or CEA) in policy evaluation and project appraisal. In light of the greater implications for better guidance in the prioritization of efforts and allocation of resources in criminal justice and related sectors, the underlying goal of the dissertation is to demonstrate how this particular applied-oriented approach can help to rationalize political decisions on crime issues in a public value-orientated manner. As it will be argued, with the developments and implementation of more effective and efficient crime prevention measures a ‘cultural shift’ is taking place that requires institutional adaptations. With the rise of the political economy of prevention, “crime is another policy area in which preventive discourses figure greatly” (Gough, 2013, p. 8). In a redefinition process of the political economy of crime, in particular researchers (economists and criminologists alike) should increasingly be concerned with the interaction of political decision-making and economic outcomes.

Subsequent to this introductory chapter, the second chapter serves as the theoretical and methodological foundation for the analysis and introduces cost of crime as a relevant and much needed indicator for better understanding and approaching the ‘problem’ of crime. The first part revises the main limitations of conventional crime measurement practices in Germany and emphasizes the impacts and effects of some of the crucial and often overlooked socio-economic determinants. The second part on monetizing the costs of crime first presents problems with conventional ‘burden’ of crime estimates in Germany as currently presented in the official BKA reports. Then, it introduces the main cost of crime perspectives (bottom-up and top-down) and methodologies in preparation for the next chapters. The third section presents the initial influences of the CBA mindset on the criminal justice system as a result of the modern economic approach to criminal activity.

As a result of methodological advancements, estimates of the costs of crime can nowadays allow for (1.) the comparison of the aggregate harm with that of other social ills, (2.) the comparison of the relative harm caused by type of crime (and developments of crime-harm severity indices), (3.) the quantification and monetization of benefits or
alternative crime control policies in CBA (Cohen, 2000, p. 268), as well as (4.) the monetization of offending trajectories (criminal career costs) in order to develop more effective strategies to reduce recidivism. This way, estimates of the cost of crime are becoming an integral part of an evidence-based framework on the prevention of crime (Webber, 2010, p. 2). Moreover, (5.) cost of crime estimates are notably as well taken into account in contemporary relevant sustainable development and other alternative prosperity indicators, such as the Genuine Progress Indicator (GPI). Along these main implications and directions of research, the third chapter conducts a review on how the cost of crime research and practice in the Anglo-Saxon countries has developed so far. The second part summarizes efforts in other countries, and compares the overall findings to the current academic standing and practice in Germany.

The fourth chapter reviews the initiatives at the EU level aimed to raise awareness and to assist EU countries to develop a more profound body of research on the costs and benefits of crime and crime prevention efforts. The first part examines the composition of the taxonomy of crime cost categories, as presented in the MMECC model (or European cost of crime assessment model). The emphasis is put on the definitions of different cost components and required data sources in order to apply the suggested methodological approach or preferred estimation methodology (see Appendix B on summary of suggested MMECC formulas). The second part discusses CBA as a horizontal recommendation for policy analysis and investment appraisals. Because of extant discrepancies between different perceptions on the use of CBA (in regard to what should be considered as costs and what as benefits), an emphasis is put on the rationales behind employing this particular kind of analysis in political decision-making.

The fifth chapter puts the evidence-based framework and the policy implications of the cost of crime approach into the forefront. The first part uses the (social) CBA framework in order to demonstrate the roles and perspectives of different members in society (taxpayers, crime victims, offenders, overall society) in the economic evaluation of crime prevention measures. The second part of the chapter is dedicated to a discussion on rational criminal policy as a basic goal for society (Mears, 2007, p. 667) and as a future task (Schwind, 1985, p. 573). The first section introduces the critical state of criminal policy in Germany in light of the shortcomings of current crime prevention strategies and re-arrangements of research and policy fields (crime control
and security) over the past decade. In light of the greater role of crime prevention for sustainable development, the second and third sections engage with the economics of crime prevention more thoroughly. The discussion on the economization processes of crime prevention includes the adequate funding of governmental programs, the role of the private security sector in crime prevention in the displacement of resources, public-private partnerships (PPPs), as well as innovative new financing models. In light of these developments, the demand for an applied-oriented framework for the specific case in Germany becomes inevitable and consists of: (1.) Prevention practice as the key engine of sustainable prevention policy; (2.) the formulation of coherent rational criminal policy goals at a federal level (including the establishment of a National Crime Prevention Strategy in Germany); (3.) a more thought-out planning of criminological research; (4.) the integration of an economic evaluation culture in crime prevention to develop a foundation for systematic provision of evidence and enhancement of validity as well as comparability of results; and (5.) the development of evidence-based dissemination platforms, including centers of expertise to coordinate action, as for instance the National Crime Prevention Center (NZK)\(^3\).

In light of these implications and in response to the pending need to develop a more profound body of knowledge on the costs of crime and crime prevention, the sixth chapter provides a comprehensive guide of recommendations to enhance research and practice on the costs of crime in Germany. The first section addresses pending proposals for an improvement in the crime data situation in Germany, in particular with regards to a more frequent (annual) conduction of national representative victimization surveys. The second part recommends the adaptation of a methodological mindset and CBA standards, such as through initiating the formulation of own standards within criminal policy in Germany, as for instance, in the pending third and/or future published Periodical Reports on Crime (PRC)\(^4\). The third recommendation promotes the development of skill within interdisciplinary research bodies. Overall, a greater awareness and use of the cost of crime approach would advance the current rather weak evidence-based framework of criminal policy in Germany, strengthen criminological

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\(^3\) The *Nationales Zentrum für Kriminalprävention* (NZK) in Germany is currently in the early establishment phase (the establishment period has been set for: 2015-2018).

\(^4\) The *Periodischer Sicherheitsbericht (PSB) in German*. The 1st PRC was published in 2001, the 2nd PRC in 2006.
arguments as the inevitable discipline of guidance in criminal policy matters, and help to move closer towards a more rational, humane, and more unified and harmonized criminal policy (Lahti, 2000, p. 146).

The seventh and final chapter provides a summary review and outlook for the future of this fertile branch of research.
2. Relevance and need: Introducing cost of crime as a new practical indicator for understanding and approaching the ‘problem’ of crime

Crime is a social phenomenon (Quinney, 1966, p. 51) and a widespread activity that affects society and human living at all latitudes (Detotto & Vannini, 2010, p. 2). Crime represents one ‘problem’ with significant impact to society, imposing direct costs to victims and indirect costs to society. In practice, however, particular types of crimes are being overestimated as a social problem, while the social consequences and costs, as well as the causes of crime are being underestimated (Feltes, 2012, p. 27). In economic policy terms, “crime acts like a tax on the entire economy” as “it discourages domestic and foreign direct investments” (Detotto & Otranto, 2010, p. 330). Crime has heterogeneous effects on the economy and society (Owen, 2009). In these modern times of Globalization, Europeanization and opening of borders, and demographic changes and urbanization, societal structures and criminal activities are becoming even more complex to understand and tackle. In many ways, “a better understanding of the repercussions of crime could improve guidance in the prioritization of law enforcement, education, and social programs that deter criminal activity” (Anderson, 2011, p. 210).

Measuring crime is rather the inevitable consequence of the emergence of the modern state – aimed at centralizing bureaucratic procedures – with the understanding of the main function of the welfare state as an active planning, design and control process. It is therefore dependent on both, comprehensive and encompassing as well as detailed facts or data, and the functioning of the competent organs themselves (Kerner, 1991, p. 190). The measurement of crime is an important area in the study of crime, since accurate crime data are needed to adequately test theories of offending and victimization as well as to assess the effectiveness of public policies. The topic is unfortunately frequently overlooked by criminologists (Addington, 2009). With reference to a quote by the former Home Secretary David Blunkett in July 2001: “It is vital to measure crime accurately if we are to tackle it effectively” (Simmons, Legg & Hosking, 2003, p. i).

The police crime statistics represent the most conventional form of crime measurement and have dominated interpretation on crime rates and political discourses in most

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5 Translated definition of crime measurement purposes and use of results (Kerner, 1991, p. 190).
countries in the past. This type of apprehended statistics is certainly needed as one important indicator in terms of the provision of law enforcement work statistics. On a political level, as for instance, in Germany, it still does not receive enough attention that these are insufficient as a solid ground of reference and only offer some indication on the efficiency of policies. At its core, these forms of traditional statistics are mostly law enforcement work statistics. They do not provide information on the magnitude of the crime ‘problem’, and they do not allow conclusions on the size of the social harm of crime (Feltes, 2013, p. 92).

Over the past decades, the introduction of a number of complementary crime measurement assessments, namely victimization, public safety and fear of crime surveys, allowed for the development of more practical-oriented scientific indicators. The level of systematic implementation of such surveys is however a country specific task and, hence, it depends on the efforts of official data integration according to contemporary needs. In the 1960s, for instance, efforts began to develop a suitable criterion for a weighted-measurement approach to crime, as a better indicator for the severity of certain types of crime (Kerner, 1991, p. 192). The development and modification of the most referred to Sellin-Wolfgang-Index (SWI) aimed to obtain a practical and directly implementable instrument, which on the one hand increases the efficiency of police work and on the other hand enhances research opportunities6 (Sellin & Wolfgang, 1964; Kerner, 1977, p. 86). For instance, Maltz (1975) emphasized the importance of a seriousness index and suggested the development of a more complete taxonomy of crime and the discrimination between and explication of the different types of harm caused by crime7. Nevertheless, despite the attractiveness of such indicators and well-known shortcomings of the traditional crime statistics, as well

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6 In the attempt to measure the seriousness of delinquent acts (violations of the adult criminal code), Marvin Wolfgang and Thorsten Sellin developed a scale of offence seriousness (1964). In comparing the FBI and the Sellin-Wolfgang Indeces for reported crimes in the United States Blumstein (1974), for instance, found that the two have been almost perfectly linearly related over the 1960-72 period. Thus, concluding that, even though conceptually correct and of value for other purposes, the Sellin-Wolfgang index contributes no significant information to a national crime index. An article by Collins (1988) furthermore points out that the analysis of Sellin-Wolfgang crime seriousness scores requires some standardization with regard to coding limits and, especially, in the method of handling zero scores.

7 see Maltz (1975) on a comprehensive discussion on five measures commonly used to evaluate anticrime programs and proposes directions for research on improved measures (the differences between evaluating the police and evaluating crime control programs): Crime rate, clearance rate, arrest rate, police response time, and crime seriousness index.
as continuous intensive discussions in the 1970s and 1980s (Blumstein, 1974; Wellford & Wiatrowski, 1975; Kerner, 1977) about alternative ways of measuring crime, in the United States and partly as well in Germany, the weighted-measurement approach to crime could not prevail (Feltes, 2013). All the more, indicators on the social harm of an offense are essential for criminological-empirical questions on a macro and micro-scale (Kerner, 1977, p. 85) and could further help to address problems in the predominantly normative powered legal or sentencing doctrine (Feltes, 2013, p. 95).

The criminological discourse on victimization, or the focus towards the perspective of the victim, led to greater consideration of the fear of crime in the 1960s (Ziegleder, Kudlacek & Fischer, 2011, p. 9). The measurement of the fear of crime is used to assess the public safety (or perceived risk of crime) from a subjective point of view of the population (Ziegleder, Kudlacek & Fischer, 2011; Bug & van Um, 2014). The criminal-political importance of this kind of subjective indicator is that, among other things, crime-related attitudes can have an impact on the behavior of people (LKA-NRW, 2006, p. 2). These may include the estimation of crime development, evaluation of crime as a social problem, attitude towards the degree and form of penalty, perception of the causes and benefit of criminal activity, and evaluation of the efficacy of crime prevention. The high importance of fear of crime for policy is, however, confronted with many unanswered questions regarding its definition, measurement and causes (Boers, 1993; Kreuter, 2002; Gabriel & Greve, 2003; Kury, Lichtblau, Neumaier & Obergfell-Fuchs, 2004). Although considered as an important indicator, it would be insufficient to solely focus on indicators of the fear of crime⁸ (Kury & Obergfell-Fuchs, 2008).

In contemporarily addressing the demands for the development of new indicators to enhance effective and efficient evidence-based policy, the European Commission, funded a large scale of projects as part of the 6th Framework Programmes (FP6) for

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⁸ see Kury and Obergfell-Fuchs (2008) for a critical discussion on the fear of crime indicator, who refer to the R+V survey on the “Die Ängste der Deutschen 2014” (The fears of the Germans 2014). According to the survey the average of all long-standing surveyed fears fell to the lowest level in 20 years (to 39 percent. In 2014 there were only four ‘fears’ over the 50 percent mark. Germans are most worried about the money, the environment and their own health. The majority of Germans feared that the euro debt crisis, the taxpayer is costly and that the cost of living continue to rise. More than every second German citizen is afraid of increasing natural disasters and not to be dependent on the age care. The fear of crime (12 percent) plays a rather subordinate role (R+V, 2014).
Research and Technological Development from 2002-2006. The review on the key findings of the involved social sciences and humanities research projects came to the following conclusion and formulated demand: “New indicators will have to be developed and crime policies will need to be assessed against such criteria as public confidence in justice rather than primarily relative to crime control”. Hereby, “the key messages for researchers, policy makers and practitioners are that the availability of good statistics on crime must be the starting point of evidence based policy-making in the field”. In order to allow for enhanced evaluation of intervention measures aimed at meeting EU and national goals of protecting freedom, justice and security, “data integration needs to be substantially improved” (Alfè & de Wever, 2011, p. 3).

In the active planning, design and control process of the modern welfare state (Kerner, 1991, p. 190), it is necessary to avoid the deemed unproductive spending of resources due to the existence of crime. As part of the evolution of more practical and applied-oriented indicators, the cost of crime assessment aims to serve as a useful framework to assess the social harms of different crimes (Greenfield & Paoli, 2013, p. 864), including the fear of crime by the public. There are a number of practical benefits of using social harms as a measure of orientation, and a lot of the methodologies come from the literature of medicine or environmental economics, and they are now being applied to improve investments into different public sectors related to crime. “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” (Czabansky, 2008, p. 123). Despite the development of this particular approach over the past quarter of the century, it remains a relatively hesitant research branch in countries like Germany. Due to the fact that the framework to assessing the costs of crime in a comprehensive manner is a very complex one, the robustness and validity of estimates depend on the availability of good data, agreement on methodologies (including ethical standards), and sophistication in interdisciplinary skills.

This chapter serves as the theoretical and methodological foundation of the analysis, emphasizing on the need for cost of crime as an important new practical indicator (criminological and/or socio-economic quality) for understanding and approaching the ‘problem’ of crime. The first part demonstrates the two underlying requirements for
determining the magnitude of a crime ‘problem’ in impact and effect assessments: The availability of good crime statistics and a profound understanding of influential socio-economic determinants. The second part introduces the general idea behind monetizing the costs (resources, time, activities etc.) of crime and the conceptual framework behind it. First it underlines the insufficiency of conventional burden of crime estimates in Germany to act as a solid empirical basis (as presented in the yearly BKA reports). Then an introduction to the foundational methodologies on estimating the costs of crime (bottom-up and top-down perspectives) and the initial influences of CBA in criminal justice is given. The third part summarizes key findings and prepares the reader for the analysis of the subsequent parts.

2.1. Quantifying the impacts and effects of crime

Crime has not only direct impacts and effects on victims (and their families), but also indirect ones on the economy and society at large. Crime can have detrimental effects on the economic performance of a country (Detotto & Vannini, 2010). Higher crime rates are considered as a deterioration or depreciation of social capital9 (Dodds & Colman, 1999, p. 7). In the contemporary quantification processes of the heterogeneous impact and effects of crime, methodologies rely on good crime statistics and a profound understanding on interconnections between various causes and consequences of crime. Authors argue that, despite the pervasiveness of a more systematic measurement of its impact on society, it is still far from being a major concern to policy makers (Detotto & Vannini, 2010, p. 421) in many countries. The economics of crime have greatly contributed to quantifying the magnitude of the crime ‘problem’, but the underlying economic and econometric framework is (if at all) only gradually being acknowledged in the criminological discourse in Germany (Albrecht & Entorf, 2003; Oberwittler & Höfer, 2005).

The economist and Nobel Price winner, Gary Becker10, is respected for expanding economic analysis into traditionally sociological topics. Based on the assumption that

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9 In this case, Dodds and Colman “explicitly value a peaceful and secure society as a valuable social asset” (see section 3.1.5. of this dissertation).

10 In 1992, Gary Becker (1930-2014) was awarded the Nobel Memorial Prize in Economic Science for his work on discrimination, crime, and human capital.
the individual preferences are constant, rational choice theory can be used to predict how changes in the probability and severity of sanctions and in various socio-economic factors may affect the amount of crime (Eide, 2000, p. 345). Following the adapted Becker-Ehrlich deterrence model about social inequalities (Becker, 1968; Ehrlich, 1973; Ehrlich 1993), many researchers have conducted dynamic impact assessments in order to explain the relationship between the different variables of analysis\textsuperscript{11}. Given the availability and quality in statistics and sophisticated modelling skills, economic answers to socio-political issues (such as households, labor, family life and fertility) can be provided accordingly.

Meanwhile, according to Levitt and Miles (2006), four characteristics distinguish the economic approach to the study of crime from that of other social sciences\textsuperscript{12}: “(a) an emphasis on the role of incentives in determining the behavior of individuals, whether they are criminals, victims, or those responsible for enforcing the law; (b) the use of econometric approaches that seek to differentiate correlation from causality in non-experimental settings; (c) a focus on broad, public policy implications rather than evaluation of specific, small-scale interventions; and (d) the use of cost-benefit analysis as the metric for evaluating public policies” (Levitt & Miles, 2006, p. 148).

Since Becker’s signature article, the research agenda by economists centered on the study of crime has landed on the side of economists more than it has done on the side of criminologists with respect to incorporating economic modeling skills. This is particularly true for countries where interdisciplinary undertakings in this regard remain rare. Enrooted disagreements in sociological theory (see McCarthy, 2002) and issues addressing causal uncertainties in the application of criminological research to public

\textsuperscript{11} According to Chalfin and McCrary, (2014, p. 7), the deterrence models proposed by Becker and Ehrlich yield three main behavioral predictions: (1) the supply of offenses will fall as the probability of apprehension rises, (2) the supply of offenses will fall as the severity of the criminal sanction increases and (3) the supply of offenses will fall as the opportunity cost of crime rises. In other words, behavioral changes can be brought about either using carrots (better employment opportunities) or sticks (criminal justice inputs). This will be further elaborated on in section 2.2.3.

\textsuperscript{12} In reference to the work by the Economics of Crime (CRI) Working Group of the National Bureau of Economic Research (NBER) in the United States, their work has been covering the following topics of interest: First, estimating the costs and benefits of criminal justice programs and policies; second, the analysis of underground markets, including drugs, firearms, prostitution, human smuggling, money laundering, and other illicit goods and services; and third, the influence on crime of other aspects of economic life, including education, health care, substance abuse, and the labor market.
policy (Blomberg, 2013; Blomberg, Mestre & Mann, 2013) still need to be resolved. Moreover, “criminologists have neglected the impact of economic conditions on crime, just as economists often overlook the social costs, including increased crime, of the policies they prescribe” (Conyers, 1979, p. 137). And, as crime needs to be addressed in an interdisciplinary manner, many authors have argued that knowledge exchange must be facilitated in order to enhance the quality of quantitative assessments and improve our understanding of causes and consequences of crime as well as interrelations of different determinants (Bushway & Reuter, 2005; Bushway & Reuter, 2008; Thomsen, 2015).

2.1.1. Limitations in crime measurement practices in Germany

Quantitative (or numerical) measurement results on crime are usually provided by criminal justice agencies, such as police registers or justice investigations. The overall advantage of officially documented crime statistics is that these are organized on a state or federal level, that they are published on a frequent basis, and that they allow for the detailed breakdowns by offense type. It needs to be kept in mind that, recorded crime statistics depend both on the “peoples’ propensity to report crime and on the ability of the criminal justice system at large to identify criminal activities” (Detotto & Vannini, 2010, p. 422). In most countries the provision of recording standards (protocols or counting rules), such as the National Crime Recording Standards followed by police in England and Wales (Simmons, Legg & Hosking, 2003), serve to ensure consistency in which incidents are recorded.\(^\text{13}\)

In practice, however, the main “problems with some crime statistics stem from the prevalence of unreported crimes, inconsistencies in recording procedures among law enforcement agencies, policies of recording only the most serious crime in events with multiple offenses, and a lack of distinction between attempted and completed crimes” (Anderson, 2011, p. 211). For the most part, criminal activity and justice chains are quite complex and fragmented, and statistical data of recorded crimes only show one

\(^{13}\text{see PCS 2013, pp. 51-53, for an English summary on Rules for recording cases in Germany.}\)
side of the story (Alfé & de Wever, 2011, p. 23). Figure 1 demonstrates the criminal law enforcement process in Germany along the corresponding statistics 14.

Fig. 1 Review of the criminal law enforcement process in Germany (2006)


The PCS in Germany still acts as the most referred to crime statistics in the public discourse and based on the yearly publication by the BKA (presented at the press conference in the first quarter) leads the continuous discussion on criminal development.15 Although, this certainly important type of statistic can be viewed as an indicator for the population’s concern about crime (Jehle, 2009, p. 10), its crucial limitations often remain overlooked. Statistics based on the number of cases recorded by the police primarily provide information about the investigative work of the police and do not represent the actual level of crime, and therefore, only a fraction of detected offenses, also referred to as ‘Hellfeld’ in Germany.


15 The Police Crime Statistics (PCS) for the Federal Republic of Germany are prepared by the BKA and published annually – about the middle of the year.
In the process of revealing missing fractions of the ‘dark figure of crime’ (or ‘Dunkelfeld’), the use of complementary victimization surveys not only enable a closer estimate for the number of offenses, but also incorporate additional qualitative information concerning the nature, circumstances of victimization, and intensity of informal social control (Heinz, 2007, p. 10). Victimization surveys have been an integral part of criminological research since the early 1970s (Feldmann-Hahn, 2011, p. 1). Many authors have addressed the desire for an internationally comparable and periodically or frequently conducted nationwide representative\textsuperscript{16} (Feldmann-Hahn, 2011). In comparison to other major industrial countries, Germany has not always participated in internationally conducted victimization surveys, such as the International Crime Victim Survey (ICVS) (Entorf, 2014). Among the most recent efforts towards an improvement in uncovering the ‘dark figure of crime’ in Germany are security indicators, such as the Barometer for Security in Germany\textsuperscript{17} (BaSID) or the Economic-Scientific Indicator for Measuring Security and Security Industry in Germany\textsuperscript{18} (WISIND).

In a representation of crime patterns captured by different data elements, the value of complementary crime victimization studies is demonstrated in Figure 2. According to the attrition of criminal statistical data as represented in the above figure, recorded crime approximately captures 45 percent of all crime. With complementary victimization surveys an approximation of 60 percent of all crime could be captured, leaving us with 40 percent that we do not know about the total crime, compared to the previous 55 percent (Alfé & de Wever, 2011, p. 23). In that sense, one consequence of refraining from a frequent conduction of national representative victimization surveys is that the closer approximation of the magnitude of crime remains hidden, and therefore known problems with regard to the prevalence of unreported crimes remain untreated or treated insufficiently.

\textsuperscript{16} further to be explored in section 6.1. of this dissertation.

\textsuperscript{17} see Haverkamp, 2013.

\textsuperscript{18} see DIW, 2015.
The picture of crime prevalence is further challenged by the misperception of the public on what type of crime is on the rise (Weatherburn & Indermaur, 2004; Heinz, 2008). Official crime statistics are largely “affected by variable underreporting bias across offenses (which) can induce misperception about the effective crime rates and generates false myths as to what offense is on the rise” (Detotto & Vannini, p. 422). Likewise, certain types of crimes are often overestimated as a ‘problem’. This is demonstrated in Figure 3, comparing the actual changes in PCS crime rates to the estimated changes by the population.

In the study by Heinz (2008), the estimated change by a population sample in the perceived crime level within a 10-year period (1993-2003) was compared to the before-mentioned way. Except for criminal offenses (in total), fraud, and assault, the estimated changes in crime level for all other offense types (theft by burglary of a dwelling, theft, pickpocketing, homicide) vary considerably. The most outraging variance between actual and estimated changes can be seen for accomplished sexual murder (vollendeter Sexualmord): -38 percent versus +259 percent. The results imply that changes in crime rates are often being misperceived by the general public (Feltes & Kudlacek, 2013, p. 186). To a large part, the reason behind the different perceptions on crime rates is that violent crimes often strike public opinion for their brutality rather than on observed and unobserved crimes with high social costs (Detotto & Vannini, 2010, p. 422). This is particularly due to the intensive media coverage on victims of sexual crimes over the
past two decades. As a result, punitive attitudes tend to develop against these types of crime. Hence, based on conventional crime measurements, such as the PCS in Germany, it cannot be judged by what offenses the sense of security is more and by which less severely impaired (Feltes, 2013, p. 94).

Fig. 3 Comparing estimated changes in the German PCS crime rates in comparison to estimate changes by the population (1993-2003)

Source: Comparison of estimated changes in the German PCS crime rates in comparison to estimate changes by the population (1993-2003), from “Bei Gewaltkriminalität junger Menschen helfen nur härtere Strafen! Fakten und Mythen einer gegenwärtigen Jugendkriminalpolitik” (In the case of violent crime among young people only harsher penalties help! Facts and myths of contemporary youth crime policy), in Neue Kriminalpolitik 2, W. Heinz, 2008, p. 10.

In addition, purely apprehended statistics offer no mechanism for the placement of weights on various criminal acts according to their severity. The complex and at the same time vague normative standards in sentencing guidelines do not provide manageable instruments (Hassemer, 1978, p. 89). The German criminal law scholar Winfried Hassemer argued that the determination of severity of cases is coined by legal professions and varies regionally. If penalties are aligned to standards, which are neither listed in the law nor in the judicial reasoning and, moreover, vary considerably regionally, then the impression of arbitrariness must arise in the population (Hassemer, 1987). In reality, trial judges search for the usual penalties in comparable cases for guidance (Feltes, 2013, p. 96). This inequality of sentencing is constitutionally problematic and threatens the norm stabilizing function and thus the legitimacy of the criminal law. The state penalties are not an end in itself, but must serve as a public service to the peaceful social coexistence (Feltes, 2013, p. 96). Regardless of whether
implemented sentencing guidelines are intended to ensure a certain uniformity of sentencing or to clarify the normative and doctrinal ambiguity and complexity of the juridification of the sentencing decision (Hassemer, 1978; Feltes, 1991), valid empirical methods involving the evaluation of crime by the population would be helpful. This could be the communicative task and more effective socio-stabilizing function of criminal law (Feltes, 2013, p. 100).

One may also argue that crime is not really measurable, because a measurement is a quantitative statement of a measure by comparison with a unit. As such, crime is not a directly measurable manifest variable per se, but rather an evaluation of events. The actual crime measurement concept in its conventional format feigns an empirical reality where neither objectivity, nor reliability or validity, can thus be guaranteed (Feltes, 2013, p. 94). All in all, the persistent traditional type of measurement is clearly insufficient for solid strategic decision-making by police and legitimate criminal sentencing or penal legislation (Kerner, 1991, p. 192).

2.1.2. Influential socio-economic determinants

The more traditional socio-economic determinants of crime are unemployment (Raphael & Winter-Ebmer, 2001; Lin, 2008), education (Lochner & Moretti, 2001; Lochner, 2011), and inequality (Wilkinson & Pickett, 2009; Braithwaite, 2013). These determinants are crucial underlining consequences and causes of crime and have been included in many studies so far. Studies have highlighted the influence of other related structural and developmental factors, such as economic deprivation, the role of social institutions and political legitimacy (LaFree, 1998; 1999), demographics and urban development (Barker, 2010; Zimring, 2011), and youth culture (Curtis, 1998). Recent work by criminologists emphasize that trends in the levels of crime may be best understood as arising from a complex interplay of these factors (Barker, 2010).

The research branch on the economics of crime consists of the analyses on the influences of socio-economic factors, such as poverty, social exclusion, wage and income inequality, cultural and family background, level of education – viewing these and other economic and social factors as factors that may affect an individual’s propensity to commit crimes. Although modeling techniques differ in comparison to the more traditional attempts, the economic approach to crime collides with criminological
theories, such as with *cultural characteristics* (religion and colonial heritage), *age and gender* (where young males are said to be more prone to violence than the rest of the population), the *availability of firearms* in the countries, and the existence of *illegal drug-related activities* (Buonanno, 2003, p. 3). In that sense, the disciplines of criminology and economics actually bear close resemblance in their approach to public policy (Conyers, 1979, p. 137).

In welfare economics, inequality is considered as one of the main socio-political issues at hand, and is closely linked to crime and public policy (Braithwaite, 2013). As a causal impact, *inequality* has been linked to many social issues, such as physical health and obesity, mental health, drug abuse, education, imprisonment, social mobility, trust and community life, violence, teenage pregnancies, child well-being, and even global warming. Research demonstrates that outcomes are significantly worse in more unequal rich countries (Wilkinson & Pickett, 2009). Wilkinson (2004), for instance, found that increases the incentive to commit crime and has an impact on violent crimes (p. 2): “The link between inequality and homicide rates has been shown in as many as 40 studies, and the differences are large: *There are five-fold differences in murder rates between different countries related to inequality*”. One of the most important reasons he identified for why violence is more common in more unequal societies is linked to the people’s feeling that others are looking down on them, the impression of being disrespected (loss of face). In that sense, inequality can serve as a strong indicator for explaining why more equal societies almost always do better than unequal ones (Wilkinson & Pickett, 2009). Apart from inequality, the socio-economic indicator *social cohesion* also falls under the category of *social capital* in contemporary terms.

In addressing the rising concerns of youth-unemployment, migration, and income inequality around Europe, the German economists, Horst Entorf and Hannes Spengler, were responsible for the conduction of two considerable studies. In the first study on

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20 For John Field (2003, pp. 1-2) the central thesis of social capital theory is that ‘relationships matter’. The central idea is that ‘social networks are a valuable asset’. Interaction enables people to build communities, to commit themselves to each other, and to knit the social fabric. A sense of belonging and the concrete experience of social networks (and the relationships of trust and tolerance that can be involved) can, it is argued, bring great benefits to people (Smith, 2000-2009). For the different definitions of ‘social capital’ by the three main thinkers behind the concept, see Bourdieu (1983, p. 249), Coleman (1994, p. 302), and Putnam (2000, p. 19).
socio-economic and demographic factors of crime in Germany (Entorf & Spengler, 2000), they made use of the Becker-Ehrlich model on crime to empirically assess factors of social cohesion, labor market, and income distribution for Germany. In line with international research, they found that an increase in the average level of prosperity\textsuperscript{21} has resulted in an increase in property crimes and confirmed that a more unequal distribution of income also lead to an increase in the crime rate. In further consideration of ethnic heterogeneity of the population and the degree of urbanization of a region, as further revealed significant criminogenic indicators of crime, they conclude that being young and unemployed increases the probability of committing crimes (Entorf & Spengler, 2000).

In practice, the economic and social causes and consequences in addition to the costs of crime are often either being underestimated or deliberately ignored (Feltes & Kudlacek, 2010). In the second empirical investigation by Entorf and Spengler (2002) on the causes and consequences of crime in Europe, the relationship between crime, economic performance and social exclusion is demonstrated for a number of countries on the basis of international panel data sets from different levels of regional aggregation. At its core, the authors aimed to empirically investigate the trade-off between different political economies, the European welfare state and the ‘invisible hand’ attributed to the US economy. With reference to their abstract: “Defenders of the European welfare state argue that it improves social cohesion and prevents crime. Others argue that the ‘invisible hand’ in the US economy is equally powerful in reducing unemployment and preventing crime” (Entorf & Spengler, 2002). In contemporary times of global austerity trends and search for welfare enhancing opportunities, the different political economies in Europe and the United States are both undergoing changes reducing system-related discrepancies.

In a further composition of studies on “Crime, Economics, and the European Welfare State” (Albrecht & Entorf, 2003), crime is articulated as a socio-economic and legal problem. In this unique approach leading German researchers and experts target the role of the European welfare state in crime prevention, with interdisciplinary contributions\textsuperscript{22}

\textsuperscript{21} Increase in the average level of income (GDP per capita).

\textsuperscript{22} The contributions originate from a conference on “Social cohesion, economic performance and crime in Europe”, held in at the University of Würzburg in 2001.
on the problem of economic crime (Albrecht, 2003, pp. 37-69), drug crime and drug addiction in Europe (Bühringer, 2003, pp. 71-96) and its impact on crime (Entorf & Winker, 2004, pp. 97-132), to the economic causes of civil wars (Collier & Höffler, 2003, 241-270). Although the influence of economics on criminology is considered as a fresh impetus (Albrecht & Entorf, 2003; Oberwittler & Höfer, 2005), interdisciplinary projects by economists and criminologists in Germany in this regard remain rare.

2.2. Monetizing the costs of crime

Through rankings of victimization surveys, it is repeatedly demonstrated that physical and psychological consequences of crime are considered as worse than material. Unfortunately, they often remain underestimated, unnoticed and untreated. While the idea of assigning a monetary value to crime might seem not appealing at first sight from a societal standpoint, what matters the most is the extent of damage, costs, or harm inflicted by different crimes (Anderson, 2011, p. 215). Crime affects the welfare of victims and non-victims in a number of ways. Victims may suffer because of damaged or stolen goods, lost wages, injuries, traumatic shocks, or mental stress as a result of crime (Detotto & Vannini, 2010, p. 421). At the same time, crime is often triggered by the offender’s welfare situation at the first place. Most of the offenders of many petty crimes are often unemployed and may be facing a difficult labor market in times of a struggling economy. Hence, the fact that costs are about economic and social welfare, the “unconcern about cost is unethical” (Gray, 2011, p. 13).

Generally speaking, costs are understood as “the value of resources sacrificed in order to obtain a desired good or service, or alternatively, to avoid some unpleasant good or service” (Czabansky, 2008, p. 9). In the context of crime it is said that “crime generates external costs for individuals and social costs for nations” (Chalfin, 2013, p. 1), where external costs are those imposed by one person to another where the latter person does not voluntarily accept the negative consequences, and social costs are the costs that reduce the aggregate well-being of society (Cohen & Bowles, 2010, p. 144). As already Becker pointed out, the “social costs associated with crime are the sum of direct costs

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23 This applies to all public sectors, not only healthcare and environmental care. In fact, a lot of the cost of crime methodologies borrowed from the economics of the health sector and the associated evidence-based practice (EVP) framework.
of victimization (and the threat of victimization) and the indirect costs of efforts to control and prevent crime” (Cook, Machin, Marie & Mastrobuoni, 2012, p. 3). On the other side, economic costs of crime arise when crime causes society to divert crime, energy and resources from more productive resources (Walker, 1997, p. 2). The underlying goal of comprehensive crime costing methodologies is to reveal the true costs of crime. This way, the aim is to include the negative externalities as activities that directly or indirectly cause harmful consequences to society should be accordingly taxed to reflect the somewhat hidden costs.

In the context of crime, the task of finding a common metric is challenging, since it is particularly difficult to objectively compare harms of intangible (or immaterial) nature. Hereby, tangible costs are considered as costs that involve monetary payments or for which there are market prices, such as property loss, lost wages, damaged properties, and public expenditures for security. Intangible costs are those for which there is no easily measured price-tag, such as pain, suffering, diminishing quality of life, or psychological impact or losses due to the fear of crime. The opportunity costs serve as a conceptual approach developed by economists to valuing costs that are not observable as direct monetary exchanges (Cohen & Bowles, 2010, p. 156; Piquero & Weisburd, 2010). Although the reduction of human values to monetary equivalents certainly has its limits, numerous consequences of crime are of non-monetary or intangible nature. Hence, “estimating the costs of crime is fundamentally a technical task involving an understanding both of the consequences of crime and of a methodology able to place a monetary value on such consequences” (de Urbina & Ogus, 2009, p. 343). Despite substantial challenges in assessing the harms of crime, a systematic empirically-based assessment of the harms of criminal activities can serve important roles in policy analysis (Paoli & Greenfield, 2013, p. 259).

In preparation for the next chapters, this part first emphasizes the conventional burden of crime estimates as insufficient indicators. The second section introduces the foundational cost of crime methodologies. The third section demonstrates the initial influences of the CBA mindset on the study of crime and criminal justice in the context of deterrence and punishment.

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24 Based on the definition of true cost economics, see, for instance, http://www.investopedia.com/terms/t/truecosteconomics.asp
2.2.1. Conventional burden of crime estimates in Germany

“The size of crime’s burden informs the prioritization of crime prevention efforts and influences our legal, political, and cultural stance toward crime” (Anderson, 2011, p. 209). If the costs of crime are high (or low), the problem of crime is considered as big (or small) (Anderson, 1999; Cook & Ludwig, 2000; Czabansky, 2008, p.17). There is, however, a general tendency of emphasizing crime as too much of a problem, so that large cost estimates serve as popular press and misguide political debate. Although it is almost obvious that crime is more expensive than the measures to tackle crime, currently available numbers on the costs involving crime and criminal justice may only to some degree serve to validate such statements. Nevertheless, it is important to understand the nature of burden estimates that are actually entering the public, academic and political discourses.

In Germany, the officially reported numbers by the Federal Criminal Police Office (BKA) on the amount of loss due to crime are expressed as the so-called ‘Beuteschaden’ of crime. Table 1 summarizes the burden of crime estimates that have received particular attention over the past years (economic crime, cybercrime, and organized crime). According to the BKA reports, the estimated financial burden for all crimes remained relatively stable, close or equal to EUR 8 billion. For the year 2012 the total amount of all recognized offenses in the police crime statistics (PCS) amounts to almost EUR 7.7 billion (BKA, 2012, p. 9) – of which EUR 3,75 billion represent the amount of loss due to economic crime. In 2013 this number rose by approximately 2 percent to (EUR 3.82 billion). In that year the economic loss due to economic crime accounted for around 50 percent of the total damage of all registered crimes, although economic crime only amounts to 1.2 percent of the recorded volume of offenses (BKA, 2014). In 2011, 60,000 cases of cybercrime were recognized by the PCS and translated into a BKA estimate of EUR 71.2 million (BKA, 2012, p. 4). The reported decline of around 40

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25 Sebastian Fiedler, on the 17th conference of the state delegates of the Federation of German Criminalists (BDK) on necessary investments into policing and/or crime tackling strategies: “Kriminalität ist teurer als die Kriminalitätsbekämpfung” (directly translates to crime being more expensive than measures to tackle crime).

26 The BKA reports (Bundeslagebilder) as well as summaries of the PCS (until the year of 2013) are partly available in English.
percent in the registered cybercrime offenses in the next year lead to a new estimate of around EUR 42.5 million (BKA, 2012, p. 4).

Table 1
Financial burden of economic, organized and cybercrime based on PCS in Germany (in EUR) in comparison to the rough PKS estimates for all crimes

<table>
<thead>
<tr>
<th>Offense type</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economic crime</td>
<td>4.65 bn</td>
<td>4.12 bn</td>
<td>3.75 bn</td>
<td>3.82 bn</td>
</tr>
<tr>
<td>Cybercrime</td>
<td>61.5 m</td>
<td>71.2 m</td>
<td>42.5 m</td>
<td>42.6 bn</td>
</tr>
<tr>
<td>Organized crime</td>
<td>1.65 bn</td>
<td>0.88 bn</td>
<td>1.12 bn</td>
<td>0.72 bn</td>
</tr>
<tr>
<td>All crimes</td>
<td>8.4 bn</td>
<td>8 bn</td>
<td>7.7 bn</td>
<td>8 bn</td>
</tr>
</tbody>
</table>

Source: Own summary of available estimates as published by the Federal Criminal Police Office (BKA) in the respective years.

The problems with these officially reported cost estimates at their current state in Germany are manifold. Firstly, estimates are mostly simply converted (to one Euro values) from recorded crime statistics, which, while not to be ignored, suffer a number of limitations as a valid crime measurement in itself (see Chapter 2.1.1.). In the case of cybercrime, information is drawn from surveys conducted by the Federal Association for Information Technology, Telecommunications and New Media (BITCOM) in order to interpret changes in behavior in order to incorporate more information on the nature of the crime. Secondly, the way changes in these estimates are being reported can misguide perception. Trends of crime based on such aggregate statistics do not necessarily reflect changes in the real burden of crime on society (Czabanski, 2008, p. 18). Thirdly, the estimates are only limited to the financial damage (or out-of-pocket expenses), caused by certain types of crime (such as property crimes, economic crime, and cybercrime). Even here, another issue represents the deviations of different crime statistics. Using the example of shoplifting, while the PCS estimated to EUR 75 million in 2009, a study of the retail industry produced an estimate of around EUR 2 billion (Kavelowski, 2013). Variances as such – between official state statistics and industry statistics – engender an overall incoherent picture.

Generally, conventional monetization techniques, as it is currently done in the official BKA reports, lack in methodological sophistication and technique. In order to provide an estimation of the frequency of each of the types of crime, key ‘risk’ and/or

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27 See PCS 2013 (in English), p. 46, for a definition of economic crime (key no. 893000).
protective’ factors respectively, criminologists are becoming involved (Meier, 2012, p. 202), and in Germany they need to become involved a lot more. Consequentially, the approach to simply converting recorded crime data into monetary estimates, certainly represents an insufficient attempt to providing a practical or useful indicator as it misses the wider array of the nature of cost or the true social and economic costs of crime.

2.2.2. Foundational estimation methodologies

The foundational methodologies that have been developed and adopted to calculate the costs of crime are based on two perspectives, namely the \textit{bottom-up} and \textit{top-down} perspectives. The \textit{bottom-up} approach (ex-post evaluation) takes the costs that have already occurred into account, while the \textit{top-down} (ex-ante evaluation) concentrates on the public’s \textit{willingness to pay} to reduce the probability of a crime occurring (Cohen, 2005; Cohen, 2010; Ludwig, 2010). Victimization surveys represent an inevitable component for the successful implementation of both types of methodologies, as they provide more precise estimates on the number of offenses in a given time frame and offer important qualitative information concerning the circumstances and nature of offenses.

The \textit{bottom-up perspective} attempts to identify all of the individual costs of tangible and intangible nature associated with crime that individuals and the society bear, and place a monetary value on those costs. In this rather complex approach, the calculation requires the following four essential pieces of information: (1.) A clear definition of offenses or offense categories being studied, based on the criminal codes and/or the nature (such as the severity) of offenses; (2.) the number of incidents of each offense in a given time frame, as obtained from a combination of police-reported data and victimization surveys; (3.) detailed knowledge of how, and to what degree, crime affects the various relevant domains (impacts and possible effects of policy interventions); (4.) reliable data sources and statistical techniques for monetizing each of those consequences (McIntosh & Li, 2012, p. 12).

The correlation and interpretation of the large amount of data and the cost-implications by each single element of the above categories present significant difficulties. There have been numerous critiques of the \textit{bottom-up} approach to estimating the costs of crime. Most notably, it is supposed to not exhaustively cover all conceivable costs due
to frequent data shortages for certain types of offense impacts (especially intangible costs, such as loss quality of life and fear of crime) and, therefore it will always tend to underestimate the cost of crime (Cohen, 2005; Cohen & Bowles, 2010). Thus, the lack of appropriate data and disagreements on the specific assumptions about the opportunity costs of the lost resources constitute the main limitations to this type of approach (Fajnzylber, Ledermann & Loayza, 2000; McIntosh & Li, 2012, p. 12).

The *top-down* perspective of calculation includes the motivation behind or explanation for changes in numbers, as it addresses the achieved change in incidence and prevalence of crime. Alternative cost of crime estimates can be generated when respondents are asked to state their subjective evaluation of a public or private good. The *willingness-to-pay* (WTP) or *contingent valuation methodology* (CVM) represent *stated-preference valuation* methods that involve surveying a representative sample of the general public to find out what respondents would be willing to pay to reduce the likelihood of them becoming a victim of a specific crime. The great advantage of this type of method is that surveys estimate values for non-market cost components, where the people surveyed are both taxpayers and potential victims. Proponents of the WTP method emphasize the importance of accurately capturing the surplus accruing to society when crimes are prevented (Cook & Graham, 1977). This type of method can also address various targets, such as a reduction in the overall levels of crime, in the level of a specific crime as well as the WTP for alternate programs (Nagin, Piquero, Scott & Steinberg, 2006; Cohen, Rust, Steen & Tidd, 2004).

One limitation to the WTP measures is that the methodology assumes that people are well informed about the risks of crime, and if there are misperceptions regarding crime in the community, then WTP estimates may not be completely accurate (Mayhew, 2003). For example, if a respondent thinks that crime is much more prevalent than it actually is (see section 2.1.1. on misperceptions about crime prevalence), then a respondent might be willing to pay a lot more to achieve a given goal of a reduction in crime levels (Webber, 2010, p. 11). In other words, the “*approach assumes that when people provide their WTP estimates, they have thought through all of the various domains of crime costs, and are stating up front what they would be willing to pay to collectively avoid these costs associated with crime – this may not be a tenable assumption in all cases*” (McIntosh & Li, 2012, p. 13). Furthermore, it is very difficult
to break down WTP values into the cost of crime components which may be relevant to different stakeholders, such as costs to government departments, policing and correctional agencies, victims and community organizations, whereas the bottom-up approach takes these into account (McIntosh & Li, 2012, p. 13).

Alternatively, **hedonic valuation** – a revealed preference valuation method – measures values similar to the CVM, but is based on actual market transactions (actual market prices or empirical data) rather than survey questions (or survey data) by concentrating on changes in the value of assets caused by the frequency of crime. This is what house-buyers often take into consideration when they account for the possible risk of victimization in an area where property prices are lower (Heaton, 2010, p. 4). As happiness\(^{28}\) and well-being also pronounce an important quality of life aspect, a relatively new approach for calculating the cost of crime is when the costs of crime are assumed on the basis of **satisfaction with life**. The survey asks for the subjective opinion of how satisfied the respondent is with their life and is suitable for individual evaluation of the feeling of security in connection with the crime situation. An alternative approach for estimating intangible cost of crime is the application of the **Quality-Adjusted Life-Year** (QALY) concept (see Dolan & Peasgood, 2007). This particular method developed in the health services literature and combines information on the health impacts of violent crimes reported by respondents to crime victimization surveys.

At first sight, the capitalization into monetary units to the value of the average statistical suffering appears to be a critical point (Thomsen, 2015, p. 20). The taking of a life clearly is an irreplaceable loss not only for the individual, but also to the family member and the society. Although seemingly controversial – in moral and ethical terms – in the case of an equivalent for the value of homicide, the VSL is an accepted approach in the fields of road safety and insurance administration (Abelson, 2008). The VSL-approach is used to determine the intangible costs of pain, suffering and lost quality of life\(^{29}\). The **value of a statistical life** (VSL) is generally derived from the public’s willingness to pay

\(^{28}\) see as well the Happy Planet Index (HPI) under http://www.happyplanetindex.org for sustainable well-being (how much ‘happiness’ one gets for the resources used).

\(^{29}\) For example, if people are willing to pay one dollar for risk reduction of 1/1,000,000 (for 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 dollar. This 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 (Czabansky, 2008, p. 15).
to avoid relatively ‘impersonal’ causes of death, such as vehicle accidents, workplace hazards, or diseases (Webber, 2010, p. 8). Alternatively, the VSL can be based on the lost productivity approach (loss of earnings differentials). In particular, if estimates are based on the willingness of the individuals themselves to pay, the VSL approach in the crime context is therefore not fundamentally unethical (Spengler, 2005; Spengler & Schaffner, 2010).

Overall, the costs of crime contain a number of components that are inherently difficult to measure, and technical difficulties in measuring intangible costs make it much more difficult to apply cost of crime estimation methods to certain types of crime. In theory, the methodologies developed under the bottom-up and top-down perspectives should lead to the same results. In practice the former are said to underestimate, while the latter tend to overestimate the costs of crime. Considering the number of approaches available, economists prefer to use data based on observed behavior (or revealed preference approach) rather than people’s self-reported claims of how they would value something (stated preference or survey approach), while criminologists favor the latter. While the purpose of the calculation should determine the choice of methodology (Cohen, 2010), in practice, the choice of methodology clearly depends on the data available in a country. If possible, it may be best to take into account both perspectives when evaluating a crime reduction or prevention program (Webber, 2010, p. 11). Chapter 4 directs the attention to the European cost of crime assessment framework, based on the bottom-up perspective and at the same time including some of the top-down suggestions.

2.2.3. CBA entering criminal justice

The introduction of CBA in criminal justice is usually associated with the economic theory of crime. The modern economic model was introduced in the 1960s, but ideas date back to the writings of Beccaria (1764) and Bentham (1780) in the 18th century. The pioneering work on “Crime and Punishment: An Economic Approach” (Becker, 1968) is an essentially theoretical piece on how punishment might affect the decisions about the allocation of time between crime and legitimate employment (Eide, 2000). Although being the underlying starting point, the goal of this particular work was not primarily to develop a theory of criminal behavior, but to answer the normative
questions of “how many resources and how much punishment should be used to enforce different kinds of legislation?” (Becker, 1968, p. 170). In other words, the aim was to address the question of minimizing social harm from crime by the appropriate setting of deterrent instruments by the state. In this context as well as in the following remarks the considerations are focusing more on the economic perspective, and they predominantly do not put the view on the philosophy of criminal law as a whole with all its ramifications in the different disciplines.

The standard economic model demonstrated that not mental illness and social oppressions, but individual rationality determines whether a person engages in criminal activities or not. In contrast to sociological theories during that time, Becker insisted that everyone is in some way influenced by economic forces, and that at heart there is almost always a cost attached to something, including the social and emotional (psychic) cost as opposed to an explicit sum of money (or monetary gains): “Some persons become criminals, therefore, not because their basic motivation differs from that of other persons, but because their perceived benefits and costs differ” (Becker, 1968, pp. 169-217). In his model, actors prospectively compare the expected costs and expected benefits of offending, where the types of benefits or gains depend on the type of crime and the individual criminal. An individual would commit a crime when the expected gains exceed the expected costs, and otherwise refrain from criminal acts. As the model incorporates the measures undertaken by the criminal justice system (such as correction, police, arrests) as part of the offender’s expected costs. The probability and severity of punishment was determined in order to minimize this sum.

30 Becker (1968) articulated the following: “a useful theory of criminal behavior can dispense with special theories of anomie, psychological inadequacies, or inheritance of special traits and simply extend the economist’s analysis of choice” (p. 170).

31 In the development of his theory about crime, he first became his own subject of analysis. He was late for an oral examination of a student in economic theory at Columbia University and had to decide quickly whether to put the car in a parking lot or risk getting a ticket for parking illegally on the street. He then calculated the likelihood of getting a ticket, the size of the penalty, and the cost of putting the car in a lot. Finally, he decided it paid to take the risk and park on the street (Becker, 1992).

32 The deterrence doctrine on which modern criminal law i.a. still depends on three separate elements: “certainty of punishment, celerity (speed) of punishment, and severity of punishment” (Lawrence and Sherman, 2014, p. 205) - in the traditional economic model, in particular, policing influenced the probability of punishment and fines represent the criminal sanction.
The classical school of thought in criminology demanded crime to be defined in criminal codes and criminal behavior to be based on harm to society (Czabansky, 2008, p. 6). Already Beccaria (1789) viewed the criminal actor as an individual, who would rationally weigh the advantages (benefits) and disadvantages (costs) of committing a criminal act. Hereby, the driving force behind a criminal’s self-interested action was considered to be the lust and pain that an individual would put above the public well-being. Bentham focused considerable attention on the calculus of both offenders’ behavior and the optimal response by the legal authorities: “...profit of the crime is the force which urges man to delinquency: the pain of the punishment is the force employed to restrain him from it. If the first of these forces be the greater, the crime will be committed; if the second, the crime will not be committed” (1907 [1789], p. 399). In his thought pattern, the individual’s main driving force was considered to be the search for personal happiness. Unhappiness should be avoided - happiness (societal well-being or welfare) increases through the individual happiness-oriented behavior.

Becker further advanced these thoughts and translated them into a statistical modelling and mathematization framework. Although there is no explicit market (supply and demand) invest into welfare-enhancing opportunities (crime reduction) finally results in benefits to the society. “Reduced crime costs are regarded as savings that can be invested in more productive and welfare-enhancing activities” (Dodds & Colman, 1999, p. 7). Hence, the modern economic model of criminal behavior can also be considered as a revival of the utilitarian perspective in criminology (Posner, 2005; Czabansky, 2008).

Since the introduction of Becker’s signature article, economic research influences on the study of crime and criminal justice has expanded extensively. The understanding of ‘deterrence effects’ and rational responses by criminals has substantially changed the purpose and functioning of the criminal justice system. This also has, however, created a long running argument over the relative merits of deterrence (Bushway & Reuter, 2015).

33 see Posner (2005) on the law and economics movement: from Bentham to Becker, Czabansky (2008, pp. 1-9) mentioning that the “true measure of crime is (...) harm to society” (Beccaria, 1746), or Thomsen (2015, pp. 23-24) for a more elaborate discussion.

34 According to the economic theory of law, the ultimate goal of law is to maximize social welfare, where criminal law is preferred to other means under certain circumstances (see Posner 1985; Czabansky, 2008, p. 8)
Nowadays, evidence in favor of the ‘deterrence effects’ are mixed (Chalfin & McCrary, 2014, p. 1).

There is considerable evidence that crime is responsive to increases in police manpower and to many varieties of police re-deployments, and influenced by the existence of attractive legitimate labor market opportunities. There is less evidence that crime responds to the severity of criminal sanctions (Chalfin & McCrary, 2014, p. 30-31). To the contrary, the use of ‘heavy’ punishments is actually considered the least effective and least fair sentencing (Martin, 2005, p. 176). Empirical research calls into question the effectiveness of severe punishment schemes as a deterrent and motivates continued analysis of alternative approaches (Anderson, 2010, p. 275).

As the discussions on the measures of effectiveness for crime reduction programs further began to take on greater significance in the 1970s (see Maltz, 1975), only with the advancements in conceptual efforts and data requirements, the economic analysis of criminal justice policy options started to really set off in the 1990s (McCallum, 1997). The economic approach to crime and criminal law first and foremost is a method: “For research purposes, the economists assume that all divisions of the criminal justice system have one goal: the protection of society. All other presumed goals, such as deterrence, rehabilitation, prevention, punishment, and the law itself, are treated as alternative programs implemented to achieve this goal” (Sullivan, 1973, p. 138). While, initially, “classical economists generally considered deterrence of potential offenders the sole function of criminal sanctions and the principal instrument of crime control, the emphasis in modern criminological thought has shifted from deterrence toward rehabilitation and incapacitation of convicted offenders” (Radzinowitz, 1966; Ehrlich, 1981, p. 307).

In the United States, and increasingly on an international level, researchers and practitioners have recognized the benefits of how the different approaches of the two social sciences (criminology and economics) can only benefit one another (Bushway & Reuter, 2005; Levitt & Miles, 2006). According to Bushway and Reuter (2008), the extension of taking the rational choice model out of a narrow focus on deterrence and making an argument for rational choice as viable theoretical framework for the study of

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35 see Donohue and Wolfers (2005), Anderson (2002).
crime more broadly, can be done best by criminologists who are familiar with the larger theoretical landscape about the sources of crime (p. 63). The German economist Stephan Panther (1995) emphasized on the substantial elements of sociological theories of crime that can be combined fruitfully with the traditional economic models. He argues that the economic approach does not imply any specific policy conclusion, neither does it necessarily imply the faith in the deterrence effect of an increase of certainly and/or severity of punishment, nor does it favor extreme sanctions. More importantly, interventions such as “crime prevention through social policies decreasing unemployment or redistributing income in favor of the poor sections of society can be justified using its analytical tools” (pp. 375-6).

As crime imposes considerable costs on society, identifying and investing in policies, programs and projects that are both effective (producing a desired or intended result) and efficient (working productively with minimum wasted effort or expense) is becoming a vital task for government planning and political decision-making. Hereby, the economics of crime and the integrated CBA framework not only helps to identify and invest into welfare-enhancing activities (including economic, environmental, human, and social capital). The application of CBA (and/or cost-effectiveness analysis) for the evaluation of judicial measures, as well as prevention measures (in particular in the United States and the UK) in order to determine the utility of a given program or intervention is subject to analysis in the next chapters (see in particular Sections 3.1.3.-3.2., 4.2., and 5.1.).

2.3. Interim findings: Cost of crime as a new indicator

The concept of crime measurement represents an important area within the study of crime (Kerner, 1977; Kerner, 1991; Addington, 2009; Feltes, 2013). Since the 1960s conceptual efforts and attempts to develop more practical indicators for the estimations of harms have advanced further. The introduction complementary victimization and/or fear of crime surveys – not the least, to overcome shortcomings of conventional forms of crime measurement – as well as methodological advancements enable to translate crime data in new ways. Hence, the point of departure in this regard is: If we cannot

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36 For a consolidation of sociological and economic theories, see Panther (1995).
measure crime accurately or properly, we can also not tackle it accordingly. In that sense, this chapter set the foundation stone for the subsequent analysis on the cost of crime as an important criminological and/or socio-economical indicator (with the emphasis on welfare) of crime.

The monetary values assigned serve as a common metric in order to allow an objective comparison of the harm imposed on society. The estimation of the costs of crime is a fundamentally technical task and requires an interdisciplinary perspective on the data requirements and modeling of causes/consequences of crime. At the current state in Germany, the converted burden of crime estimates (‘Beuteschaden’) as reported in official government reports (BKA) are solely limited to the financial damage imposed by a limited set of crime types where there is more easily a monetary value asserted (one-Euro-value). This rather conventional form of generating cost figures of criminal offences certainly lack in encompassing modeling skills. Most importantly, they underestimate the true (indirect, direct, tangible, and intangible social) costs of crime, and they are certainly not practical. The more comprehensive cost of crime assessment, on the other hand, is based on one perspective or both, the bottom-up (accounting based method) and/or top-down (WTP or CVM, hedonic valuation to estimation methods of the VSL) perspectives.

The theoretical mindset, statistical and mathematical tools all qualify to model the relationship between crime and different (socio-) economic determinants, as well as to assess CBA (or CEA) of investments and interventions (Thomsen, 2015, p. 33). CBA can be used for a wide range of options, which nowadays falls under the terms and specific strategies of crime control and prevention measures, to reduce the overall magnitude of crime.

The next chapter reviews the developments in country-specific efforts on cost of crime research and practice. The fourth chapter further engages with an enhancement in understanding of the complexity of calculation requirements at the example of the European cost of crime assessment model, the first attempt to standardize the methodologies for estimating the costs of crime (based on the bottom-up or accounting based approach, in combination with top-down methodologies). The importance of good cost estimates and the political implications of a possibly better-mapped rational policy framework in the future are further discussed in the fifth chapter. With the special
emphasis on the particular case in Germany, the sixth chapter provides a set of recommendations for the enhancement of the generation of credible cost of crime estimates.
3. Developments in the cost of crime approach

The *cost of crime* research branch evolved in the United States and, beyond, it is generally confined to other Anglo-Saxon countries, most notably to the United Kingdom, Australia, New Zealand, and Canada. In line with the development of a suitable harm assessment framework for different offense types, the economic literature has developed significant attention to costing crime only over the past 20 years (Detotto & Vannini, 2010, p. 423). The cost of crime approach is, therefore, considered as a relatively young research branch.

Historically, first estimates of the cost of crime can be traced back to a US government-sponsored study already in 1901. These estimates mainly contained expenses of the public budget on the criminal justice system and were limited to the spending of the sum of criminal justice expenditures as the overall or total costs in one year. Over the years estimates increased further as more and more justice related agencies from other public sectors were taken into account, which was mainly the reason for why the subsequently provided estimates escalated so much. The demand for decent estimates formulated back then was: “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” (Smith, 1901).

The conceptual efforts to generating figures of the social costs of crime only began developing in the 1960s (Coase, 1960; Gray, 1979, Martin & Bradeley, 1964). Among the first researchers who engaged themselves in the discussion on the importance of identifying and quantifying the costs of crime to victims were Martin and Bradley (1964). They addressed the political side, as properly measuring the impact of crime on victims became to raise the attention, and the sociological side with regard to the costs in anticipation of crime, including the fear of crime and whether or not to run the risk of becoming a victim (p. 593). Methodological advancements to accurately capture the value of intangible quality of life costs first became available in the United States in the 1980s, when Mark Cohen (1988), back then as an ‘Expert on Government Enforcement and Policy Mandate’, examined a large dataset of jury awards from cases where victims

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37 see Gray (1979) and Czabansky (2008, pp.22-26) for an historical overview on the cost of crime.

sued perpetrators of non-fatal crimes (today known and still active as the jury-compensation method). A study commissioned by the US Department of Justice expanded the scope in 1990s, to look at criminal justice system costs, medical costs, productivity losses, and property losses, in addition to the quality of life estimates (Miller, Cohen & Wiersema, 1996). While these estimates became the benchmark in the United States “a variety of scientific studies have been instrumental in developing and refining crime-costing methods” (McCollister et al. 2010, p. 3). In particular with regard to estimating intangible cost components, there seems to be a greater tendency for the use of top-down measures.39

The British Home Office studies (Brand & Price, 2000; Dubourg, Hamed & Thorns, 2005) demonstrated the scope for a systematic attempt across the board to producing a set of estimates of costs by offense type that could plausibly be used for project appraisal and evaluation purposes. The study by Brand and Price (2000) was the first systematic assessment of harms of specific offense types undertaken directly by a government agency (University of York, 2008). Hereby, breaking down cost categories into costs in anticipation of crime (including security expenditure, precautionary behavior, insurance resources and premiums, fear of crime or quality of life of potential victims), costs as a consequence of crime (including property stolen and damaged, health costs, emotional and physical impacts on quality of life, and victim support services), and costs in response to crime (all CJS costs, including police, prosecution, jury-, prison-, and probation- services, legal aid defense costs; as well as costs to offenders and their families) became acknowledged as a very useful and well-specified framework. Along these lines, national government organizations, particularly research divisions or agencies affiliated to ministries of justice, are increasingly becoming closely associated with cost of crime methodologies. Other countries from the Anglo-sphere, in particular Australia, are following suit for an ongoing assessment of the costs of specific offense types aimed at every 5 years (McCollister et al. 2010; Mayhew, 2003; Rolling, 2008; Smith, Jorna, Sweeney & Fuller, 2014).

39 See Cohen & Bowles, 2010 (pp. 157-159) for a comparison between bottom-up and top-down estimates of the cost of rape in the United States and the United Kingdom.
Also countries outside the Anglo-sphere began to direct their attention to the assessment of the social harm and the economic cost-impacts of crime. Country specific attempts have been rather different, mainly because of limited data availability, nature of interdisciplinary efforts and different research settings, as well as country specific priority settings. In fact, at least in its more sophisticated variants, the methodology has been used in comparatively few countries (University of York, 2008). With regard to the general data requirements and modeling techniques, there are still a number of general issues involved that certainly hinder the adaptation of extant, and, as it will be argued, contemporary necessary crime harm assessments. Although overall standards of data requirements and integration have been set at an international level, we can see at the example of countries, like Germany, that the successful implementation of frequently conducted victimization surveys take a considerable amount of time to succeed. Therefore, it requires another reminder that “access to existing data needs to be improved for researchers and citizens alike and made available on platforms, which facilitate appropriate substantive and comparative analysis” (Alfé & de Wever, 2011, p. 3).

A number of international agencies, such as the Inter-American Development Bank (IDB), the United Nations Office on Drugs and Crime Prevention (UNODC), the World Bank, and the World Health Organization (WHO), likewise have reviewed cost of crime estimates. Focal areas of research demands include the estimations of economic and social impact on violence, in order to target the prevention of (global) violence more effectively (WHO, 2002; WHO, 2004). Also, the introduction of drug-harm indices, reflecting the external and social costs of drug consumption (Godfrey, Eaton, McDougall, & Culyer, 2002; Nutt, King, Saulsbury, & Blakemore, 2007; Nutt, King, & Phillips, 2010), and the many acknowledged implications behind the findings have

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40 see Krisch, Eisner, Mikton, & Butchart (2015) on “Global Strategies to Reduce Violence by 50% in 30 Years: Findings from the WHO and University of Cambridge Global Violence Reduction Conference 2014”.

41 see Nutt, King, Saulsbury, and Blakemore (2007) on the “Development of a rational scale to assess the harm of drugs of potential misuse” for a methodology that offers a systematic framework and process that could be used by national and international regulatory bodies to assess the harm of current and future drugs of abuse; or Nutt, King, and Phillips (2010) on “Drug Harms in the UK: A Multicriteria Decision Analysis” for a multicriteria decision analysis (MCDA) modelling to a range of drug harms in the United Kingdom.
changed the strategic vision on the ‘war against drugs’ (UNODC, 2014). The analysis of trans-border issues and findings on better measures to estimating the cost-impacts of Transnational Organized Crime (TOC), as well as the costs of corruption, represent further areas of active interest and research for the European Anti-Fraud Agency (OLAF), the European research and consultancy company (Ecorys), or internationally active auditing and consultancy company (PwC). In reference to a recent report on “The Economic, Financial & Social Impacts of Organised Crime in the EU” (Levi, 2013), these more complex crime phenomena include homicide and organized crime, trafficking in human beings, illegal drugs manufacture and distribution, costs of fraud against the EU, costs of frauds in the private sector, intellectual property theft, environmental crime, and cybercrime. Modeling costs in these settings is an additional challenging task, since victims are mobile and criminal justice responses need to be multilateral, so that national perspectives are not regarded as sufficient enough (University of York, 2008). Measuring the costs of organized crime is still at an early stage (Levi, 2013, p. 18).

Overall, the measurement of appropriate harm assessments is an inevitable first step towards a knowledge-based or more evidence-based approach (see Chapter 5). Scientific reviews on cost of crime research and practice are scarce and have not been conducted, as such, on an international level yet. This chapter aims to bridge this gap and to provide an overview on the development and use of resulting estimates in different countries along the core rationales behind calculating the costs of crime:

<table>
<thead>
<tr>
<th>Core rationales behind calculating the costs of crime</th>
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<tbody>
<tr>
<td>(1.) Aggregate estimates of the costs of crime serve as a proxy for the overall burden of crime and allow for the comparison of the aggregate harm with that of other social ills (under a common metric). In comparison to other benchmarks such estimates are often expressed as a percentage of GDP.</td>
</tr>
</tbody>
</table>

42 see the UNODC World Drug Report 2014.

43 The key findings from the study EU study in numbers are: Cigarette smuggling EUR 11.3 bn; VAT/MTIC fraud EUR 20 bn; agricultural and structural funds EUR 3 bn; fraud against individuals EUR 97 bn; unrecovered motorvehicle theft EUR 4.25 bn; payment card fraud EUR 1.16 bn; insurance fraud EUR 1 bn (Levi, 2013, p. 10-13).
(2.) Comprehensive estimates of the cost of specific offense types allow for the comparison of the relative harm caused by type of crime and may serve as a proxy for determining the severity of different types of crime.

(3.) Estimates of the costs of crime form the basis of quantifying benefits in cost-benefit (CBA) assessments of alternative crime control policies (or repression alternatives). This way they are also becoming notably an integral part of an evidence-based crime prevention and reduction framework.

(4.) Estimates of the costs of criminal careers allow to look at the long-term developments to avoid becoming a criminal, and enable better informed conclusions on (cost-) effective and efficient measures to reduce recidivism.

(5.) Estimates of the cost of crime constitute an integral component of contemporary relevant sustainable progress indicators, these enable better conclusions on activities to enhance sustainable economic welfare rather than economic activity alone, as measured by the traditional prosperity index GDP.

While the first three rationales refer to Cohen’s (2000) precisions – the currently most referred to in the cost of crime literature\(^{44}\) – the latter two are implicit rationales, but deserve greater attention. The first part of the chapter reviews cost of crime research and practice in the Anglo-Saxon countries in more detail. The second part provides an overview on the prevalence of the cost of crime approach in countries outside the Anglo-sphere and, in a final step, presents findings from research and best-practices in Germany. The key purpose of the literature review on the development in the cost of crime approach is to examine the level of implementation of foundational cost of crime methodologies and the extent of use of available estimates in the public discourse. In light of the complexity of the topic, the more complex crime phenomena are mostly excluded from the discussion. The third part of the chapter then summarizes key findings from the review on the developments and goals of the cost of crime approach.

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\(^{44}\) Cohen initially chose a different order: (1.) Comparison of relative harm; (2.) comparison of aggregate harm; (3.) CBA/CEA of alternative crime policies. For the purpose of the analysis, a different order is chosen in this dissertation.
3.1. Anglo-Saxon research and practice

In the Anglo-Saxon countries, the use of cost of crime methodologies have either already been well established as or are progressively developing into a standard assessment tool (Czabansky, 2008, p. 3). There are some notable differences in methodological attempts and techniques to estimate the costs with greater intangible components, such as violence against a person (VAP). These differences are mostly due to different data situations, as well as the corresponding research framework and the degree of governmental institutional involvement behind conducting comprehensive figures. Despite issues of robustness and comparability of available specific crime estimates, the state of the art yields an improvement in political guidance and in development of national crime reduction or crime prevention strategies.

The United States has by far the widest access to data, the most independent verification of individual studies and largest number of journals, and the most use of more recently developed, and often more sophisticated techniques (Webber, 2010, p. 2). Researchers are working with the bottom-up as well as top-down methodologies. Data sources that are used in the estimation methodologies in the United States contain, among others, the Uniform Crime Reporting (UCR), Supplementary Homicide Reports (SHR) and National Crime Victimization Survey (NCVS). The cost of crime studies have particularly focused on specific crime types or problematic fields, such as the costs of violence or violent crimes (Cohen, Miller & Rossman, 1994; Atkinson, Haeley & Mourato, 2005; Corso, Mercy, Simon, Finkelstein & Miller, 2007), gun violence (Cook & Ludwig, 2000; Ludwig & Cook, 2001), sexual assault (Miller, Taylor & Sheppard, 2007), alcohol and drug related crimes (Miller, Levy, Cohen & Cox, 2006; Miller, Levy, Spicer & Taylor, 2006), or the costs of mental health care (Cohen & Miller, 1998). While there is a mature base of research findings (program related) cost of crime estimates has evolved, there are only a number (Miller, Cohen & Wiersema, 1996; Cohen, Rust, Steen & Tidd, 2004; McCollister, French & Fang, 2010), but no regular or periodic attempts to estimating the costs for a set of (non-program related) common offense types.

The growing literature on the costs of crime in the United States is on the way to develop a rationales for a national movements, such as on hot spots interventions, youth violence, and drug consumption. In fact, estimates are increasingly being used by
political leaders when they reinforce political agendas, attract interest in and financial support for a problem (Appendix E, 2008, p. 16). The economic cost of drug abuse, alcohol abuse and mental illness have been studied extensively (Harwood, Napolitano, Kristiansen & Collins, 1984; Rice, Kelman, Miller & Dunmeyer, 1990; Harwood, Fountain & Livermore, 1998). The recent implementation of legalization strategies on marijuana consumption in the United States might represent the strongest example for state wide outcomes. Among the leading institutions involved in providing evidence on research findings that utilize cost of crime estimates are the Office of Justice Programs (OJP), the Office of National Drug Control Policy (ONDCP), the National Institute of Justice (NIJ), and the Washington State Institute for Public Policy (WSIPP). The use of investment appraisal requirements in criminal justice is a further stimulating factor for the greater application of CBA assessments.

In Canada considerable research on costing crime began in the 1990s, when crime rates were much higher as they are today. The first most renowned study by Brantingham and Easton (1996; 1998) attempted to measure the total costs of crime in 1998, considering a number of factors, such as direct costs to victims, policing and private security, court and legal costs, correction costs. The first comprehensive study on the cost of pain and suffering from crime (‘shattered life’ study) in Canada (Leung, 2004) only followed a decade later. The most recent governmental study on the costs of crime was conducted for the year 2008 by the Department of Justice in Canada. The figures are based on data sources from the Police Administration Survey, as part of the National Justice Statistics Initiative (NJSI), Adult Criminal Court Survey (ACCS), Integrated Correctional Services Survey (ICSS), the Canadian Institute for Health Information (CIHI), General Social Survey (GSS) and various governmental publications (Zhang, 2008, p. 5). Although the study incorporated tangible as well as intangible costs, crucial cost elements were excluded, such as mental health care costs, life-time productivity losses, lost legitimate incomes for offenders and psychological impacts on family members\(^{45}\) (Zhang, 2008, p. 6). Comprehensive estimates of the costs of specific offense types are

\(^{45}\) The study arrived at an estimate of CAD 31.4 bn (total tangible costs), CAD 68.2 bn (total intangible costs), amounting to a total costs of crime (2008 conservative estimate) amount to CAD 99.6 bn (Zhang, 2008, pp. 5-6).
not widely available. Nevertheless, continuous efforts in updating cost figures are being undertaken, in particular, by researchers from the Frasier Institute\(^\text{46}\).

Among further governmental studies on particular social problems using sophisticated costing methodologies, there is one on the economic costs of child abuse\(^\text{47}\) (Bowlus, McKenna, Day & Wright, 2003). While “prior to the mid-1980s, it was generally believed that the costs of the criminal justice system dwarfed the costs imposed on victims”, “once economists began to include the intangible costs of crime such as pain and suffering and lost quality of life, the relationship was reversed” (Zhang, 2008, p. 6).

The Canadian National Crime Prevention Strategy (NCPS)\(^\text{48}\) integrated findings from the economic analysis in crime prevention (McIntosh & Li, 2012) and costs of a criminal career (“Life of Jack” in 2001). In relation to national prevention efforts, it has been articulated that, “Canada needs to strengthen its policies for ‘preventing crime’ with corresponding funding to build healthier and safer communities” (Fournier-Ruggles, 2011, p. 19).

The British Home Office model on the “Economic and Social Costs of Crime”, published by the Research, Development and Statistics Directorate (RDS), represents the bottom-up approach. As the accounting-based method it pieces together the various components of crime costs and breaks down the costs of specific offense types into three main categories (in anticipation, as a consequence, and in response to crime). The estimates of the costs of victimization (as a consequence of crime) are based on the fundament of answers to the annually conducted British Crime Survey (BCS) and

\(^{46}\) The study by Easton, Furness, and Brantingham (2014) arrived at an estimate of CAD 85.2 billion for the year 2009/10 (in 2012 CAD). Among their main findings: from 2002 to 2012, the cost of crime decreased by 6 percent, primarily due to the reduction of the number of crimes, their severity, and the consequent decrease in the amount of pain and suffering they entailed. Total justice costs for policing, corrections and the courts rose by 35 percent in the same period (pp. 95-96).

\(^{47}\) The study arrived at an estimate of nearly CAD 16 bn (including judicial costs, costs to social services, education, health, employment, and personal).

\(^{48}\) The NCPS was implemented in two phases. In the first phase (1994), information was collected for use in developing best-practices and approaches to crime prevention. The second phase (1998) of the strategy comprised three major program elements: the creation of the NCPC to oversee and implement the strategy; the Safer Communities Initiative; and the Promotion and Public Education Program. The Strategy aimed at developing community-based responses to crime, with a priority emphasis on children, youth, aboriginal people and the personal security of women and girls. The strategy invested in activities that addressed risk factors in people’s lives, such as abuse, violence, poor parenting, and drug and alcohol abuse (Jamieson & Hart 2003, p. 6).
Commercial Victimization Survey (CVS). These surveys are measured on a regular (yearly) basis. The first comprehensive estimates on specific offense types were introduced by Brand and Price (2000) for 1999/2000 and revised for the year 2003/2004 (Dubourg, Hamed & Thorns, 2005). In anticipation for a regular and periodic basis, the last publication by the Home Office RDS in 2011 has been limited to a revision of the multipliers and unit costs of crime used in the Integrated Offender Management (IOM) Value for Money (VfM) toolkit (Home Office, 2011), so that the refinements of new comprehensive figures is still pending\(^{49}\).

The Home Office estimates were used as the basis for evaluation guidelines supplied to analysts exploring the impact of the interventions comprising the Home Office *Crime Reduction Program*\(^{50}\) (CRP) (Bowles & Pradiptyo, 2004). Estimates were used for crime reduction valuation purposes in economic evaluations of interventions. Moreover, estimates are quite widely used, often selectively by advocacy groups seeking to encourage spending on particular projects (*Appendix E*, p. 14).

In Australia, the first comprehensive cost of crime studies were published by the Australian Institute of Criminology (AIC) on “*Trends and Issues in Crime and Criminal Justice*” providing total cost figures on crime to estimate how much crime cost the Australian economy in 1990 (Walker 1992; 1997). Following the Home Office model, AIC researchers began to generate estimates of the cost of multiple crimes for the years 2001 (Mayhew, 2003), 2005 (Rollings, 2008), and 2011 (Smith et al. 2014). These estimates and refined figures are based on a combination of data sources from Australia, the United Kingdom, and the United States. These include the Crime Victimization Survey (CVS) by the Australian Bureau of Statistics (ABS), a study of the cost of Australian deaths and injuries from 1995, and BCS information from the

\(^{49}\) With reference to the report: “It should be borne in mind that the amendments outlined here do not represent a comprehensive update of the costs of crime figures. Instead, the revisions should be viewed as a pragmatic attempt to update the estimates in the interim period before a full update of the costs of crime is undertaken” (Home Office, 2011, p. 1).

\(^{50}\) The CRP is an evidence-based approach to crime reduction through efforts targeting risk factors, geographic locations, specific crimes, and specific offender categories (Dhiri & Brand, 1999).
United Kingdom\(^{51}\) (Webber, 2010, p. 3). The refined figures included results from the National Crime and Safety Survey (CSS) and adapted refined multipliers\(^{52}\). In comparison to the anticipated regular or periodical by the Home Office, the AIC has achieved this goal more successfully (see Chapter 3.1.2.).

Andrew Webber is one of the first researchers who undertook a comparison of estimates between studies and countries\(^{53}\). Bringing the cost of crime studies together, he underlined that cost of crime in specific states can serve as a useful indicator for to identify areas for the future crime prevention research and action: *If it is discovered that*

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\(^{51}\) The first limitation of this study was that information on private sector costs (to victims) were largely unavailable, so that study was heavily reliant on the estimates of the British Home Office study in 2005 (Webber, 2010, p. 3).

\(^{52}\) Multipliers equal to the ratio of the estimated total number of crimes (usually taken from the British Crime Survey) to the number of comparable crimes recorded (by the police) (Home Office, 2011, p. 1).

\(^{53}\) Some of his main findings are further discussed in section 3.1.2.
costs of crime in particular areas are particularly high, then efforts to reduce the incidence of criminal damage in these areas to generate sizeable benefits in the community and this is where crime prevention efforts would be most usefully focused (Webber, 2010, p. 2). In comparison to Australia, in New Zealand the costs of crime have been examined only once for the 2003/2004 (Roper & Thompson, 2006) by the New Zealand Treasury, the lead advisor to the Government on economic, financial and regulatory policy. These figures are as well conducted based on a combination of data sources from the United Kingdom and Australia. Two further studies on the cost of family violence and cost of domestic violence put further emphasis on the cost impact on society. In a 2009 report on the “Statement about New Zealand’s long-term fiscal outlook” the rising government costs (including CJS costs) were discussed in light of available comprehensive cost of crime estimates.

The following sections look closer at the developments of the cost of crime estimates in the Anglo-Saxon countries along the five core rationales introduced in the introduction of the chapter: The total cost figures; costs of specific offense types; the utilization of estimates in the employment of CBA assessments of alternative crime control policies; the costs of criminal careers; and the utilization of cost of crime estimates in sustainable progress indicators at the example of the Genuine Progress Indicator (GPI).

3.1.1. Aggregate burden of crime

Aggregate estimates of the costs of crime serve as a proxy for the overall burden of crime and allow for the comparison of the aggregate harm with that of other social ills (under a common metric). In comparison to other benchmarks such estimates are often expressed as a percentage of GDP.

Throughout history and since the introduction of first estimates, total cost of crime figures have attracted headlines. “Multibillion dollar cost estimates can easily make their way into popular press and political debate” (Cohen, 2000, p. 269). In unsettled low-income countries the costs of crime often account for a sizeable proportion of GDP, so that estimates may as well serve as an indicator for the social economic burden of crime to the economy. In nowadays’ practice, comprehensive aggregate cost figures do help to put crime into a broader perspective, in comparison to spending on other social
issues or public sector functions, which compete our attention (Czabanski, 2008, p. 8). Hereby, Anderson argues, “...with knowledge of the full cost of crime, we also know the benefit of eliminating a more realistic fraction of that cost” (Anderson, 2011, p. 213). Nevertheless, total cost numbers need to be treated with caution, as these can be based on a variety of methods and have the tendency to interpret crime as too much of a ‘problem’.

Traditional measures of criminal activity count crimes or estimate direct costs, which typically include the costs of policing, corrections, criminal justice, and replacing stolen merchandise (Anderson, 2011). In the late 1990s, the economist David Anderson introduced his particular full costing approach. In his attempt to generate a more comprehensive measure of the impact of crime, the goal is to take into account all costs, which would not exist in an ideal society totally free of crime – all direct and indirect costs of every type of crime for the entire nation. In his first study he found the net annual burden of crime or criminal activity in the United States to exceed USD 1 trillion (Anderson, 1999, p. 2). In his full costing attempt, he breaks down crimes into ‘crime-induced production’ (such as personal protection devices, trafficking of drugs, and operation of correctional facilities), ‘opportunity costs’ (such as lost productivity due to people’s incarceration, time spent securing assets), ‘value of risks to life and death’ (fear of being injured or killed, agony of being a victim, and crime related death costs), and ‘transfer’ (losses to victims of theft and unlawful deception). Based on this approach, he arrives at an estimate for the aggregate cost of crime of USD 1.075 billion (including transfers). This estimate he puts into the same order of magnitude in comparison to life insurance purchases (USD 1.680 billion), outstanding mortgage debt to commercial banks and savings institutions (USD 1.853 billion), and annual health expenditure (USD 1.038 billion) (Anderson, 1999, p. 20).

In his second study he arrives at a much higher estimate for the annual cost of crime of USD 3.2 trillion (including transfers), and puts it into comparison with the annual expenditures on health care (USD 2.7 trillion), outstanding mortgage debt held by commercial banks (USD 3.5 trillion), as well as the estimated total cost of the wars in Afghanistan and Iraq, combined with the cost of US military assistance to Pakistan, from 2001 through 2011 (USD 3.216 trillion) (Anderson, 2011, p. 255). Over a decade later, of course certain factors have changed in estimation methods, data sources and
availability. Large part of the much higher number can be explained by large increases in policing, corrections and private deterrence (public and private expenditures on deterrence), as well as the dramatic increase in the cost of healthcare (Anderson, 2011, p. 251) as well as the introduction of more complex crime phenomena\textsuperscript{54}. The advantage of his approach is that results can serve as an indicator for a broad set of crime’s repercussion. On the downside, this unique and less standardized lead to astonishingly high estimates and are, hence, also subject to be misused if not explained with caution.

The most popular approach to expressing the impact of crime is as a percentage of GDP (per capita burden). There is still relatively little comparative research being undertaken. Hereby, it is important to note that when attempting to compare total cost figures of crime as a percentage of GDP and changes in the impact on the economy over the years, a number of underlying factors need to be taken into account. In one comparative review, Webber (2010) found: First, costs associated with crime are increasing faster than the general price level of the economy. If for instance people carry around expensive electronic devices more often than they used to, then an increase in the cost of crimes such as theft or robbery should be expected. Costs might also increase, because of the costs of innovation within the criminal justice system, such as greater security technology in prison (Webber, 2010, p. 11). In that sense, including the required adjustments for inflation in this regard, changes in the country’s GDP need to be documented carefully. Second, the level of (crime) data availability, and refinement of methodologies also have an effect on changes in estimates (more often cause an increase with more sophisticated methodologies). Hence, the methodological differences need to be specified accordingly in the corresponding comparative analyses. Last but not least, a number of country-specific factors need to be taken into account (further addressed in Chapter 3.1.3.).

The following table provides an overview on the results from some of the main studies on total cost estimates as a percentage of GDP. The cost of crime and percentage of

\textsuperscript{54} In his most recent study, Anderson (2011) annotates: “The current study updates the first to permit comparison — with caveats — between the cost of crime in the 1990s and the cost of crime more recently. This study also reflects crime-related expenditures in the post-9/11 era of heightened sensitivity to terrorist threats, and adds expenditures on investigation services and locksmiths, for which data were previously unavailable” (pp. 219-220).
GDP estimates in Table 3 refer to the original documentation (price year) of the governmental reports.

Table 3  Aggregate cost of crime in a year as a percentage of GDP in the Anglo-Saxon countries

<table>
<thead>
<tr>
<th>Country</th>
<th>Price year</th>
<th>% of GDP</th>
<th>Total costs (original est.)</th>
<th>Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>1990</td>
<td>7.2</td>
<td>AUD 27 bn</td>
<td>Walker (1992)</td>
</tr>
<tr>
<td>Australia</td>
<td>2005</td>
<td>4.1</td>
<td>AUD 35.8 bn</td>
<td>Rollings (2008)</td>
</tr>
<tr>
<td>Australia</td>
<td>2010</td>
<td>3.4</td>
<td>AUD 47.6 bn</td>
<td>Smith et al. (2014)</td>
</tr>
<tr>
<td>Canada</td>
<td>1994</td>
<td>7</td>
<td>CAD</td>
<td>NCPC (1994)</td>
</tr>
<tr>
<td>Canada</td>
<td>1996</td>
<td>2.3-5.3</td>
<td>CAD 40.54-78.73 bn</td>
<td>Brantingham &amp; Easton (1998)</td>
</tr>
<tr>
<td>Canada</td>
<td>2009</td>
<td>5</td>
<td>CAD 85 bn</td>
<td>Easton, Furness &amp; Brantingham (2014)</td>
</tr>
<tr>
<td>England &amp; Wales</td>
<td>2003</td>
<td>3.5</td>
<td>GBP 36.2 bn</td>
<td>Dubourgh &amp; Hamed (2005)</td>
</tr>
<tr>
<td>New Zealand</td>
<td>1993</td>
<td>6</td>
<td>NZD 5 bn</td>
<td>Yeabsley, Duncan &amp; Mears (1995)</td>
</tr>
<tr>
<td>New Zealand</td>
<td>2003</td>
<td>6.5</td>
<td>NZD 9.1 bn</td>
<td>Roper &amp; Thompson (2006)</td>
</tr>
<tr>
<td>United States</td>
<td>1999</td>
<td>11.9</td>
<td>USD 1.705 bn</td>
<td>Anderson (1999)</td>
</tr>
<tr>
<td>United States</td>
<td>2011</td>
<td>&gt;10</td>
<td>USD 3.2 tn</td>
<td>Anderson (2011)</td>
</tr>
</tbody>
</table>

Source: Own summary of aggregate or total costs of crime in a country (not adjusted for inflation, expressed in the original price year and country’s currency) as extracted from the corresponding studies or reports and harmonized with findings from Czabansky (2008, p. 52).

The AIC estimates probably represent the most comparable ones within a country or between studies, in particular because of the rather similar methodologies from 2001 onwards. In the first study the 1990 estimate of AUD 27 billion had an approximate impact of 7.2 percent of GDP, where crime rates (as in most countries) were much higher. For the year 2001 the overall cost of crime amount to nearly AUD 32 billion or 4.2 percent of GDP (nearly AUD 1,600 per person). For the year 2005 the overall cost of crime amount to nearly AUD 36 billion or 4.1 of GDP, and AUD 47.6 billion or 3.4 percent of GDP in 2010. Bearing in mind the above described differences, it can be said that over the decade of comparison it appears that the costs of crime have increased by almost 50 percent.

As Smith and colleagues (2014) clarify in the third AIC report that, “as a percentage of national GDP, however, there has been a decline of 1.6 percent. Since Rolling’s (2008) estimate for 2005, the costs of crime have increased by a third (33%), or a decline of 0.7 percent of GDP. Between 2001 and 2011, inflation has increased by 33 percent and
between 2005 and 2011, inflation has increased by 19.6 percent\textsuperscript{55}” (p. xiv). For England and Wales, Brand and Price (2000) estimate the total crime costs to amount GBP 32.2 billion or 6.5 percent of the GDP in 1999 and 36.2 billion or 3.5 percentage of GDP. In the third Home Office study the refinements of comprehensive estimates were very limited and an analysis on changes in these estimates, in particular in relation to GDP, excluded.

Other country studies are rather difficult to compare, as these are based on a variety of methodological approaches. For instance, according to the authors the 1993 estimate for the United States accounting for 6.8 percent of the GDP (Miller, Cohen & Wiersema, 1996) indicates the exclusion of important cost elements. In contrast, the aggregate estimate for the United States was estimated to be 11.9 percent of the GDP (Anderson, 1999). In New Zealand, the total cost of crime for 1993/1994 is estimated to be just over NZD 5 billion, or about 6 percent of GDP the total costs of crime for the year that period amounted to NZD 9.1 billion. The authors argue that, “the current 6.5 percent figure may reflect the different methodologies underlying the estimates rather than any implied increase in the costs of crime” (Roper & Thompson, 2006, p. 17). Moreover, as estimates of countries, like Australia and New Zealand, rely on the British Home Office data to form the national estimate (Webber, 2011, p. 3), it would be inappropriate to make direct comparisons to draw conclusions for these countries based on such figures.

For some countries, such as in Canada, the respective figures serve as the only official more comprehensive estimates on the costs of crime. The National Crime Prevention Council of Canada (1994) provides an estimate for the total crime costs to amount to 7 percent of GDP (CAD 1,876 per person). In taking the level of uncertainty into account, authors behind the Canadian studies consider that it would be more appropriate to express the estimated aggregate cost of crime as a percentage range of GDP (Brantingham & Easton, 1998). For now, given the different methodological attempts and data premises, it would make more sense to provide a percentage range for country types. For industrial countries, the Anglo-Saxon countries are setting a percentage range of 2-7 percent (when excluding the Anderson study).

In the cost of crime literature the approach of solely focusing on estimating the aggregate costs of crime is considered as “one of the most common – yet probably least

\textsuperscript{55} Reserve Bank of Australia (RBA) 2013
important – reasons for estimating the costs of crime” (Cohen, 2000, p. 269). “There is no reason to calculate the total cost of crime, precisely because it is obviously unattainable” (Czabansky, 2008, p. 20). The results of all-inclusive approaches (such as the Anderson method) make comparison to other country studies as well as more unified comparisons to other sectors more difficult. Although, estimates can be compared with some other sort of benchmark (under a common metric), the approach and the results are generally not practically useful, as they do not even give a sense of the scope of various crime problems (Cohen, 2000; Webber, 2010). Given the variations in methodologies and over all evolution of cost estimates, study and country specific comparisons are still difficult to make. Most importantly, we “cannot arrive at policy recommendation for future public spending priorities” (Cohen, 2000, p. 270). To the contrary, the reliance on aggregate cost figures may result in misleading conclusions. Hence, while the total cost can serve as a good start to put crime into a broader perspective, estimating the costs (and prevalence) of individual crimes is ultimately preferable (Cohen, 2000; 2005), as demonstrated in the next part(s).

3.1.2. Costs of specific offense types

The availability of comprehensive estimates of the costs of specific offense types allow for the comparison of the relative harm caused by type of crime and may serve as a proxy for determining the severity of different types of crime. To date, only few countries and an overall small collection of studies have generated comprehensive figures for a wide variety of common crimes (Cohen, 1988; Miller, Cohen & Wiersema, 1996; Brand & Price, 2000; Mayhew, 2003; Cohen et al., 2004; Dubourgh et al. 2005; Roper & Thompson, 2006; Rollings, 2008). The robustness of these estimates depends on the methodological advancements or sophistication in technique, which in turn is subject to the data availability in the respective countries. As anticipated by countries such as the United Kingdom and Australia, “given the dynamic trends in criminal activity and
victimization, re-estimation of the social cost of individual offenses can justifiably be conducted every five years” (McCollister, French & Fang, 2010, p. 17).

As an example, according to the AIC study by Rollings (2008) on some of the major costs of crime for a range of offenses in 2005: the total cost of homicide is AUD 930 million (about AUD 1.6 million per victim), assault costs AUD 1.4 billion (average of AUD 1,800 per assault), sexual assault costs AUD 230 million (average cost of AUD 2,500 per incident). The total cost of burglary is AUD 2,410 million (average of AUD 2,400 per burglary), robbery AUD 600 million (average of AUD 3,600 per incident), theft of vehicles costs AUD 880 million overall (average of AUD 6,000 for each vehicle stolen). See Figure 4 for a demonstration of different crimes as a proportion of total costs (incl. arson, fraud and drugs), and the volume and costs of crime (excluding arson, fraud and drugs) in percentage.

Fig. 4  Costs of crime in Australia (2005)

A. Different crimes as a proportion of total costs

B. Volume and costs of crime

Source: Counting the costs of crime in Australia: a 2005 update, as an example for the periodical publications by the Australian Institute of Criminology (AIC), K. Rollings, 2008, p. xi-xiii (Figure 1 and Figure 2).

Different crimes as a proportion of total cost put the harm imposed by specific offense types into a better perspective. The focus on costs (harm) rather than the volume of offenses indicate how average costs themselves vary significantly across offense types for property crimes (criminal damage offenses, theft crimes) and personal crimes or violent offenses (VAP such as homicide, assault, sexual assault, burglary, robbery). Hereby, a clear message is that despite a relatively low number of incidents (compared
to non-violent crime), violent offenses account for a large proportion of the costs of crime in Australia. Burglary is also more costly (the second highest incident cost after homicide) than would be suggested by the proportion of offenses it comprises. Incidents of shoplifting are numerous but, but the average unit cost is relatively small (overall costs are less than for some other offenses). Periodic publications of this type can help in tracking changes on the different cost areas of interest. In the third publication by the AIC (Smith et al. 2014), the interpretation of changes and reference to specific refinements in estimates (from 2001 to 2005 and 2011) can be reviewed thoroughly.

Fig. 5 Costs of crime in Australia (2011)

A. Estimated cost of individual crimes

B. Estimated criminal justice and other costs

Source: Counting the costs of crime in Australia: a 2011 estimate, as an example for the periodical publications by the Australian Institute of Criminology (AIC), Smith et al. 2014, p. xiv-xv (Figure 1 and Figure 2).

Diagrams or presentations of results as such offer better transparency and an improvement in the overall understanding with regard to the costs of crime imposed on society. Very importantly, “such overviews can provide policy makers and law enforcement authorities with new policy adjustments ideas and allow for more transparency towards civil society” (Alfé & de Wever, 2011, p. 26). Comprehensive estimates of this type can help to prioritize action against crime, setting proper

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56 see in particular Figure 3 and Figure 4 of the report (p. xvi) on changes in the cost of crime by crime type between 2001-2011 (% change), and changes in the costs of crime by criminal justice and other cost categories (% change).
punishment scheme (Czabansky, 2008). “The prevention of one average homicide, wounding or sexual offense is estimated to be of significantly greater value to society than the prevention of one average burglary, theft or incident of vandalism” (Dubourg et al. 2005, p. 5). Theories of punishment, as well, require determinants on the seriousness of crime to or the amount of harm in criminal responsibility. Authors argue that provide a more coherent measurement of the seriousness of crime (Czabansky, 2008). Estimates of this type may guide legislators when they draft criminal law provisions regardless of the theory of punishment that they follow. Accepting costs of crime estimates as the basis of punishment, however, does not lead to objective liability of results (Czabanski, 2008, pp. 59-61).

There are hardly any comparative reviews on cost of crime estimates between countries, but only single studies (some with subsequent small revisions), which have not been independently verified (Webber, 2011, p. 2). The factors that need to be taken into account in an international or comparative context (as in the European Sourcebook), there needs to be a common understanding of the different categories of offenses used (de Urbina & Ogus, 2009; Cohen & Bowles, 2010, p. 159). The country where the study is based in is also likely to have an effect on the results beyond methodological differences (Webber, 2010, p. 9). In particular, “studies of the costing of crime often sidestep the issue of what constitutes crime. This is problematic both because it fails to render explicit the policy significance of the categories of offenses in the costing exercise and because, within international and comparative contexts, differences between national definitions may give rise to misleading conclusions” (de Urbina & Ogus, 2009, p. 343). Other factors that need to be taken into account in a given country of analysis are the national average income levels, cost of medical care or healthcare, attitudes across societies, a higher proportion of violent crimes, involving gunshot wounds, or differences in the way criminal justice institutions work (legal aid costs per offense, costs of operating courts).

Webber conducted an empirical comparison between estimates of average costs estimates per country for eight types of crime (see Table 4): murder, sexual assault, robbery, burglary, motor vehicle theft, other theft, and property damage from some of the major studies in Australia, New Zealand, the United Kingdom, and the United States. He discovered large variances between different estimates of the same type of
crime between countries and individual studies exist (Webber, 2010, p. 5). At this point, it is, however, difficult to say whether the variances in cost of crime estimates are solely due to the discrepancies in modeling or due to unique characteristics that do not translate to the country’s setting (Webber, 2010, p. 2).

Table 4  
Country comparison of comprehensive study estimates in 2010 Australian dollars (AUD)

<table>
<thead>
<tr>
<th>Study &amp; Country</th>
<th>Murder</th>
<th>Sexual assault</th>
<th>Assault</th>
<th>Robbery</th>
<th>Burglary</th>
<th>MV theft</th>
<th>Other theft</th>
<th>Property damage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rollings (2008)</td>
<td>Aus</td>
<td>2,239,077</td>
<td>8,769</td>
<td>1,982</td>
<td>2,654</td>
<td>3,391</td>
<td>8,161</td>
<td>768</td>
</tr>
<tr>
<td>Roper &amp; Thompson (2006)</td>
<td>NZ</td>
<td>-</td>
<td>83,593</td>
<td>-</td>
<td>26,771</td>
<td>8,182</td>
<td>-</td>
<td>1,507</td>
</tr>
<tr>
<td>Dubourgh &amp; Hamed (2005)</td>
<td>UK</td>
<td>3,919,677</td>
<td>84,461</td>
<td>11,991</td>
<td>19,564</td>
<td>8,780</td>
<td>11,117</td>
<td>1,703</td>
</tr>
<tr>
<td>Cohen (1988)</td>
<td>US</td>
<td>-</td>
<td>132,678</td>
<td>14,714</td>
<td>23,609</td>
<td>3,459</td>
<td>8,452</td>
<td>-</td>
</tr>
<tr>
<td>Miller et al. (1996)</td>
<td>US</td>
<td>6,402,167</td>
<td>188,597</td>
<td>20,377</td>
<td>17,342</td>
<td>3,035</td>
<td>8,021</td>
<td>802</td>
</tr>
<tr>
<td>Cohen et al. (2004)</td>
<td>US</td>
<td>18,555,232</td>
<td>453,360</td>
<td>133,904</td>
<td>443,795</td>
<td>47,823</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Source: A country comparison of comprehensive study estimates (Australia, New Zealand, United States, United Kingdom), from the Literature Review: Cost of Crime, published by the NSW Government, A. Webber, 2010, p. 5 (Table 1).

Taking into consideration the differences in methodological approach, the intangible costs of different types of crime can in large part explain why estimates between studies can vary so much. Crimes against a person generally involve much higher costs than property crimes. The largest aspect of estimates of homicide, sexual assault, and assault (as well as robbery) are intangible quality of life costs, as opposed to tangible costs, such as medical expenses, or the loss of income due to injury health costs are for instance higher than costs of replacement of property. For instance, according to the estimates conducted by the Home Office, intangible costs approximately make up two thirds of all costs of assault (Dubourg et al. 2005). Average costs of property crimes per country appear to be relatively comparable or cause less variance between estimates, because tangible costs are particularly easy to value and intangible cost make up a smaller proportion of the cost of property crimes (Webber, 2010, p. 5). Another reason
why costs of property crimes are lower is also likely to be, because these crimes tend to be harder to prosecute, and therefore incur smaller criminal justice costs (Webber, 2010, p. 5).

Webber chose two particular crime types for further investigation: *assault*\(^{57}\) and *homicide*\(^{58}\). The average costs of assault per country, as one of the more prevalent serious crime types, revealed large differences between Australian and international estimates. Tangible and intangible costs are far lower in Australia than in other countries, giving reasons to conclude that Australian cost of crime estimates seem to be misspecified (Webber, 2011, p. 6-8). *Homicide* was chosen because of the same definition in the different jurisdictions of the countries and because many studies use *homicide* as an indicator and then estimate other crimes with the *VSL* from other fields (such as health or road safety). Both types of estimates can be used for comparison (Miller, 2000) and in Webber’s analysis criminal justice costs were excluded from homicide estimates to allow for better comparison. While the average *VSL* estimates lie between AUD 4-7 million, every country specific estimates for homicide are mostly far lower than this, accounting for a difference between 20 to 60 percent (Webber, 2010, p. 8-9). Given that measures of *VSL* have been analyzed and accepted in varied fields much deeper than the cost of crime literature (Abelson, 2008), “it is likely that the cost of crime estimates are underestimated, as opposed to VSL being overestimated” (Webber, 2010, p. 9).

Within countries, the general trend in most estimates seems to be that more recent studies report a higher cost of crime than older studies, even after adjusting for inflation. Another reason for an increasing trend in cost of crime estimates is that latest studies tend to have more sophisticated techniques and make use of more accurate data than older ones. This would suggest that more recent estimates should be preferred over older ones, but the methodologies of more recent studies also need to be viewed with caution (Webber, 2010, p. 11)\(^{59}\). Overall, it requires time to compose comprehensive

\(^{57}\) see Webber, 2010, pp. 7-8 (Table 2 and Figure 1).

\(^{58}\) see Webber, 2010, pp. 8-9 (Table 3 and Figure 2).

\(^{59}\) More recent studies are not always more likely to be accurate: For instance, a study by Delsi 2010 took earlier WTP estimates and added on intangible costs (such as the lost productivity and criminal justice costs to come to very large costs: USD 17 million for a homicide. Cohen and other researchers generally estimate the price of murder at USD 10 million to USD 12 million (or just the WTP number). Since WTP estimates are likely to already incorporate these components means that this study is double counting.
cost figures of specific offense types and implies that comparisons between countries would greatly be enhanced, if sticking to a similar methodology for refinements of estimates. The AIC approach serves as the best attempt to date in terms of trying to take a visual case of comparison between changes in cost of crime estimates.

3.1.3. CBA (and CEA) of alternative crime control policies

| Estimates of the costs of crime form the basis of quantifying benefits in CBA (or alternatively CEA) assessments of alternative crime control policies (repression alternatives). They are, therefore, becoming notably an integral part of an evidence-based crime reduction or prevention framework. |

As crime imposes considerable costs on society, identifying and investing in policies, programs and projects that are both effective and efficient is becoming a vital task for government planning and political decision-making. Since the introduction of CBA into criminal justice in the 1960s, the economic analysis of crime and criminal justice has advanced in a distinctive manner: from the initial focal part of research on deterrent effects, punishment and law, towards targeted rehabilitation and prevention effects. Meanwhile, a key role of cost of crime estimates is to act as benefit measures in CBA of criminal justice interventions and projects (Cohen, 2000, p. 268). In developing arguments of value-added reasoning, this way, estimates of the costs of crime are notably becoming an integral part of the evidence-based crime prevention framework (Webber, 2010, p. 2).

In essence, CBA and CEA are both analytical tools that assist in answering: ‘Is it worthwhile to spend?’ As an evaluation technique CBA compares the costs and benefits of policies and programs over a long-term period, where the hallmark is that both the costs and the benefits are expressed in monetary terms so that costs and benefits can be directly compared. CEA, on the other hand, compares the costs relative to the outcomes of programs and policies. That way it indicates which option produces a desired outcome for the lowest cost (for instance, for every dollar or Euro spent, crime could be reduced by 10 percent or similar) (CBKB, 2015). “Even if outcomes do not need to be monetized, the evaluator needs a measure of the relative seriousness of various crimes”

(Webber, 2010, p. 11).
(Webber, 2010, p. 2). In an act of ‘adding value’ to criminal justice outcome evaluations of crime control and prevention measures (Zedlewski, 2009; 2010), evidence-based options to reduce crime and criminal justice costs (Drake, Aos & Miller, 2009), and to improve statewide outcomes (Aos, Lee, Drake, Pennucci, Klima & Miller, 2011) can be given.\footnote{As CBA compares the total costs of an intervention or program against its total expected benefits, it can specifically assist in answering the question like ‘Has the money been well spent?’ (Dossetor, 2011).} Hence, CBA is not the only, but predominantly preferred approach.\footnote{Given the techniques’ similarities, some scholars have posited that CEA should be considered a sub-technique within CBA (Johannesson 1995).}

The underlying force behind the expansion of the literature on CBA in criminal justice and crime prevention are closely associated with the steep rises of criminal justice costs in the United States, especially in the area of corrections (Brux 2008, p. 30). To date, the United States has by far the largest imprisonment population in the world. In particular, the excessive usage of super-maximum security prisons over the past quarter of a century created a new critical debate on the effectiveness of these costly correction facilities, which were originally only designated to incapacitate the worst of the worst. As these so-called supermax prisons constitute for significant investments of scarce resources, researchers from the Urban Institute’s Justice Policy Center (UI-JPC) conducted large studies on the true benefits and costs (Lawrence & Mears, 2004; Mears, 2006; Mears, 2013). On the one hand, several intentional benefits such as prison population management of the most serious offenders, additional jobs that prisons may bring to located areas can be confirmed (Lawrence & Mears, 2004, p. 10).

On the other hand, authors argue that at the current state “Supermax prisons may adversely affect state and local communities through the costs associated with them and the corresponding diminished investment in public services. Additional costs accrue if supermaxes increase the mental and physical health or court processing caseloads communities face. These costs then translate into tax burdens for businesses and residents and fewer funded programs and services” (Mears & Watson, 2006, p. 252).

To the most part, the opportunity cost of mass imprisonment is foregone spending on more productive uses, such as more policing or early childhood interventions (Ludwig, 2010, p. 310). As the effectiveness of these prisons remains unknown and questionable, and considerable challenges exist in conducting empirical assessments, the authors...
demand for further critical empirical CBA/CEA impact assessments in the field. In light of their evidence, however, it can overall be argued that at the current state the resulting costs (further including damaged relationships between inmates and family members, higher recidivism rates) outweigh the intended benefits (Lawrence & Mears, 2004; Mears, 2006; Mears, 2013). Donohue and Ludwig (2007), for instance, argue that these costs are so substantial that even strategies of putting more police on the street seem to have benefit–cost ratios from 4:1 up to 8.5:1 (Ludwig, 2010, p. 310).

The changing era of law enforcement strategies\textsuperscript{62} to curb traditional criminal justice costs and the related reforms towards decreasing mass-imprisonment also lead to a new search for alternative crime control policies or differently put: repression alternatives. In this regard CBA applications have gained special attention in evaluation as part of prevention research (van Soomeren, Wever, Pascoe, Monahan & Oxley, 2005). Crime prevention can be defined as “the total of all private initiatives and state policies, other than the enforcement of criminal law, aimed at the reduction of damage caused by acts defined as criminal by the state” (van Dijk & de Waard, 1991, p. 483). Although, there are certainly overlaps, the term can be distinguished from community safety and crime reduction strategies\textsuperscript{63}, as these are often used interchangeably (Chainey & Ratcliffe, 2005, pp. 17-19).

Since 1997, Washington State Institute for Public Policy (WSIPP) examines the effectiveness and efficiency of prevention and criminal justice programs with the goal of identifying effective, yet efficient programs to reduce crime (politically relevant

\textsuperscript{62} Crime control considers that crime has already happened and that some management of these criminal activities is required to ensure that it does not spiral out of control. It points to the need for maintenance of a problem, one where crime is kept at a tolerable level (Chainey & Ratcliffe, 2005, p. 18-19).

\textsuperscript{63} Community safety is realized through an integrated consideration of diverse harms to the public, and “refers to the likely absence of harms from all sources, not just from human acts classifiable as crimes” (Wiles and Pease, 2000). This type of strategy also provides a strategic viewpoint on community harms by focusing attention towards the development of programs that set targets to manage risks and aims to maximize public safety (Chainey & Ratcliffe, 2005, pp. 17-18). Crime reduction is concerned with diminishing the number of criminal events and the consequences of crime. Crime reduction is applied within the bandwidth of an available resource input (e.g. financial input) and needs to be considered as an action that brings net benefits, fear of crime and the impact of other programs that may have contributed to any specific crime reduction activity. Crime reduction promotes a spirit of optimism that actions towards a problem will reduce crime or reduce the seriousness of criminal events ... it aims to intervene directly in the events and their causes (Chainey & Ratcliffe, 2005, p. 19).
CBA). One of their studies\textsuperscript{64} found that adult drug courts could produce USD 1.74 in benefits for every USD 1 spent, as they could reduce expenditures in other parts of the criminal justice system through lower recidivism rates (Aos, Miller & Drake, 2006). In a study on drug abuse, crime costs and economic benefits of treatment Rajkumar and French (1997) applied their cost estimates to outcome data from the Treatment Outcome Prospective Study (TOPS) to illustrate the potential economic benefits of drug abuse treatment. The total value of reductions in criminal activity (from baseline to the 1-year follow-up) ranged from USD 34.54 million to USD 52.83 million (McCollister et al. 2010, p. 5).

The Perry Preschool Program\textsuperscript{65} (Schweinhart, Montie, Xiang, Barnett, Belfield & Nores, 2005; Belfield, Nores, Barnett & Schweinhart, 2006) is probably the most renowned example on reducing offending risk with children and young people. The study found arrived at a benefit–cost ratio for the intensive Perry Preschool early childhood intervention might be as high as USD 12.5 (benefits) to USD 1 (costs), with up to 70 percent of the dollar value of the benefits coming from reductions in criminal behavior (Belfield, Nores, Barnett, and Schweinhart, 2006; Ludwig, 2010, p. 310). Other benefits for adults at age 40 (program participants) included higher earnings, higher likeliness to hold a job, and a higher likeliness to have graduated from high school than adults who did not have preschool (Belfield, Nores, Barnett & Schweinhart, 2006).

The majority of criminal justice CBAs to determine the utility of a given program or intervention have been conducted by the United States and United Kingdom, followed by Australia, New Zealand, and Canada. In all these countries national guidelines are available. In the United States, for instance, given the high offer of projects with prevention objectives, it is increasingly becoming a requirement for certain public

\textsuperscript{64} With reference to “Evidence-based options to reduce crime in Washington State” (Aos, Miller & Drake, 2006), further examples are presented in Chapter 5.1 (Table 13) of this dissertation.

\textsuperscript{65} The “HighScope Perry Preschool Study Through Age of 40” is perhaps one of the most well-known examples. The study examines the lives of 123 children born in poverty and at high risk of failing in school. From 1962–1967, at ages 3 and 4, the subjects were randomly divided into a program group that received a high-quality preschool program based on HighScope's participatory learning approach and a comparison group who received no preschool program. In the study’s most recent phase, 97% of the study participants still living were interviewed at age 40. Additional data were gathered from the subjects’ school, social services, and arrest records.
policy projects to undergo a CBA assessment (Pew-MacArthur Results First Initiative, 2013). Nevertheless, these often do not always apply to the broader field in criminal justice (Hahn & Dudley, 2007). Using CBA in criminal justice can present many logical problems and challenges, methodological challenges and issues in modeling (Roman, 2004; Bergin, 2013, p. 66), but CBA are major research undertakings that require substantial commitments of time, money, and staff with specific expertise (Pew-MacArthur Results First Initiative, 2013, p. 30). As a result, comprehensive studies are still poor in number and different computational methods limit the comparability of net social benefits (Aos, Miller & Drake, 2006).

Due to a number of obstacles, assistance and collaborative action is required. Table 5 provides an overview on related available country guidelines.

<table>
<thead>
<tr>
<th>Country</th>
<th>Specific CBA guidelines &amp; virtual learning platforms</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>Cost-Benefit-Knowledge Bank for Criminal Justice (CBKB)</td>
</tr>
<tr>
<td>Australia</td>
<td>Cost-benefit analysis and its application to crime prevention and criminal justice research (2011)</td>
</tr>
</tbody>
</table>

Source: Own summary of analysis (see reference list)

The “Analysis of Costs and Benefits: guidance for evaluators” (1999) initially served as a guideline as part of the CRP strategy that was introduced in that year. Also, efforts in Australia and New Zealand are building up with the most recent publication on “Cost-benefit analysis and its application to crime prevention and criminal justice research” (2011) and the “Guide to Social Cost Benefit Analysis” (2015). The Cost-Benefit-Knowledge-Bank (CBKB) for criminal justice is a program by the Vera Institute of Justice and funded by the US Department of Justice’s Bureau of Justice Assistance (BJA) reports not only on the most recent examples in the field, but also contains guidelines to follow on step-by-step guidance to evaluators conducting CBA in criminal justice matters on a project or program level (Matthies, 2014; Henrichson & Rinaldi, 2014). Such virtual learning-platforms (including regular Webinars) have the great
advantage to provide the most up-to-date state of the art advancements and disseminate guidelines and findings in an interchangeable way. The new guideline as introduced in 2014 on “Supporting public service transformation: cost benefit analysis guidance for local partnerships” (2014) has the goal to facilitate better cooperation in the public service sector.

Guidelines to facilitate the generation of costs (in particular with regard to the data premises) as well as the related economic evaluation tools are a welcoming trend to facilitate more generally this particular research branch. As Cohen (2008) has phrased it in an anticipatory way, “cost-benefit analysis has arrived in the criminal justice policy arena, and it will not go away” (p. 263). Hereby, “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” (Czabansky, 2008, p. 124). In recent years CBA has been used with ever-greater frequency in criminal justice policy decisions (Bergin, 2013, p. 59). Roman and Farrell (2002) pointed out that the “emerging cost-benefit literature is an implicit acknowledgement that crime prevention research is making progress” (p. 54).

3.1.4. Costs of criminal careers

Estimates of the costs of criminal careers allow to look at the long-term developments to avoid becoming a criminal, and enable conclusions on effective and efficient measures to reduce recidivism.

Estimates of the costs of criminal careers represent “opportunity costs associated with the criminal’s choice to engage in illegal rather than legal and productive activities” (McCollister et al. 2010, p. 2). The definition builds on the modern economic thought on criminal behavior (see Chapter 2.2.3.). Estimates of offending trajectories allow to look at the long-term developments in order to avoid becoming a criminal or reduce recidivism. This aim is achieved by matching the costs of specific offense types (individual crimes) to offenses committed by study cohorts during their criminal careers (Gowar & Farrington, 2013, p. 441).

Many policies are aimed at repeat offenders, where usually recidivism rates are an important criminological tool for examining the effects of penal interventions and
effectiveness of penal policies (Alfé & de Wever, 2006, p. 27). There has been a significant amount of research in the criminology literature on offending profiles (Petersilia, 1980; Nagin, Farrington & Moffitt, 1995; Piquero, Farrington, Welsh, Tremblay & Jennings, 2009), but less developed is the application of cost of crime estimates to offending careers. Studying costs across offending trajectories has been closely linked to a special area of prevention research, namely development prevention and the importance of investing in early development. Welsh and Farrington (2012) define developmental prevention as “interventions designed to prevent the development of criminal potential in individuals, especially those targeting risk and protective factors discovered in studies of human development” (p. 128). A better understanding of the costs of strings of offenses and likely future offending is essential in order to target crime prevention efforts more effectively (Farrington & Welsh, 2007; Welsh, Loeber, Stevens, Stouthamer-Loeber, Cohen & Farrington, 2008; Anderson, 2010; Cohen, Piquero & Jennings, 2010; Gowar & Farrington, 2013).

In Canada the National Crime Prevention Strategy (NCPS) published a report in 2001 on the “Life of Jack” or what costs to society are associated with a typical criminal career, a study on the fiscal costs to society at each stage of his life until the age of 18 in Canada. The cost to society of a young person in trouble (or criminal career and associated costs) include costs to child welfare services, child care, foster care, group home care, health and psychiatric services, guidance counselors, special education services, court services and sessions, welfare and probation supervision, police contacts and investigations (including their attendance in court), open and closed custody (see Table 4). The estimation excludes the costs that results from the criminal acts of the offender, but it includes the costs to society in each stage of his life until the age of 18. The total costs (expenses on a young person in trouble) amounts to over CAD 500,000 in 2001 and does not include the indirect costs resulting from Jack’s criminal activities (see Table 6).
Table 6  Costs of a criminal career - “Life of Jack troubled career: the costs to society of a young person in trouble” in 2001 Canadian dollars (CAD)

<table>
<thead>
<tr>
<th>Costs</th>
<th>Service</th>
<th>Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>6,900</td>
<td>Child welfare services</td>
<td>0-2</td>
</tr>
<tr>
<td>6,900</td>
<td>Child welfare services</td>
<td>3-5</td>
</tr>
<tr>
<td>36,000</td>
<td>Child care</td>
<td>3-5</td>
</tr>
<tr>
<td>6,000</td>
<td>Health and psychiatric services</td>
<td>3-5</td>
</tr>
<tr>
<td>11,500</td>
<td>Child welfare services</td>
<td>6-10</td>
</tr>
<tr>
<td>36,500</td>
<td>Foster care</td>
<td>6-10</td>
</tr>
<tr>
<td>10,000</td>
<td>Guidance counselors and special education services</td>
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<td>10,000</td>
<td>Health and psychiatric services</td>
<td>3-6</td>
</tr>
<tr>
<td>1,000</td>
<td>Court services for one appearance</td>
<td>6-10</td>
</tr>
<tr>
<td>146,000</td>
<td>Group home care</td>
<td>11-14</td>
</tr>
<tr>
<td>8,000</td>
<td>Special education services</td>
<td>11-14</td>
</tr>
<tr>
<td>9,200</td>
<td>Child welfare supervision</td>
<td>11-14</td>
</tr>
<tr>
<td>1,200</td>
<td>Probation supervision</td>
<td>11-14</td>
</tr>
<tr>
<td>1,000</td>
<td>Police contacts before age 12</td>
<td>11-14</td>
</tr>
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<td>4,500</td>
<td>Three police investigations at ages 12-14</td>
<td>11-14</td>
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<tr>
<td>4,000</td>
<td>Four court sessions</td>
<td>11-14</td>
</tr>
<tr>
<td>1,000</td>
<td>Four police attendances at court</td>
<td>11-14</td>
</tr>
<tr>
<td>4,000</td>
<td>Two psychological and psychiatric assessments</td>
<td>11-14</td>
</tr>
<tr>
<td>19,240</td>
<td>Three months open custody</td>
<td>11-14</td>
</tr>
<tr>
<td>2,000</td>
<td>Special educational services</td>
<td>15-17</td>
</tr>
<tr>
<td>4,000</td>
<td>Two psychological and psychiatric assessments</td>
<td>15-17</td>
</tr>
<tr>
<td>6,900</td>
<td>Child welfare supervision</td>
<td>15-17</td>
</tr>
<tr>
<td>36,500</td>
<td>One year group home care</td>
<td>15-17</td>
</tr>
<tr>
<td>3,000</td>
<td>Three appearances in youth court</td>
<td>15-17</td>
</tr>
<tr>
<td>3,000</td>
<td>Two police investigations</td>
<td>15-17</td>
</tr>
<tr>
<td>750</td>
<td>Three police court attendances</td>
<td>15-17</td>
</tr>
<tr>
<td>2,400</td>
<td>Two years of probation supervision</td>
<td>15-17</td>
</tr>
<tr>
<td>38,500</td>
<td>Six month open custody</td>
<td>15-17</td>
</tr>
<tr>
<td>91,500</td>
<td>One year closed custody</td>
<td>15-17</td>
</tr>
</tbody>
</table>


Cohen (1998) wrote the landmark paper on “The Monetary Value of Saving a High-Risk Youth” and estimated that preventing a young offender from going into a life of crime might save society USD 1.7 million to USD 2.3 million, encouraging states and local governments to spend more on prevention programs for violent children and teens. In

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66 Cohen estimated the lifetime costs of a high-risk youth from age 14 onward who embarks on a crime career in the United States (including the cost of their criminal offending behavior and heavy drug abuse, as well as lost wages from less than high school education).
some of his more recent studies, he estimated the cost of a criminal career per year in the United States to be USD 165,000 and arrived at a total of USD 1.3-1.5 million per year (Cohen, 2005). Cohen and colleagues further (Cohen & Piquero, 2009) updated this analysis with more recent data but also provided year-by-year estimates of costs imposed. Welsh and colleagues (2008) examined the cost of a juvenile offending career from age 7-17 based on 500 inner-city youth. Further studies of this kind were conducted by DeLisi and Gatling (2003) on the costs imposed by a group of 500 adult prison offenders by analyzing their prior histories. In the cost of crime literature, the costs of criminal careers are still a rather unexposed field.

In particular with regard to the economic evaluation of human capital developments (Lochner, 2004), it is an important area to study the dynamics of criminal careers (valuable investment in education and training). By merging ideas from both, corrections and policing, a program of research and development can bring together basics and applied criminology (in particular experimental criminology) in a mutually productive way. As Laub (2011) suggested, it could offer a platform for the marriage of policy innovations with life-course criminology (Lawrence & Sherman, 2014, p. 200). In finding the path to optimal deterrence to tracking the path that leads to crime (Anderson, 2010), Anderson reminds us to value prevention as well as more repressive measures by the criminal justice system, if necessary.

3.1.5. Costs of crime in sustainable progress indices

Estimates of the cost of crime play an integral component of contemporary relevant sustainable progress indicators, these enable better conclusions on activities to enhance sustainable economic welfare rather than economic activity alone, as measured by the traditional prosperity index GDP.

The overall impact of crime and criminal activity is often put into relation of economic activity or economic growth or is expressed as a percentage of GDP. In fact, a growing body of economic and security research is dedicated to studying the relation of crime impacts on the economic activity of a country. In this section, the utilization of cost of crime estimates in sustainable progress indicators is presented at the example of the Genuine Progress Indicator (GPI). The underlying target of such indicators is to
provide an annual benchmark of progress (economic and social progress) that may also help in the development of sustainable strategies.

The GDP is commonly defined as a measure of economic activity and income, and was never intended to act as a measure of welfare. As the monetary measure of all final goods and services produced within a given country, calculating the GDP regarded as to summing up a country’s total expenditures, primarily through consumption, investment, government purchases, and net exports. In that sense, GDP registers the amount of money being spent on crime as a positive, and presumably beneficial, contribution to economic activity. As the term ‘crime induced production’ (Anderson, 1999) implies, the GDP is in fact boosted by crime (criminal justice institutions, security industry, insurance administration etc.): “Each year, Americans incur nearly $40 billion in crime related costs in the form of lost and damaged property and expenditures on locks, alarms, and security systems. GDP counts these needless expenditures as an economic gain, implying that crime is good for economic growth” (Talberth, Cobb & Slattery, 2007, p. 2).

Although these induced production costs may compensate for some of the burden that crime imposes over time, expenditures on police, judiciary and corrections raise government budgets or shift resources from other areas, either raising taxes or diminishing other public services, spending to replace stolen property brings no net gain in economic well-being and money spent on personal crime protection and deterrence is money not spent on other needs and wants. Hence, opponents argue that the cost of crime is an expense item that needs to be deducted from any accurate accounting of economic well-being (Talberth, Cobb & Slattery, 2007; Posner & Costanza, 2011). “An approximation of social and habitat costs would be less distorting and perverse than the GDP is now; a conservative estimate of, say, the costs of family breakdown and crime would produce a more accurate picture of economic progress than does ignoring such costs entirely” (Cobb, Halstead & Rowe, 1995, p. 16).

The Organization for Economic Co-operation and Development (OECD) defines GDP as “an aggregate measure of production equal to the sum of the gross values added of all resident, institutional units engaged in production (plus any taxes, and minus any subsidies, on products not included in the value of their outputs)” (OECD, 2002).
Table 7  Assessment of Baltimore City GPI contributions 1980-2005

<table>
<thead>
<tr>
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<td>Economic Variables</td>
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<tr>
<td>Personal consumption expenditures</td>
<td>100</td>
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<td>115.7</td>
<td>108.7</td>
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<td>Income distribution index (larger is worse)</td>
<td>100</td>
<td></td>
<td>107.2</td>
<td>113.1</td>
<td>121.5</td>
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<tr>
<td>Value of household labor</td>
<td>100</td>
<td></td>
<td>116.6</td>
<td>88.3</td>
<td>84.9</td>
</tr>
<tr>
<td>Value of volunteer work</td>
<td>100</td>
<td></td>
<td>106.1</td>
<td>107.0</td>
<td>114.8</td>
</tr>
<tr>
<td>Services of household capital</td>
<td>100</td>
<td></td>
<td>117.2</td>
<td>114.2</td>
<td>120.5</td>
</tr>
<tr>
<td>Services of highways and streets</td>
<td>100</td>
<td></td>
<td>96.8</td>
<td>121.0</td>
<td>150.5</td>
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<tr>
<td>Net capital investment</td>
<td>100</td>
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<td>85.4</td>
<td>318.2</td>
<td>353.4</td>
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<tr>
<td>Net foreign lending and borrowing</td>
<td>100</td>
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<td>NA</td>
<td>NA</td>
<td>NA</td>
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<tr>
<td>Social Variables</td>
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<td></td>
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<tr>
<td>Cost of crime</td>
<td>100</td>
<td></td>
<td>138.7</td>
<td>118.0</td>
<td>103.6</td>
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<tr>
<td>Cost of crime breakdown</td>
<td>100</td>
<td></td>
<td>89.9</td>
<td>81.1</td>
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<tr>
<td>Loss of leisure time</td>
<td>100</td>
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<td>190.6</td>
<td>385.3</td>
<td>484.7</td>
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<tr>
<td>Cost of education</td>
<td>100</td>
<td></td>
<td>148.9</td>
<td>212.4</td>
<td>245.8</td>
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<tr>
<td>Cost of consumer durables</td>
<td>100</td>
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<td>117.2</td>
<td>154.2</td>
<td>120.5</td>
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<tr>
<td>Cost of commuting</td>
<td>100</td>
<td></td>
<td>112.4</td>
<td>116.8</td>
<td>106.2</td>
</tr>
<tr>
<td>Cost of health care</td>
<td>100</td>
<td></td>
<td>92.9</td>
<td>82.8</td>
<td>83.1</td>
</tr>
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<td>Cost of automobile accidents</td>
<td>100</td>
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<td>93.5</td>
<td>82.4</td>
<td>78.6</td>
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<td>Environmental Variables</td>
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<tr>
<td>Cost of water pollution</td>
<td>100</td>
<td></td>
<td>93.5</td>
<td>67.6</td>
<td>60.3</td>
</tr>
<tr>
<td>Cost of air pollution</td>
<td>100</td>
<td></td>
<td>87.3</td>
<td>72.9</td>
<td>78.9</td>
</tr>
<tr>
<td>Cost of noise pollution</td>
<td>100</td>
<td></td>
<td>91.9</td>
<td>75.6</td>
<td>74.6</td>
</tr>
<tr>
<td>Cost of wetlands</td>
<td>100</td>
<td></td>
<td>111.4</td>
<td>122.4</td>
<td>129.7</td>
</tr>
<tr>
<td>Cost of farmland</td>
<td>100</td>
<td></td>
<td>146.7</td>
<td>160.6</td>
<td>160.3</td>
</tr>
<tr>
<td>Cost of nonrenewable resource depletion</td>
<td>100</td>
<td></td>
<td>88.1</td>
<td>82.1</td>
<td>84.0</td>
</tr>
<tr>
<td>Cost of long-term environmental damage</td>
<td>100</td>
<td></td>
<td>196.2</td>
<td>183.4</td>
<td>213.9</td>
</tr>
<tr>
<td>Cost of ozone depletion</td>
<td>100</td>
<td></td>
<td>92.8</td>
<td>11.2</td>
<td>4.7</td>
</tr>
<tr>
<td>Loss of forest cover</td>
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<td>113.2</td>
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<td>95.8</td>
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<td>Final Results</td>
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<td></td>
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<tr>
<td>Genuine Progress Indicator</td>
<td>100</td>
<td></td>
<td>124.1</td>
<td>122.1</td>
<td>133.0</td>
</tr>
</tbody>
</table>

Source: From "A summary of ISEW and GPI studies at multiple scales and new estimates for Baltimore City, Baltimore County, and the State of Maryland", S. M. Posner and R. Costanza, 2011, p. 5 (Table 3)

Fig. 6  GDP and GPI in Maryland (Vermont and Ohio) (1950-2010)

A. Multi-scale comparison of per capita GPI  B. GPI studies for three states in the US with regional equivalent of GDP

Source: From "A summary of ISEW and GPI studies at multiple scales and new estimates for Baltimore City, Baltimore County, and the State of Maryland. 1972-1980", S. M. Posner and R. Costanza, 2011, pp. 4-5 (Figure 1 and 3).

The GPI – in contrast to the traditional GDP methodology – incorporates more than 20 social, economic and environmental components into a single metric to represent...
economic well-being. Beyond what market statistics alone are able to do, this way, the index includes the social well-being and quality of life of an economy (see Table 7). In the realm of social sustainability, one example of the GPI’s consistency with widely shared principles of sustainable development is the fact that the GPI makes an explicit adjustment to personal consumption expenditures for improvements or declines in distributional equity. This adjustment is based on the widely held belief that sustainable development must, by definition, be equitable\(^68\). The GPI “counts the costs of crime as a loss and a liability. It explicitly values a peaceful and secure society as a valuable social asset, and regards higher crime rates as signifying a deterioration or depreciation of that social capital\(^69\). Reduced crime costs are regarded as savings that can be invested in more productive and welfare-enhancing activities” (Dodds & Colman, 1999, p. 7). The GPI’s concern with distributional equity is well grounded within a number of sustainable development frameworks (Posner & Costanza, 2011).

Dodds and Colman (1999) emphasize that unlike the GDP, lower crime rates make the GPI go up. What started as an attempt to assess the economic costs society incurs as a result of crime, and the contribution crime currently makes to the GDP and to economic growth, has now become a realizable step towards full cost accounting. In the long term, working with GPI may “help reaffirm as valuable capital assets non-material contributions to the quality of life that are frequently obscured by the dominance of market statistics in our current measures of progress, and thus to re-order policy priorities to protect these assets” (Dodds and Colman, 1999, p. 7).

Such indicators have already been introduced in the states of Maryland, Baltimore, Vermont, and Ohio (see Table 7 and Figure 5) and are hoped for the implementation in other states and countries as well. The fifth chapter attempts to demonstrate the important contributions of crime prevention activities to sustainable economic growth and societal well-being.

\(^{68}\) A major goal of the Habitat Agenda Principles is to create “a more balanced and equitable global system”. According to, a “socially sustainable system must achieve distributional equity...” (Hanley, 2000, p. 6).

\(^{69}\) ‘Social capital’ has also been picked up by the World Bank as a useful organizing idea. They argue that “increasing evidence shows that social cohesion is critical for societies to prosper economically and for development to be sustainable” (The World Bank, 2011). Social capital consideration are important, as well, in the creation of human capital (see Coleman, 1988).
3.2. Prevalence of the cost of crime approach in Germany and other countries

In comparison to the Anglo-sphere, cost of crime research and practice in other countries is developing in a modest manner. In order to compensate data limitations for generating figures on more comprehensive estimates, researchers attempting to estimate the costs of crime make use of international data sources. The European Sourcebook of Crime and Criminal Justice Statistics and Eurostat publications on Crime and Criminal Justice facilitate this kind of work for better international comparisons. Important contributions by the European Commission for the Efficiency of Justice (CEJEP) report on the European Judicial Systems in turn can help to identify the search for institutional change that might help reduce the aggregate social costs of crime.

The use of complementary international and EU surveys, such as the European Social Survey (ESS), European Crime and Safety Survey (EU-ICS), Scientific Indicators of Confidence in Justice (EURO-JUSTIS), International Crime Victim Survey (ICVS), offer a ways to compensate for data limitations. These statistics require frequent participation by member countries, which is not always the case. A number of cost of crime studies also draw on the Home Office estimates, where the feasibility of transferability still remains an unresolved issue (see previous part of the chapter). Hence, due to even greater differences in methodological attempts as compared to the Anglo-Saxon countries, a direct comparison of estimates between different studies and countries is not only difficult to make, but would be of little use at the current state.

The placement of findings from cost of crime studies in the public discourse can give hints on extant and new priority settings in the field. This part of the chapter aims to provide an overview on the acknowledgements and first implementation efforts of the foundational cost of crime methodologies (including some of the alternative attempts) in other countries outside the Anglo-sphere. The second part then outlines the developments of research (economic and econometric analysis) and first best-practice examples on first efforts to put CBA into practice in Germany.
3.2.1. Research and practice in other countries (overview)

The review of cost of crime research and practice in countries outside the Anglo-sphere covers the studies most referred to in the discourse so far, with the help of information retrieved from a European questionnaire on the prevalence of cost of crime methodologies in the EU Member States and other participating countries. The analysis divides the particular developments into three main research directions of studies that seemed to have found acknowledgements on a governmental level (institutional involvement, public sector relations): Societal costs of crime and criminal behavior, cost of violence studies, and distribution of criminal justice costs (per offense).

Societal costs of crime and criminal behavior

As a first attempt many studies aim to estimate a total cost of crime to society, rather than the cost of a specific offense type or specific cost per crime (Anderson, 1999; Anderson, 2011). The initial approach in most countries is to estimate the aggregate (total) social cost of crime or the impact of overall crime or particular types of crimes. In France the main cost of crime study on the monetary assessment of offending in 1996 (Palle, 2000) is considered the most referred to in the cost of crime literature (reviews) so far. Spain’s first and so far only study on the costs of crime by Serrano Gomez (1986), considering the year of publication, only provides a first crude guess and has never widely been used. In Belgium, so far one cost calculation on the impact of criminal phenomena for 2006 (police internal 2007). One study has been conducted on the social costs caused by crime in Hungary, arriving at a total figure of USD 2.17 billion (EUR 1.6 billion) for the base year 2009 (Kerezsi, Kó & Antal, 2011). The cost of crime control (USD 1.6 billion) was estimated to be greater than the amount of damage caused by crime (USD 1.17 billion) together with the estimated offenders’ profit or benefit from crime was calculated to be 15 percent less than the net social damage caused by crime (USD 1.17 billion), concluding that “half of the criminal damage shall never be repaid: it will remain at the criminal” (p. 74).

70 The Practice Survey (see Appendix E) was used as guidance. The majority of studies were mostly available in the respective languages. Therefore, the review should be considered as a broad overview.
For Poland, two independent studies by Jacek Czabansky became important references of cost of crime estimate analyses so far. With his dissertation on the history, methodology, and implications of cost of crime estimates (2008) he became an oftenquoted reference so far. In his subsequent study on the “Feasibility of cost of crime estimations in Eastern Europe – The Case of Poland” (Czabanski, 2009), the estimate for the total costs of crime amounted to be 5.1 percent of GDP (victimization of violent crimes 1.94 percent of GDP, the costs of property crimes against individuals 0.5 percent of GDP). Researchers in Italy also have been among the more active ones in the field (Detotto & Vannini, 2009; Detotto & Vannini 2010; Pinotti, 2012). Recent work by Detotto and Vannini (2009) estimated the total social cost of crime (18 types of crime) to be EUR 38.21 billion (p. 431), which is equivalent to approximately 2.6 percent of the Italian GDP, for the year 2006.

The Danish Ministry of Justice refers to the memorandum of “Direct Costs of Crime in Denmark”. The report by the Ministry of Justice and the Police on the costs of crime to society (1990) acknowledged that the costs of crime to society are substantial, but working to develop a better estimate is of limited value and interest. The report advises that future work on the cost of crime should seek to develop more use of CBA. Estimates have also been considered within the Norwegian government action plan to combating economic crime (see Appendix E, p. 17).

Cost of violence studies

Crime and violence are of great concern to citizens in many parts of the world and absorb a substantial amount of government resources and efforts in those regions (IDB, 2012, p. 1). For Latin America and the Caribbean evidence shows that crime and violence represent obstacles to economic growth and development, driving the “depreciation of all forms of capital, i.e. physical, human and social. Most importantly, violence disproportionately affects the poor and erodes their livelihoods and assets” (Heinemann & Verner, 2006, p. 7). The Inter-American Development Bank (IDB) commissioned a series of studies in the late 1990s on the costs of violence in Chile, Colombia, Mexico, Nicaragua, Peru, Venezuela and El Salvador (Fundación Mexicana para la Salud, 1997; Cruz 1998; Buvinic, Morrison & Shifter, 1999; Morrison & Orlando, 1999; Londoño & Guerrero, 2000). These estimates include government
expenditures and victim losses and other intangible costs and already made use of foundational methodologies in a sophisticated manner (hedonic valuation). Based on these studies the IDB concluded that the cost of crime in Central America amounts to approximately 14.2 percent of GDP (Beteta, 2012), which includes expenses for law enforcement, healthcare and social programs, as well as lost foreign investment.

In 2012 the IDB issued a new call for research proposals on the cost of crime and violence in Latin America and the Caribbean (IDB, 2012). This project aimed to “increase knowledge on the tangible and intangible costs of crime and violence in Latin America and the Caribbean and contribute to the development of standardized methodologies for a systematic, robust, and comprehensive analysis” (IDB, 2012, p. 1).

In relation to the empirical findings, the main international financial institutions of the region (WBG, IDB, and CAF) announced to have joined forces to address challenges posed by crime and violence to the development of countries in the region, to “protect social gains”, and to “encourage inclusive economic growth”71. In supporting a comprehensive response to complement traditional safety efforts through education, prevention programs, and civic participation, as well as a better use of information for more effective social and policing activities (The World Bank Group, 2015).72

In Finland and Sweden, a number of cost of crime studies have focused on the costs of violence against women (Markku Heiskanen & Minna Piispa 2000 & 2002; Piispa, 2001), all concluding that high costs of violence against women also impose high costs for the society (see Appendix E, p. 14). The purpose of the Swedish study was to describe the total estimated costs to society of violence against women may lead to, for instance, intervention by the police, absence from work, visits to medical centers and the social services. The perpetrator may be imprisoned, which would lead to direct costs for correctional treatment and indirect costs regarding a production loss (Envall & Eriksson, 2006). In Sweden the report has been commented, but not used in a wider sense, by the Minister of Health (National Board of Health and Welfare in Sweden) in a national strategy against men’s violence against women (see Appendix E, p. 14).

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71 “Prosperity with Equity: The Challenge of Cooperation in the Americas” was the central theme of the Seventh Summit of the Americas (held in Panama City on April 10-11).

72 The list of working papers can be retrieved from the IDB-website: http://www.iadb.org/en/research-and-data/project-details,3187.html?id=6320.

75
Distribution of criminal justice costs (by offense type)

A study on the global costs of public expenditure on criminal justice, based on an extrapolation from data provided by the governments of seventy countries has been conducted by the European Institute for Crime Prevention and Control (HEUNI) for the year 1997, arriving at an estimate for global criminal justice expenditure of USD 360 billion, of which “62 percent was spent on policing, 3 percent on prosecutions, 18 percent on courts, and 17 percent on prisons” (Farrell & Clark, 2004). The distribution of criminal justice costs (by offense types) put expenditure into a broader perspective.

Fig. 7 Criminal justice system costs by offense type in the Netherlands (2006)


In the Netherlands Debora Moolenaar is considered as one of the most prominent researchers among the European countries in the field. She conducted studies on annual costs of crime in the Netherlands (Moolenaar, 2007), and “Modelling Criminal Justice System Costs by Offense – Lessons from the Netherlands” (Moolenaar, 2009), detailed analyses on the annual criminal justice system costs to arrive at a rough estimate on
costs for specific offense types. The study demonstrates the reasonable option to use the \textit{break down} approach\textsuperscript{73} to crime costing, in the case when total budgets of the criminal justice agencies may be the only source of financial information available for computing the costs of crime (Moolenaar, 2009), modeling criminal justice costs by offense type by decomposing the aggregate budget into smaller portions. \textit{Figure 7} presents findings, based on this method, on the annual criminal justice system (CJS) costs per suspect and activity in the Netherlands by offense for a subset of crime types in 2006 (in EUR).

In terms of the validity of figures on the costs of specific offense types, “applications of this method focus mainly on the criminal justice system, and thus typically miss the wider array of victim, community, health care, and compensation – in the same manner may provide additional costs of crime information, but this strategy is rarely, if ever used” (McIntosh & Li, 2012, p. 13). The comparison between criminal damage offenses and violent offenses on the other hand, provide a good overview on the distribution of CJS costs.

3.2.2. Research and best-practices in Germany

To date, only a small circle of German academics have engaged with generating figures and developing concepts on the costs of crime. Overall, empirical research on costs of crime has been rather scarce, mainly based on econometric models conducted by economists and econometricians (Entorf & Spengler, 2008; Entorf, 2010; Entorf & Sieger, 2010; Spengler, 2005; Spengler & Schaffner, 2010; Schmid, 2010) and rather centered in methodological approach. The most active in the field is the German economist Horst Entorf, who conducted a number of studies on the incarceration and reoffending (Entorf, 2004; Entorf & Meyer, 2005; Entorf & Spengler, 2005) as well as on the evaluation of forensic commitment (Entorf, 2010). In 2014 Entorf introduced a newly constructed severity index of crime\textsuperscript{74} (or cost-severity-based index of criminal...\textsuperscript{73} The \textit{break-down} approach takes a total budget as the starting point, filters out costs for all non-crime-related-activities, and then uses administrative data on crime related activities (such as number of cases and staff, output, products) to deconstruct the crime-specific portion of the budget into costs of crime type (McIntosh & Li, 2012, p. 13).

\textsuperscript{74} The theoretical foundation of his model is based on the Laspeyres quantity index, where the amount of crimes is weighted by their societal costs: Sensitivity analyses and preliminary estimates of the severity...
development). Initially, Entorf and Spengler (2002, p. 91) have suggested that the costs of crime in developed countries might be 10 percent of the GDP or more, which is consistent with estimates made by Anderson for the United States (Anderson, 1999; Ludwig, 2006; Ludwig, 2010, p. 310). In international comparison, most of the estimates account for 4 to 7 percent of the respective GDP (Meyer, Möbert & Spengler, 2005, p. 30; Entorf und Spengler, 2002).

The analysis divides first efforts into VSL studies and first attempts and CBA in criminal justice and developing best-practices.

**VSL studies and first attempts**

The first and so far only comprehensive study on the causes and costs of crime in Germany was conducted by Hannes Spengler (2005) as part of his doctoral thesis. With the help of three complex econometric models he arrived at different values of a statistical life, much higher than the one conducted and widely used Home Office benchmark of EUR 2.1 million, and he arrived at an estimate of economic loss due to crimes of murder and manslaughter (excl. traffic crimes) of EUR 4.5-10.2 billion or EUR 2.5-5.7 billion (without offense by negligence) (Spengler, 2005; Spengler & Schaffner, 2010). In 2010 this number has been updated using job changes to evaluate the bias of value of a statistical life estimates to EUR 2 million. The authors propose the VSL estimation of EUR 2 million to serve as a starting point for CBA of public policies for reducing death risks. The economic loss due to crime is considered to be between 4 and 7 percent of GDP in Germany (Entorf & Spengler, 2002).

A study on the social costs of crime due to inadequate education (Entorf & Sieger, 2010) examined the interrelation between educational status and criminal activity. The reduction of inadequate education by 50 percent would let case numbers in robbery and extortion drop by about 27 percent and in homicides by about 18 percent. According to index of crime based on a subgroup of crime categories reveal that any interpretation of crime trends can be strongly misleading if it would be based on reported aggregate crime rates, and not on cost weighted and dark field adjusted numbers of crimes (Entorf, 2014, p. 1). The paper presents requirements, which need to be met in order to apply the concept to the real world, with regard to measurement issues concerning the estimated costs of crime, and the share of unreported crimes (Entorf, 2014). Overall, the cost-severity-based index is a credible alternative to monetization approaches of security indicators (such as WISIND), as developed by economic and security researchers from the German Economic Research Institute (DIW).
the authors, this would imply a cost reduction of EUR 1.42 billion and a cost reduction potential of 17.2 percent (see Figure 8).

Fig. 8 Costs of inadequate education in 2009

A. Effects of halving inadequate education  B. Cost savings achieved through reductions in Inadequate education in each federal state per resident

Source: From Inadequate Education: The social costs of crime, published on behalf of the Bertelsmann Foundation, H. Entorf and Sieger, 2010, p. 6 (Figure 2).

Education certainly does represent a crucial socio-economic determinant in relation to crime developments, and as a publication by the Bertelsmann Foundation the findings gained a respective degree of media attention. The study and economic modeling framework behind has, however, been harshly criticized by the media and by leading German criminological scientists with regard to the claim that the study proves for the first time a direct association between education and crime. The German criminologists Christian Pfeiffer called it “a banality that is to be sold as new knowledge” (Titz, 2010).

Among the further research attempts worth mentioning is a study on the costs of child abuse that was published in 2012 and included an estimate of EUR 11 billion per year (Habetha, Bleich, Sievers, Marschall, Weidenhammer & Fegert, 2012). Another study on the social costs of gambling (according to WHO standards) arrived at a total figure of EUR 326 million. Hereby, the direct costs include inpatient treatment of pathological...
gamblers, ambulatory treatment, drug-related crime, court and conviction costs, administration costs related to unemployment, costs of divorce, player protection and prevention research, debt counseling, and amounted to EUR 152 million.\textsuperscript{75} Indirect costs of gambling related loss of employment, medical leaves, and lower productivity amounted to EUR 174 million. Also, a doctoral dissertation on the costs of malware and spam made use of the WTP methodology to evaluate the willingness to pay for IT-security and arrived at a figure of EUR 2.84 billion for 2009 (Schmid, 2010).

\textit{CBA in criminal justice and developing best-practice}

In initial discussions on the application and consequences of CBA in German criminal policy it has already been suggested that under the consideration of criminological discussions in the preparation of a crime supply function, CBA is considered as a planning technique and does not replace political decision-making, but probably make consequences of actions more transparent (Klingemann, 1978, p. 238). Despite these early discussions on the application of CBA to criminal policies (Klingemann, 1978; Luzius, 1979) proposals for a more rational drug policy (Hartwig & Pies, 1995) only developed two decades later.

Hartwig and Pies (1995) emphasized that in light of rational drug policy economic considerations are often met with the expectation that CBA aim to find mostly inexpensive policy alternatives. Careful estimates of these costs provide an orientation about the dimensions of the drug problem as a social problem. The \textit{numbers are therefore important, because behind them ultimately concrete biographies and destinies hide} (1995, p. III). Based on the early study contributions by Hartwig and Pies (1995), the German Monitoring Office for Drugs and Drug Addictions (DBDD) conducted a study on the public spending for illegal drugs in Germany in 2009 and arrived at an estimate of EUR 1.9 billion for 2005 and EUR 5.2-6.1 billion for the year 2006 (Mostardt, Flöter, Wasem & Pfeiffer-Gerschel, 2009).

\textsuperscript{75} The number includes costs for inpatient treatment of pathological gamblers (EUR 17 million), costs for ambulatory treatment (EUR 24 million), the cost of drug-related crime (EUR 30 million), court and conviction costs (EUR 18 million), administration costs related to unemployment (EUR 12 million), costs of divorce (16 million), costs of player protection (EUR 26 million) and prevention research (EUR 9 million), debt counseling (lower than EUR 1 million), gambling related loss of employment (EUR 85 million, medical leaves EUR 75 million, lower productivity EUR 14 million).
There were a number of academic discussions on the efficient use of resources in crime control and crime prevention (Maennig, 2008; Schellhoss, 2004), the costs and benefits of justice (Schmidtchen & Bier, 2009; Gornas, 2005), costs of criminal justice (Bier, 1999), and the deterrence through punishment (Curti, 1999). Empirical research on the costs and benefits of the penal system (Entorf, 2004; Entorf & Meyer, 2004; Entorf, 2010), or the costs and benefits of imprisonment (means of avoiding prison) (Entorf & Meyer, 2005), were first introduced in the 2000s. These studies confirmed that *prison pays* (DiIulio und Piehl, 1991), if costs (social harm) imposed by the offenders in freedom would be greater than the costs of imprisonment per offender (Entorf, Meyer, Möbert & Spengler, 2005). The authors further made an attempt to investigate the relationship between compulsory savings (*Sparzwang*) and risks of crime (Meyer et al. 2005), as well as the “costs on being soft on crime” (Entorf & Spengler, 2008), emphasizing on the necessity for an improvement in the evaluation for rehabilitation programs. Also the evaluation of probation and court assistance and the offender-victim-mediation in Baden-Württemberg (Dölling, Hermann, & Entorf, 2014) deserves some greater attention.76

The first best-practice example on the employment of CBA in criminal justice is on the reducing the population of fine defaulters in prisons from experiences with community service in Mecklenburg-Western Pomerania/Germany (Dünkel & Scheel, 2006). The German system is relying heavily on the ultimate resort of detention for fine defaulters (in sentencing practice more than 80 percent of cases impose fines), as demonstrated by a dramatic increase (even a more serious problem in the new federal states of East Germany) in the number of fine defaulters in the 1990s. The initiative aimed at reducing tension and improving rehabilitation through opening the prisons, replacing short-term detention by community service (day leave and prison). The evaluation of the project demonstrated a decrease of the number of fine defaulters in prison by half (Dünkel & Scheel, 2006). The findings showed that costs for staff and social pedagogical assistance were far less than the costs of imprisonment. In 2003 the Federal Ministry of

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76 As of 1st January 2007, the federal state of Baden-Württemberg commissioned NEUSTART gGmbH (a non-profit organisation) with the performance of all tasks, measures and services, which are relevant with regard to probation support and court assistance. 470 full-time and 650 voluntary provide assistance and support for approximately 19,000 clients who are on probation, who carry out 3,800 surveys in the context of court assistance, and who intervene in 1,800 cases of victim-offender mediation every year.
Justice proposed the extension of community service through a draft bill at the federal level.

The importance of economic analysis of criminal policy and crime prevention interventions is only now being recognized. The evaluation of costs and benefits of crime prevention in the economic analysis (Thomsen, 2015) in preparation for the 20th German Congress on Crime Prevention (GCOCP) on “Crime prevention pays off: The economics of crime prevention” set a new tone and is aiming to facilitate understanding in this regard.77

3.3 Interim findings: Developments and goals of the cost of crime approach

The chapter served to provide an overview on the developments and goals of the cost of crime approach along five core rationales. These include the calculation of aggregate harm of crime that allow to put the aggregate harm into broader perspective; a comparison between the relative harm (inlcuding the development of crime-harm severity indices); to deriving and comparing the social benefits (or costs) between different measures (value-added analyses or CBA/CEA); to match cost estimates with offender trajectories; the utilization of cost of crime estimates in sustainable progress indicators at the example of the GPI. The number of practical implications for the development of new strategies still requires a common understanding of mutual benefit.

The British Home Office first articulated the commitment to prioritize criminal justice resources explicitly on those offense types generating greatest costs to society, rather than on the offense types where the volume of offenses is the greatest (Bowles, 2009). In light of the developments in investment appraisal requirements in many public sectors, CBA is nowadays used in all areas of strategic decision-making. Although little research has been conducted with regard to the role of cost estimates in sustainability frameworks, these can be fruitfully combined with alternative prosperity indicators for sustainable economic development. Hence, the role of comprehensive estimates is

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overall gaining importance in the development of national as well as international strategies.

The Anglo-Saxon countries remain the most advanced in this field, but when comparing estimates (the only available study by Webber so far) one can see that large variances between estimates persist and a systematic approach for conducting costs of specific offense types is currently not in sight. There are still lots of countries where good cost of crime estimates have not as yet been compiled. Current research of cost of crime research in Germany is scarce and very much centered in the approach. Overall, a number of methodological issues remain unresolved. The scope extant cost of crime studies confirms that the availability of and access to good crime data in a country are indispensable.

The generation of figures on the cost of crime of specific offence types is a necessary first step in order to put the other rationales into effect. The level of implementation of foundational methodologies to arrive at such figures depend on a number of factors. Among the ones (already) identified are: the level of awareness and dissemination of methodologies, the acquaintance with methodologies and sophistication in technique, and the validity or comparability of available estimates. Furthermore, the level of use of available estimates in the public discourse is related to the degree of available valid studies and communication of empirical evidence as well as to the institutional (governmental or non-governmental) involvements.

There are still lots of countries where good cost of crime estimates have not yet been compiled. In Europe, on the other hand, it is only very recently that countries have started generating figures on the cost of crime, and methodological problems still exist in developing the methods of calculating these costs (CRCC, 2009, p. 2; Alfé & de Wever, 2011, p. 26). The IDB funded studies on costs of crime and violence in Latin America and the Caribbean in the 1990s and recently 2012 with a number of winning proposals from that region. Cost of crime estimates are becoming a standard assessment tool in countries such as the United States, United Kingdom and Australia – and are as well overall developing further in a presentational manner, not the least, to enhance a better understanding behind numbers. Comparative research among cost estimates is rare, but shows that large variations between studies and countries persist. Beyond methodological issues, studies on the costs of crime also require the necessary funding.
to be conducted.

In the long run, the goal is and should be to have credible numbers for better comparison and the enhancement of their respective utilization power. The next chapter is redirecting the attention to the European initiatives in the field (FP6), in particular the MMECC project to standardize (and harmonize) the methodologies on estimating the costs of crime of specific offense types.
4. EU initiatives to promote a more profound body of knowledge on the costs of crime and effectiveness/efficiency in criminal justice

There were two important projects under the Socio-economic Sciences and Humanities (SSH) 6th Framework Programme (FP6) for policy-oriented research that took on the task of assisting EU countries with the development and use of cost of crime estimates. The “Mainstreaming Methodologies for Estimating the Costs of Crime” (MMECC) and “Crime Repression Costs in Context” (CRCC) were both funded by the European Commission. The MMECC project was a Coordination Action based at the Centre for Criminal Justice Economics and Psychology (CCJEP) in York and ran for two years (January 2007 until December 2008). During that time the project brought together leading academics and policy makers from across the EU working in the costs of crime area, along with invited experts from the United States. The CRCC project ran from May 2007 to December 2009 as a contribution to “integrating and strengthening the European Research Area”.

The objectives of the MMECC project were, first of all, to extend awareness of the methodology for estimating the costs of crime, increase capacity across EU Member States for applying the standardized methodology, and encourage criminal justice policy makers across the EU to make greater use of the available methodologies. Secondly, the objectives were to demonstrate how cost of crime estimates can be combined with effectiveness studies, in order to improve the evidence base for criminal justice policy-making as well as the quality of project appraisal in the criminal justice sphere, and as well as the quality of CEA and CBA of criminal justice projects and programs (YCJE, 2008).

Based on the fact that there was actually no agreement on this point in the community of European experts, the CRCC project addressed agreement on definitions of different paradigms, and the diverse assumptions that move political discourse and influence public opinion. With respect to the in depth practitioners’ perceptions about what should be considered as a cost and what as benefit while proposing and adopting a specific policy, “such an agreement seems a chimera if we examine the strategies of
different European penitentiary practitioners and administrators” (CRCC, 2009, p. 2).78

From the findings of the literature review of the previous chapter, it seems that even after six years have passed since the completion of these project initiatives, there remains a lack of efforts for the implementation of foundational methodologies. This is primarily due to the insufficient data situation in the respective countries. Moreover, “methodological problems still exist in developing the methods of calculating these costs” (Alfè & de Wever, 2011, p. 26). In that sense, this chapter aims to redirect the attention to the MMECC model as a future-oriented directional roadmap. The first part of the chapter presents the conceptual framework behind the generation of figures of the costs of specific offense types. In the model, these represent burglary in a dwelling, theft of vehicle, theft from vehicle, attempt vehicle theft, criminal damage, robbery, common assault, sexual assault, homicide, serious wounding and other wounding (see Appendix C for the optimal output template).

The model review – because of its relevance for the European reality – includes a more detailed presentation of the multitude of conceptual elements. In doing this, it aims to enhance the knowledge about the European framework to assessing the harms of crime and to develop a common understanding of the different cost components. Further, it seeks to demonstrate the broader implications behind a well-specified cost model, along the particular categorization of costs, for future undertakings, in order to set the foundation for the subsequent analyses on CBA as a political tool, feasibility examination, and as a basis for action strategies.

In order to address concerns surrounding CBA applications in criminal policy-making, the second part explains the main rationales of using CBA as a horizontal recommendation for policy analysis in regard to the evaluation of policies, programs, and project appraisal. The third part of the chapter provides – in a more specified way – key findings from the review of the MMECC model and other EU initiatives.

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4.1 MMECC model: Taxonomy of crime cost categories

The efforts to mainstreaming methodologies of the costs of crime resulted in a comprehensive European cost of crime assessment model, “based on good practice and a learning environment”\(^79\), with reference to useful data in helping policy-makers and practitioners from the Member States to use this model in their countries (European Commission, 2008, p. 34). The model is based on the Home Office approach to generating figures on the costs of specific offense types and “was adjusted so it can be used in both civil law as well as in common law countries” (Alfé & de Wever, 2011, p. 25). The MMECC model (or European cost of crime assessment model) represents the first comprehensive and well-specified model for wider application and future orientation.

The ‘how to manual’ demonstrates what kind of cost components should be taken into account, providing information on definitions, preferred estimation methodologies, required data sources and usage. The approach represents the bottom-up perspective (or accounting-based method) and offers alternative ways (or complementary methods) from the top-down methodologies to complement data. To this day, the Home Office model – like others – does not comprise all cost components where an agreement of the necessity for inclusion has been found. In light of continuous advancements in techniques for estimating the costs of crime, the European cost of crime assessment model too, should be viewed as a first comprehensive and well-specified model on cost categories and components that are intended to be collected in the future.\(^80\)

Although little concrete data or new figures were produced on a wider scale, at least some European authors (for instance, in Poland) applied the model to their own country. The MMECC project brought together researchers and practitioners in the context of organized panels and working groups, within the frame of well-known conferences\(^81\) to enhance the scientific dialogue. This way, the project provides a network of

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\(^79\) Among the participants of the MMECC project were EU Member States and candidate countries as well as Australia, Canada, South Africa and the United States.

\(^80\) So far it represents the “most complete publicly-available tool for estimating the cost of crime” (Bowles, 2009, p. 5).

\(^81\) Such as the *Stockholm International Criminology Symposium* (in June 2007 and 2008), the meetings of the *European Society of Criminology* (ESC) Bologna (in September 2007) and Edinburgh (in August 2008).
international scientists, practitioners and policy-makers in the field. The model clearly deserves greater attention in order to approach the task for assessing costs of specific offense types in a more systemized manner in the future.\textsuperscript{82} The MMECC project proposed to (1) draft strategy – select year(s) for which data are to be collected; (2) collect secondary data; (3) populate spreadsheet models to generate initial cost of crime estimates; (4) identify gaps, generate working assumptions, commission data collection (University of York, 2008). Appendix D also includes the extended version of the suggested data collection strategy.

This first part of the chapter introduces the cost components under the three main cost categories for orientation (systematic procedure), namely the \textit{costs in anticipation of crime}, the \textit{costs as a consequence of crime}, and \textit{costs in response to crime}. The analysis emphasizes on the on definitions of the different cost components, the parties involved who bear these costs, and whether a standardized methodology is available. This way, the first underlying aim is to enhance a common understanding of the agreement on different cost components and categories. The availability of standardized methodologies is flagged with ‘yes’ or ‘no’ and further categorized into ‘usually included’ (at least in the refined 2005 Home Office methodology by Dubourgh et al. 2005) to ‘mostly omitted’ (excluded from the 2005 Home office model or referred to otherwise). In summary, more detailed information on preferred estimation methodologies and standardized MMECC formulas is provided in \textit{Appendix B}.

\textsuperscript{82} see http://www.costsofcrime.org for the project’s website - currently under maintenance - see as well http://www.yorkcriminaljusticeeconomics.org.uk/publications/costs_of_crime/108.
4.1.1. Costs in anticipation of crime

In nowadays at risk society precaution has become an important part of analysis addressing many sectors of the economy, also in particular with regard to the allocation of private and public resources. The rising market of security measures and insurance markets come along with a growing interest in understanding the effectiveness and efficiency of precaution and preventive benefits of security measures. The principle cost categories for costs incurred in anticipation of crime, as presented in the MMECC model, can be divided into two distinctive groups (see Table 8): Costs to potential victims (anticipatory costs and precautionary expenditure, and fear of crime by the public), costs of crime prevention activity (government crime prevention programs and non-government crime prevention programs).

Table 8 Costs in anticipation of crime: Principle cost categories in the MMECC model

<table>
<thead>
<tr>
<th>Cost categories/components (brief definitions)</th>
<th>Parties who bear the costs</th>
<th>Availability of standardized method (level of inclusion)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Costs to potential victims</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Avoidance costs and precautionary expenditure</td>
<td>Potential victims</td>
<td>No (partly included)</td>
</tr>
<tr>
<td>Cost of security measures or risk-reducing behaviors</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fear of crime by the public</td>
<td>Potential victims</td>
<td>No (normally omitted)</td>
</tr>
<tr>
<td>Losses resulting from the residual fear by the public</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Costs of crime prevention activity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Government crime prevention programs</td>
<td>Society/government</td>
<td>No (normally omitted)</td>
</tr>
<tr>
<td>Costs of government programs aimed at crime prevention</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-governmental crime prevention programs</td>
<td>Society</td>
<td>Yes (normally omitted)</td>
</tr>
<tr>
<td>Costs of programs implemented by non-government bodies to reduce or prevent crime</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Own summary based on the MMECC model (University of York, 2008)

Costs to potential victims

Protective measures of society to minimize the risk of becoming a victim of crime can take many forms. There are explicit markets for anti-crime devices, such as burglary alarms or video surveillance systems. And there are implicit markets shaped by peoples’

83 Costs incurred in anticipation of crime can take many forms, such as costs of spending on protecting oneself, including cost of behaviors – and are rather difficult to allocate across different offence types. The methodological approach to estimating the costs in anticipation of crime can vary between offence types. The costs associated with insurance against loss from crime should really be included in this section, although in practice they are usually treated as part of victim costs (University of York, 2008).
behavior or the willingness to pay for an improvement in safety (opportunity costs that arise as a result of choice). Additionally, even after individuals or households are taking their own precautionary actions and knowledge on crime prevention measures implemented by criminal justice agencies a residual fear remains, such as the loss of welfare associated with living in a high crime area rather than in a low crime area. Due to a variety of approaches that are subject to advancements, there is no standardized methodology available for none of these types of costs to potential victims.

In the model of analysis the cost category *avoidance costs and precautionary expenditure* is defined as the “costs of security measures taken by individuals and businesses” (University of York, 2008). For measuring purposes a distinction is being made between precautionary expenditure (or defensive expenses) and behavior (or avoidance costs). Risk-reducing behavior may involve larger costs, such as migration to safe neighborhoods, gated communities, or other smaller items, such as taking a taxi at night instead of walking short distances, staying at home at night, or time invested into bolting windows before going on holiday. Quantifying the opportunity costs of avoidance or risk-reducing behavior involves particular complexity, as people do not actually pay real money when they lock a door or walk a longer distance to avoid a high crime area. Therefore, these costs are mostly based on country-specific approaches or different methodological preferences.

The Home Office model, for instance, includes two components of direct expenditures, the cost of residential and business security and the cost of property insurance administration (overhead), retrieved from aggregate industry estimates (explicit markets). Based on the distribution of out-of-pocket losses by type of crime these costs are then allocated to individual crimes\(^84\) (University of York, 2008). The disadvantage of this approach is that while in some cases, one could attribute all costs to one crime type, perhaps burglar alarms (in the attempt to protect property loss) this is not always the case for other more personal crimes (such as assault or sexual assault). The rise in the security research sector also provides new data sources (the aggregate measurement of implicit markets).

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\(^84\) If for instance home burglary accounts for 50 percent of property losses, 50 percent of security expenditures would be applied to this crime (burglary): changes in security expenditures divided by the number of burglaries to arrive at an estimate of the costs per incident (University of York, 2008).
In order to value the time spent by potential victims (households or businesses) securing their assets, such as locking their homes, businesses and cars, information can be retrieved from public surveys to identify specific avoidance behaviors engaged in (implicit markets). Anderson (1999) approached the task in the following manner (opportunity costs): First, he measured precautionary expenditure on aggregate, then the amount of time spent in each activity elicited, and based the estimate on the average wage rates. Alternatively, opportunity costs of avoidance or risk-reducing behavior can be estimated or determined with the help of contingent evaluation method, by valuing the public’s preferences to reduce these costs, or WTP-surveys. Revealed preferences approaches, such as hedonic pricing, based on housing market prices, offer an alternative approach and are often preferred by economists. Overall, further developments are certainly needed in this field. Costs including both, explicit and implicit market components seem to be most ideal.

In the MMECC model the fear of crime is defined as “losses resulting from the residual fear by the public” (University of York, 2008). The cost component represents the developing field of finding ways of putting values on the losses resulting from fear of crime. In principle, this applies to any type of crime and in practice this particular cost is likely to be greater in relation to domestic burglary, robbery, violent and sexual assault and criminal damage. The cost component is considered as an important indicator, as it affects the individual quality of life, and the fact that people would be willing to pay real money to alleviate that fear means that in theory its value can be quantified. As a result of fear, people may restrict or even omit certain behaviors, so that resources are removed from other activities (such as activities outside). Two suitable models to value of fear in this regard represent the stated preference surveys (WTP) and life satisfaction or happiness studies. Some quality of life surveys ask about the degree to which fear of crime influences respondents’ happiness (Dolan & Peasgood, 2007) or some victimization surveys (such as the BCS) include direct

85 The costs included costs such as guards, alarm systems, passes for business access, locks, safes and vaults, small arms and ammunition, surveillance cameras, safety lighting, protection fences and gates, airport security, non-lethal weaponry, theft insurance, electronic retail article surveillance, guard dogs, and library theft detection (Anderson, 1999).

86 Dolan and Peasgood (2007) used the results of a survey which asked individuals how often and how fearful they were of being victimized, and made assumptions about the QALYs lost as a result of different fear incidents. Combining this with an estimate of the cost of a QALY provided estimates of the cost of
questions about fear of crime. Nevertheless, as subtle issues yet have to be examined thoroughly, this particular cost component is often not included in the more comprehensive costing models. In the cost of crime literature it is still one of the least studied areas, partly because it is one of the most difficult one to estimate.

*Costs of crime prevention programs or activity*

Initiatives on crime prevention include programs aimed at fear reduction, victim assistance policies, and prevention activities by the police (Anderson, 1999). Crime prevention is primarily a task of the criminal justice system (general crime prevention), but may also involve agencies outside the criminal justice system with crime prevention objectives. Prevention work is often ignored as a separate category and mostly incorporated into *costs in responses to crime*. In the MMECC model, the crime prevention category is therefore divided into *governmental crime prevention* and *non-governmental crime prevention* activities and programs. The Home Office estimates, for instance do not currently include these costs, but a standardized formula is available at least for one of these categories.

There are many government agencies that devote a proportion of their budgets to crime prevention objectives. In most countries crime prevention is primarily viewed as a police task (public assurance role). The goal to include the *government crime prevention*, defined as the “*costs of government programs aimed at crime prevention*” (University of York, 2008), as a distinct element in cost of crime estimation is faced with a number of challenges. Even detailed budget documents often combine categories, where programs often themselves serve multiple purposes. Therefore, in practice crime prevention activity may actually often be difficult to separate out from other parts of their work, particularly responding to crimes that have already occurred. In other words, it may be difficult to estimate the proportion of time going into ‘preventive’ work as compared with ‘responsive’ work or activities (difficulty of disaggregating police and other agency budgets). There are substantial practical barriers involved, where some countries have reacted to reflect a more multi-purpose approach, such as the Activity-
Based-Costing (ABC) method in the United Kingdom. Moreover governmental crime prevention programs often can come from a diverse range target very specific areas of crime. When Anderson (1999), reviewed the United States budget in 1997 and identified more than 30 categories of program expenditure, ranging from child abuse and family violence, child support enforcement, customs service, and numerous regulatory enforcements to security guards. Also here it is important to filter out causally related factors to crime prevention.

The cost component *non-government crime prevention program* represents the costs of programs implemented by non-government bodies to reduce or prevent crime or “*costs of efforts by non-government agencies including both individuals and business*” (University of York, 2008). These include organizations in the voluntary and charitable sector, residents’ associations and neighborhood watch programs. These programs rely greatly on volunteer time and, hence, an opportunity cost of time by program participants (Anderson, 1999). Voluntary organizations do not generally keep managerial type information on things like time inputs so it can be very hard to find relevant data. As in the case of government crime prevention, not all expenditures focus on individual crime types and, thus, it might be difficult to attribute these costs to one particular crime. Furthermore, it requires detailed data on citizen involvement, which may be very difficult to find, and it is in the nature of voluntary organizations that they tend not to record these costs (administrative setting). In practice, the difficulty of identifying the voluntary and charitable sector organizations involved in the provision of crime prevention services and the costs they incur in such provision. This implies normally an exclusion from cost estimations.
4.1.2. Costs as a consequence of crime

Costs incurred as a consequence of crime are mainly associated with the victim. These so-called victimization costs also have an impact on society in many ways. Victimization costs often make up the largest part of offense costs and the more serious the crimes of violence against a person (VAP) certainly create greater intangible costs. For the ease of analysis, the principle categories of losses to victims are divided into two groups (see Table 9): Victimization costs that are usually included (*property loss, productivity loss, medical and mental healthcare cost, pain, suffering and lost quality of life*) and victimization costs that are normally omitted or rarely included (*household services, lost school days, victim support services, legal expenses of tort claims, and long-term consequences of victimization*). The *offender cost* category represents another distinctive component, but is also mostly excluded from comprehensive costing models so far.

*Victimization costs (usually included)*

The social and economic victimization costs that are usually included since the 2005 Home Office study represent *property loss, productivity loss, medical and mental healthcare cost, and pain, suffering and lost quality of life.* The MMECC model provides a preferred or standardized methodology for all of these costs (see Appendix B).

The cost component *property loss* refers to the “value of property stolen, damaged or lost as a result of an offense” (University of York, 2008). These costs may result from a wide range of crimes, although it is most pronounced for the offense types referred to as *property crimes* such as burglary or motor vehicle theft. A portion of losses might be insured, where the losses reimbursed by insurer and administrative costs are imposed on society. Property loss is most often estimated by means of crime victim surveys and based on mean value reported in the survey data. If survey data are not available information can also be gathered from police records or from insurance data. Police records may include a victim’s estimate of the value of items lost, although these sources may be prone to error for reasons of under-reporting or explored elsewhere. Also an overstated value from excessive value information in collision damage insurance or household insurance (*Wertangaben Kasko- oder Hausratversicherungen*) can result in an overestimated measurement of property loss (Kavelowski, 2013).


<table>
<thead>
<tr>
<th>Cost categories/components (brief definitions)</th>
<th>Parties who bear the costs</th>
<th>Availability of standardized method (level of inclusion)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Victimization costs</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Property loss</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Value of property stolen, damaged or lost as a result of an offense</td>
<td>Victim/Society</td>
<td>Yes (usually included)</td>
</tr>
<tr>
<td>- Losses not reimbursed by insurer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Losses reimbursed by insurer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Administrative costs of insurance</td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Productivity loss</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lost output when employed crime victims have to take time off work</td>
<td>Victim/Society/employers</td>
<td>Yes (usually included)</td>
</tr>
<tr>
<td>- Lost wages for unpaid workdays</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Lost productivity for paid workdays</td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Household services</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Costs of interruption of normal daily activities that leaves victims either relying on other household members or having to employ external suppliers of these services</td>
<td>Victim/family</td>
<td>Yes (mostly omitted)</td>
</tr>
<tr>
<td><em>Lost school days</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cost of lost school days in full time education (school, college or training program)</td>
<td>Victim/Victim/Society</td>
<td>Yes (mostly omitted)</td>
</tr>
<tr>
<td>- Foregone wages due to lack of education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Foregone non-pecuniary benefits of education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Foregone benefit due to lack of education</td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Medical and mental healthcare costs</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Costs to health services (whether funded through the public sector or otherwise)</td>
<td>Victim/family/Society</td>
<td>Yes (usually included)</td>
</tr>
<tr>
<td>- Losses not reimbursed by insurance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Losses reimbursed by insurance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Administrative costs of insurance</td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Pain, suffering and lost quality of life</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Value of losses (emotional and physical pain) to an individual or household resulting from victimization</td>
<td>Victim/Victim/family</td>
<td>Yes (usually included)</td>
</tr>
<tr>
<td>- Pain suffering and lost quality of life</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Loss of affection, enjoyment and trauma</td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Victim support services</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Costs of supplying support to victims in the immediate aftermath of a crime</td>
<td>Victim/Society/government</td>
<td>No (mostly omitted)</td>
</tr>
<tr>
<td>- Expenses charged to victims</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Expenses paid by service agency</td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Legal expenses of tort claims</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Costs incurred by victims of bringing their own private actions against offenders (cost per case)</td>
<td>Victim/society</td>
<td>Yes (rarely included)</td>
</tr>
<tr>
<td><em>Long-term consequences of victimization</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Costs of long-term consequences (longer-term effects) of victimization</td>
<td>Victim’s family/Society</td>
<td>Yes (mostly omitted)</td>
</tr>
<tr>
<td><strong>Costs to offenders</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Offender costs</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Opportunity costs involved when preparing to commit crimes</td>
<td>Offender</td>
<td>Yes (mostly omitted)</td>
</tr>
<tr>
<td><strong>Source:</strong> Own summary based on the MMECC model (University of York, 2008)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Productivity loss is defined as the “output is lost when employed crime victims have to take time off work” (University of York, 2008). In this cost category the aim is to take into account the time lost from work as a result of victimization. Depending on the severity or impact on victims, this particular cost category addresses a wide range of crimes, in particular homicide, wounding, robbery, common and sexual assault. Hereby, lost wages for unpaid workdays fall onto the victim and lost productivity for paid workdays to society or the employer. If possible, all time lost should be valued, such as time spent on filling out police or insurance forms, and based on the average hourly earnings (equity standard). As victims of violent crimes or the threat of violence often need medical care and attention, it may be possible to use health sources to make these estimates. Victims of crimes involving violence, or the threat of violence, often need medical care and attention.

Medical and mental healthcare cost are “costs to health services to crime victims (whether funded through the public sector or otherwise) incurred in treating victims of crimes involving violence, or the threat of violence” (University of York, 2008). The losses not reimbursed by insurance are born by victims and their families, while losses reimbursed by insurance as well as the related administrative costs fall on to society. Particularly in countries with social healthcare insurance victims may have only limited knowledge of the scale of these costs. The component should cover costs of treating both physical and mental conditions (including PTSD) and the costs to government of provision (such as the amount of practitioner time and hospital costs). For serious injuries these costs can be substantial and can lead to long-term victimization costs.

Pain, suffering and lost quality of life represent the “value of losses to an individual or household resulting from victimization (typically the pain and suffering resulting from personal injury in an assault but can be psychic loss or PTSD)” (University of York, 2008). These costs are also often referred to as emotional pain and physical intangible harm. The intangible costs of pain suffering and lost quality of life to the victim, as well as loss of affection, enjoyment and trauma to the victim and the victim’s family, are usually the most difficult to measure. These costs are not directly observable and, therefore, subject to considerable uncertainty and controversy. Nevertheless, these costs are of great significance for offenses that involve personal injury in an assault wounding, robbery, common assault, rape, sexual assault, or homicide causing death by
dangerous driving. In the MMECC model the preferred methodology is to identify proportion of victims of an offense who suffer a particular type of injury or the proportion suffering different degrees of injury (‘serious’ or ‘minor’), using estimates from health sources to value these. The Home Office model introduced the use of QALY-based measures in 2005.

Victimization costs (mostly omitted)

The social and economic costs of victimization: Although mostly omitted or rarely included, for almost all of the cost categories household services, lost school days, victim support services, legal expenses of tort claims, and long-term consequences of victimization, a standardized formula is provided (see also Appendix B).

Victims who are physically or emotionally injured by crime may often experience an interruption of their ability to function normally at home. The loss of household services cost category therefore represents the “costs of interruption of normal daily activities as a result of crime that leaves victims either relying on other household members to increase their service contribution or having to employ external suppliers of these services” (University of York, 2008). These could take the form of replacement services may be supplied from external service via the market or by other household members or relatives. Although these costs could potentially be imposed by all crimes where the daily functioning of the victims is (at least temporarily) impaired, most likely in cases involving physical injury to victims, the procedures for estimating the costs of such replacement are an issue in civil litigation.

Crime victims in full time education may lose time off school or college or training program. Therefore, the cost category lost school days values the “interruption to education that may result for victims still in full-time education” (University of York, 2008). The cost category represents lost education opportunities and is usually valued at

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87 The alternative approach is to transfer values used by other government departments, such as values estimated by transport departments for serious non-fatal road injuries (impacts of violent crimes equivalent to impacts sustained in non-fatal road accidents). Earlier Home Office model (Brand & Price 2000) used an alternative methodology: transferred values estimated by the UK Department of Transportation as proxies for physical and emotional costs of violence). Other approaches include use of damage values from jury trials involving similar types of injuries in legal claims in respect of personal injuries (University of York, 2008).
the cost of education provision. Whereas, foregone wages due to lack of education and foregone non-pecuniary benefits of education fall onto the victim, foregone benefits due to lack of education are indirect cost impacts on society. The number of days of schooling lost by crime victims may also be further extended to higher education.

The cost category victim support services represents the “costs of supplying support to victims in the immediate aftermath of a crime” (University of York, 2008). Victim service organizations provide services such as counseling, temporary shelter, and financial assistance. They might be government organizations or NGOs, sometimes with partial government funding. Most of these victim assistance programs focus on violent crimes, in particular sexual assault, child abuse and domestic violence. In many cases, any expenditure data is aggregated across all crime types. As with the non-government crime prevention program component, many such organizations rely upon volunteer time – which could be valued using opportunity costs (or average wage rates). On a per-crime basis, this is a relatively small cost item for most crimes, except for rape and child abuse. On a per-victim basis, this cost might double or triple, in particular if a value of victim service volunteers is included. There is no standard methodology available, but the updated AIC study from 2014 can give insights on how to estimate these costs.

Legal expenses of tort claims are the “costs incurred by victims of bringing their own private actions against offenders” (University of York, 2008). On the one hand, legal expenses of bringing civil actions seeking damages from the perpetrators may be difficult to estimate in a conditional or contingent fee setting (for instance, funding social insurance is a separate matter). On the other hand, these actions may be comparatively uncommon, not least because offenders rarely have sufficient means to pay significant amounts of compensation. As with statutory criminal injury compensation schemes, these costs are in addition to those associated with the costs of administrating public compensation schemes, since they refer to losses that have already been taken into account as a source of costs as a consequence of crime. While the number of cases tends to be small, the costs per case may be substantial and should be taken into account.

Long-term consequences of victimization represent costs to victims (individuals, households or businesses) of crime that have longer-term effects. Long-term losses to
victims may include reduced lifetime earning capacity. Some of the consequences of victimization, such as prolonged pain, suffering and quality of life, continue for a long time into the future (are often already accounted for elsewhere). Additional costs arise, for instance, when victims or households may want to relocate following a crime (when otherwise not planning to) in order to avoid an area that has unpleasant associations for them or to avoid repeat victimization. Also, as a result of being abused, victims of crime may themselves go onto offend\textsuperscript{88}. There may also be longer-term consequences of business crime, forcing businesses to leave an industry or an area in extreme circumstances if they have incurred significant or sustained loss from crime (University of York, 2008).

\textit{Costs to offenders}

From a social costs perspective the costs to offenders should be estimated. In practice, the costs are often omitted, because these are incurred by the offender rather than by victim or taxpayers. The \textit{costs to offenders} as a consequence of crime are defined as the “\textit{opportunity costs involved when preparing to commit crimes offenders may invest in specialist equipment}” (University of York, 2008). The largest element of the costs to offenders of crime is likely to be the opportunity cost of time at least for offenders with legitimate employment prospects. When preparing to commit crimes offenders may invest in specialist equipment (for example particular weapons, planes and/or boats) or time-consuming arrangements. Money laundering, for instance, may involve setting up time-consuming arrangements that would not otherwise be put in place. Information on specialized investments can be retrieved from transcripts of court hearings, and occasional successful convictions may bring to light some examples. In reality, of course, it is very unlikely to obtain such information systematically, so that these costs are normally excluded.

\textsuperscript{88} While many of the victim costs occur over a long-term period, there are other long-term costs not fully accounted for; victims of child abuse are known to be at higher risks of future offending behavior themselves (victim, offender, family); burglary victims are known to move at a higher rate following victimization (incurring substantial transaction/moving costs)
4.1.3. Costs in response to crime

Criminal justice system costs are all the costs the authorities incur to further prevent and investigate crime, prosecute offenders, court sessions, juror and witness costs, legal aid, impose sentences, and take care of victims and offenders. The costs in response to crime are significant for many offense types, in particular for offense types with the most serious consequences for victims. The numerous cost categories of the MMECC model can be divided into five distinctive groups (see Table 10): Costs of investigation and criminal justice proceedings against the offenders (police, prosecution services, courts, legal defense, and jury services), costs of criminal sanctions (prison costs, probation, and enforcement of financial penalties), costs to offenders as a result of imprisonment or social costs of incarceration (lost productivity, victimization to offenders whilst in prison, offender costs from lost freedom, and loss to offenders’ families), costs to victims and witnesses (victim and witness costs, and victim compensation), and other more sensitive costs (over-deterrence costs and justice costs).

Costs of investigation and criminal justice proceedings (CJS costs)

The social and economic costs of investigation and criminal justice proceedings against the offenders usually represent: Police, prosecution services, courts, legal defense, and jury services. Most of these costs are the easier ones to trace, because they are based on work statistics. Apart from the country-specific police costs, for all other cost categories a standardized methodology is provided in the MMECC model (see Appendix B).

The cost component police look at the “prospects for allocating police time (and thus costs) by offense type” (University of York, 2008). In particular in countries with centralized police forces, it might be relatively straightforward to estimate the cost of police on aggregate. In contrast, disaggregated crime cost data is much more difficult to obtain. Even if it is given that the portion of police time that is devoted to crime investigation (as opposed to traffic duties, crime prevention etc.) can be determined, the challenging task is to allocate this time by crime type. Although, some countries have systems for recording police time allocation, such as the Activity Based Costing (ABC) system used in England, these are rarely implemented sufficiently thoroughly to support an allocation of police activity to offense types. Hence, one-off studies and surveys may
need to be conducted in efforts to identify the costs of policing for particular offense types\textsuperscript{89}.

The cost component \textit{prosecution} is defined as the “\textit{costs of bringing proceedings against an offender or costs of prosecuting an offense type}” (University of York, 2008). These costs include case preparation time, advocate time costs and court appearance time, reviewing cases and making decisions about whether prosecution is worthwhile. The costs of prosecuting individuals charged with crimes are substantial. And, while an average cost per prosecution is quite widely available, offense-specific data are more difficult to obtain\textsuperscript{90}.

\textit{Court costs} are the “\textit{costs of providing facilities for the hearing of cases (including the provision of judges and court staff), such as the court time spent on processing cases involving a particular offense type}” (University of York, 2008). These costs include the costs of providing court buildings, costs of employing judges and other court and any other resources involved in the provision of court facilities (courtroom and holding facilities, video links etc.). Court structures vary widely across countries and the analysis of the court costs associated with responses to crime has to reflect this structure. The component is widely included in cost of crime estimates\textsuperscript{91}.

\textit{Legal defense costs} look at the “\textit{costs of providing legal services to defendants charged with an offense type (incl. legal advice, assistance and also representation)}” (University of York, 2008). These costs arise in relation to all offense types and they may be split in public budgets (funding services for defendants with limited means) and costs of defendants responsible for funding themselves (incl. spending by the defendant

\textsuperscript{89} Crime investigation is an important part of police work, but police are not necessarily the sole investigators. Other investigating agencies may be specialized crime-scene investigation units, military police, coast guard, and other civil servants with special powers of investigation (special investigators) (Moolenaar, 2009).

\textsuperscript{90} Moreover, many countries have an independent organization responsible for bringing prosecutions. Variation across countries in the allocation of prosecution tasks between police, specialist prosecution agencies and judges result in differences in the allocation of these costs across agencies. Costs that further need to be taken into consideration are the costs of employing specialist contractors, including private sector lawyers retained to present cases in court and forensic scientists responsible for collecting evidence and appearing in court to testify about evidence. For certain kinds of cases there may also be expert witnesses retained by the prosecution in relation to health, financial and other specialist fields.

\textsuperscript{91} Courts go to substantial lengths to avoid convicting the innocent. Therefore, court time spent on processing cases involving a particular offense type often makes the procedures more costly than they would be otherwise (University of York, 2008).
and/or the government). Some law societies or lawyer organizations publish data on costs in criminal cases. Legal aid bodies may keep detailed data on the cost of legal service provision by offense type (legal aid subsidies).

In countries making use of juries in criminal trials jury service may entail quite substantial opportunity cost. Juries are used more widely in some countries particularly those with Anglo-Saxon legal systems. Particularly in complex trials, such as certain kinds of financial fraud, juror costs may be very substantial since 12 or more individuals may be away from work for months. The cost component on jury services look at measuring the “opportunity cost of the time jury members tie up in a case” (University of York, 2008). Even where these costs are reimbursed through the courts the payment may under-represent the value of lost production. Juries sitting in criminal trials incur opportunity costs. It may be possible to estimate the expenses paid to jurors in respect of time lost, but this is likely to be a significant under-estimate of the true opportunity costs. It is important to use lost earnings to measure these losses rather than the token amounts paid by way of compensation to employers. Government component of juror costs is included in some cost of crime studies including Dubourg et al. (2005), but not the full opportunity cost.

Costs of criminal sanctions (CJS costs)

The social and economic costs of criminal sanctions usually represent prison costs, probation, and enforcement of financial penalties. While the administrative costs related to enforcement of financial penalties are mostly omitted or attributed elsewhere, the first two are usually included. A standardized formula is provided in the MMECC model for all cost categories (see Appendix B).

The cost of imprisonment for an offense reflects the “Present Value of the flow of costs associated with the average term of imprisonment imposed for an offense type and also the proportion of offenders imprisoned for that offense type” (University of York, 2008). There is comparatively good data available from many countries via reports from the prison service and, therefore, these are widely estimated in cost of crime studies. Probation is a criminal sanction (cost of probation program, sometimes referred to as a community penalty or community punishment). It is a widely used disposal in many countries. Probation may involve offender supervision at varying degrees of intensity,
where programs are usually tailored to offender needs (criminogenic needs) such as substance misuse, cognitive deficits or weak basic skills have been identified.

Enforcing financial penalties are administrative costs or “costs incurred by the agency responsible for collecting fines, fixed penalties and any other financial orders (including compensation orders) made against offenders on conviction” (University of York, 2008). These usually refer to all offense types where an element of financial penalties or compensation may be ordered against a convicted offender. These costs are often, however, either ignored or treated as part of the costs of running the court system.

Offender costs (as a result of imprisonment)

There is a continuous controversy about, whether or not to include the costs borne by offenders, because the criminal’s utility is not be counted within the social welfare function (Cohen, 2000, p. 272). The offenders’ costs as a result of imprisonment are important to be considered from an economic and social perspective. The costs to offenders as a result of imprisonment or social and economic costs of incarceration are lost productivity, victimization to offenders whilst in prison, offender costs from lost freedom, and loss to offenders’ families. All of these costs are normally omitted in the cost of crime calculations and for the first two a standardized methodology is available.

Lost productivity is defined as the “net loss of output from having offenders in prison and able only to work less productively than otherwise” (University of York, 2008). To measure lost productivity need an estimate of external earnings offenders could have generated if not in prison. Subtract the value of any production in prison (generally agreed to be low). Although some may work while in prison the value of the output will typically be lower than what they would have produced outside. Offenders typically are not very productive while in prison. If they would not have been productive outside, (and unemployment rates are typically relatively high for offenders) then nothing much is lost. But if they lose the capacity to follow a productive job or profession then the losses to society as well as to the offender can be significant. This is part of the reason why the labor market status (or socio-economic status of the offender) should be taken into account when selecting sentences.
<table>
<thead>
<tr>
<th>Cost categories (brief definitions)</th>
<th>Parties who bear the costs</th>
<th>Availability of standardized method (level of inclusion)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Costs of investigation and criminal justice proceedings (CJS costs)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Police</td>
<td>Society/government</td>
<td>No (usually included)</td>
</tr>
<tr>
<td>Prospects for allocating police time by offense type</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prosecution service</td>
<td>Society/government</td>
<td>Yes (usually included)</td>
</tr>
<tr>
<td>Costs of bringing proceedings against an offender or costs of prosecuting an offense type</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Court</td>
<td>Society/government</td>
<td>Yes (usually included)</td>
</tr>
<tr>
<td>Costs of providing facilities for the hearing of cases (court time spent on processing cases)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Legal defense</td>
<td>Society/government</td>
<td>Yes (usually included)</td>
</tr>
<tr>
<td>Costs of providing legal services to defendants charged with an offense type</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jury services</td>
<td>Jury members</td>
<td>Yes (partly included)</td>
</tr>
<tr>
<td>Opportunity cost of the time jury members tie up in a case (value of lost production)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Costs of criminal sanctions (CJS costs)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prison costs (or cost of imprisonment)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Present Value of the flow of costs associated with the average term of imprisonment imposed for an offense type and the proportion of offenders imprisoned for an offense type</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Probation costs</td>
<td>Society/government</td>
<td>Yes (usually included)</td>
</tr>
<tr>
<td>Cost of probation programs (community penalty or punishment)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enforcing financial penalties</td>
<td>Society/government</td>
<td>Yes (omitted or included elsewhere)</td>
</tr>
<tr>
<td>Costs incurred by the agency responsible for collecting fines, fixed penalties and any other financial orders (incl. compensation orders) made against offenders on conviction</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Costs to offenders (as a result of imprisonment)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lost productivity</td>
<td>Offender/society</td>
<td>Yes (mostly omitted)</td>
</tr>
<tr>
<td>Net loss of output from having offenders in prison and able only to work less productively than otherwise</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Victimization to offenders whilst in prison</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Losses resulting from a higher probability of injury or death in prison than offenders outside, including higher suicide and self-harm risks, sexually transmitted disease etc.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Offender costs from lost freedom</td>
<td>Offender</td>
<td>No (mostly omitted)</td>
</tr>
<tr>
<td>Loss of liberty is a welfare loss (or loss of amenity) resulting from the time offenders spend in prison</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loss to offenders’ families</td>
<td>Offender’s family/society</td>
<td>No (mostly omitted)</td>
</tr>
<tr>
<td>Costs imposed on the remainder of an offender’s family as a result of imprisonment (or other criminal sanctions)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Costs to victims and witnesses</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Victim and witness costs</td>
<td>Victims/witnesses</td>
<td>Yes (mostly omitted)</td>
</tr>
<tr>
<td>Costs incurred as a result of time spent by victims and witnesses on a case</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Victim compensation</td>
<td>Society/government</td>
<td>Yes (mostly omitted)</td>
</tr>
<tr>
<td>Cost of administrating compensation scheme to support victims of an offense</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Over-deterrence and justice costs

<table>
<thead>
<tr>
<th>‘Over-deterrence’ costs</th>
<th>Innocent individuals</th>
<th>Offender</th>
</tr>
</thead>
<tbody>
<tr>
<td>Losses resulting from behavior changes on the part of citizens seeking to protect themselves from being (wrongly) accused of an offense</td>
<td>No (normally omitted)</td>
<td>No (normally omitted)</td>
</tr>
<tr>
<td>- Innocent individuals accused of offenses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Restriction of legitimate activities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Costs of additional detection avoidance</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Justice costs</th>
<th>Society</th>
<th>No (normally omitted)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Costs incurred by non-offenders taking costly steps to avoid liability to prosecution if sanctions</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Own summary based on the MMECC model (University of York, 2008)

Victimization to offenders whilst in prison is defined as the “losses resulting from a higher probability of injury or death in prison than offenders outside, including higher suicide and self-harm risks, sexually transmitted disease etc.” (University of York, 2008). Offenders who are imprisoned have a higher risk of being injured or killed than the general population. Estimating the degree to which these risks are higher than they would be for the same group of individuals if they were not imprisoned, however, is likely to be a difficult task. Offenders are not a random selection from the population. They are more likely to live in high crime neighborhoods and to have poorer health expectations, so the marginal risk component associated with imprisonment may not be very great.

Offenders’ costs deriving from lost freedom is defined as the “a welfare loss (loss of amenity) resulting from the time offenders spend in prison” (University of York, 2008). The loss of liberty to the offender looks at the controversial argument that adjustments should be made for the utility loss (as a result of punishment) incurred by offenders as a result of imprisonment. This loss of enjoyment (offsetting benefit associated with the loss of liberty) is an opportunity cost but is not easy to measure (see Table 19 in Appendix B). This cost component is normally ignored for all offense types, although potentially relevant for all offenses, which can be punishable by imprisonment.

The loss to offenders’ families is defined as the “costs imposed on the remainder of an offender’s family as a result of imprisonment” (University of York, 2008). Imprisonment of an offender may impose substantial costs on offender’s family, including the disruption of many aspects of family life include income, provision of

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92 “The ‘retribution’ motive for imposing sanctions relies on the idea that citizens may be prepared to incur costs purely to make life unpleasant for those breaking social rules” (University of York, 2008).
childcare and of other household services. The costs may be the direct financial costs of buying in replacement services (household services) or costs related to other members supply greater efforts. Many of the costs of responding to these pressures will fall on agencies outside the criminal justice system such as social work providers or schools. These kinds of costs are rarely dealt with explicitly, but they are sometimes reflected in resettlement or support programs that focus on aspects of preserving accommodation (or housing) tenancies for the families of the prisoners.

**Victim and witness costs**

Social and economic costs to victims and witnesses (victim and witness costs, and victim compensation), rarely included or normally omitted, though a standardized method is available.

Victim and witness costs are the “costs incurred as a result of time spent by victims and witnesses on a case” (University of York, 2008). Victims and witnesses of crime may have to devote considerable time as a prosecution works its way through various stages in the criminal justice system. In particular, lengthy trials may be a source of significant costs for victims and witnesses. Output is lost as a result, but there may be further costs to victims and witnesses forced to relive and recount experiences they might prefer to forget. Things like the postponement of hearings and intimidation prior to hearings may raise these costs. More detailed crime victimization surveys ask about the experience of victims and whether they have been intimidated and so on. Therefore information needs to be retrieved from victimization surveys, as it is done in the BCS. Court data rarely include estimates of victim and witness time inputs, and translating such findings into cost estimates has not thus far received much attention.

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93 Visiting an offender can be time-consuming and costly especially if prison accommodation is isolated or where over-crowding means more offenders being held a long way from home. Children may become more liable to social exclusion and suffer psychologically.

94 The role of victims and witnesses is potentially stressful. It involves confronting offenders in court, having to remember and record possibly narrowing details and withstanding hostile cross-examination by defense lawyers, defendants and judges. Offenders may attempt to intimidate victims and witnesses in the hope of persuading them to abandon pressing charges or appearing in court as witness. Although strictly speaking some of these actions may comprise offences in their own right (and thus count separately) it is often difficult to assemble sufficient evidence to press charges successfully in respect of them (University of York, 2009).
Victim compensation costs refer to the “costs of administering scheme to support victims of an offense” (University of York, 2008). These are costs of administering systems of compensation for criminal injuries, where actual payments made to victims (compensations) are excluded from the calculation since they are simply a reflection of victim losses that have already been measured as part of the costs in consequence of crime. Many governments have compensation programs, to cover out-of-pocket expenses for victims. There is no standard methodology but if there are data regarding the costs of administering schemes with compensation programs then they should be included.

Over-deterrence and justice costs

Other more sensitive social and economic costs are costs of ‘over-deterrence’ and justice costs. As the costs and their estimation are context-sensitive, there is no standard methodology for any of these cost categories. Both cost components are mostly ignored.

‘Over-deterrence’ costs represent “losses resulting from behavior changes on the part of citizens seeking to protect themselves from being (wrongly) accused of an offense” (University of York, 2008). Over-deterrence occurs when the prospect of being held criminally liable deters individuals from engaging in socially productive activity. Innocent individuals accused of offenses (innocent individuals or accused non-offenders). The examples given in the model include: stepping into break up a fight might be misinterpreted by police arriving later at the scene; restriction of legitimate activities; costs of additional detection avoidance (risk averse practice in business to avoid prosecution for breach of regulatory requirements, environmental crime, disclosure rules in financial markets etc.). The costs and their estimation are context sensitive, but can affect the economy and society on a non-sustainable level.

Justice Costs represent the “costs incurred by non-offenders taking costly steps to avoid liability to prosecution if sanctions” (University of York, 2008). These costs are usually disproportionately high. The higher standard of proof required in criminal trials (based

95 In fields such as financial services the development of ‘defensive practice’ by professionals seeking to avoid any possible accusations of wrongdoing potentially has serious costs. Such costs have not been estimated in cost of crime studies but they are certainly referred to in the literature on financial markets (University of York, 2009).
‘beyond reasonable doubt’) as compared with non-criminal trials (where normally proof is based on ‘balance of probabilities’ doctrine) is itself an indication of more weight being given to avoiding incorrectly convicting the innocent. The doctrine makes evidence collection more important and thus more costly cases that received greater attention in the past (public attention, demonstration, riots). Care is needed here however: many of these higher costs will be reflected in higher prosecution and defense costs than would otherwise be incurred. There is a danger of double counting costs if justice costs are included.

4.2 CBA as a horizontal recommendation for policy analysis

“The substantial costs of crime and the limited resources available for crime prevention programs provide a compelling argument for a systematic approach for allocating scarce public resources among competing programs or policies on the basis of CBA” (Dossetor, 2011, p. 1). The second objective of the MMECC project was to demonstrate, how cost estimates can be used for policy analysis. CBA is not a self-evident strategy for criminal justice policy (Rosenberg & Mark, 2011, p. 1). The results of the review on the role of cost of crime estimates in crime prevention or crime reduction policies conducted as part of the MMECC provide an informal picture on the degree of awareness among EU criminal justice policy-makers about methodologies, application and interest in the CBA methodology in the justice sector (see Appendix E, p. 3). The survey questions enquired information about the degree to which policymakers are required to prepare appraisals or (economic) evaluations of policy and have access to the requisite cost of crime estimates. The results suggests that there is wide scope within the EU for greater use of the cost of crime approach and require a better understanding of the rationale behind employing CBA as a horizontal tool.

The first question on the influence of economic arguments about the costs and benefits of government projects and programs in the criminal justice sphere in the respective country on policy decisions was considered ‘very important’ (Cyprus), ‘quite influential’ (Hungary, Lithuania, Latvia and Slovenia), ‘of some importance’ (Belgium,

96 Question 1: “To what degree do you think economic arguments about the costs and benefits of government projects and programmes in the criminal justice sphere in your country influence policy decisions?”
Czech Republic, England & Wales, Estonia, Germany, Norway, United States), ‘not very important’ (Denmark, Finland, Luxembourg, the Netherlands, Poland, Portugal) to ‘pretty much irrelevant’ (Spain). The second question\textsuperscript{97} indicated that only few countries (among these England & Wales, Hungary, Latvia, Lithuania, Netherlands, Spain, and the United States) have requirements to prepare an appraisal of the costs and returns of investment projects in the criminal justice sphere. The third question on the role of economic methodology in research on the criminal justice system\textsuperscript{98}: In the majority of countries (Belgium, Cyprus, Czech Republic, Denmark, England and Wales, Finland, Germany, Hungary, Lithuania, Norway, Portugal, Slovakia, Slovenia, US) the economic methodology in research is reported not to be widely used either within or outside government. In the remaining six countries it is said to being hardly at all used either by government analysts or others. In the remaining six countries it is said to being hardly at all used either by government analysts or others.

The answers to the fourth question on the use of other kinds of social research methodology for policy purposes\textsuperscript{99} reflected academic research on criminal justice to be dominated by those with a background in social sciences other than economics, such as sociology and psychology. Those supposedly tend to exercise more important influences particularly for proponents of qualitative research methodology (including statistics, operational research and anthropology). In countries like the United States and the United Kingdom the output of non-economic-based research on the criminal justice system is substantial, but considered as not always particularly influential: “Policy-makers may take account of the findings from research, and will make use of them when expedient, but rather rarely allow research evidence to dictate policy development very directly” (see Appendix E, p. 5).

In many countries, “\textit{the approach to assessing the cost of crime and its prevention lacks rigor and is highly subjective}” (University of York, 2008). Since economic analysis

\textsuperscript{97} Question 2: “Is there a requirement to prepare an appraisal of the costs and returns of investment projects in the criminal justice sphere in your country?”

\textsuperscript{98} Question 3: “Does economic methodology play a prominent part in research on the criminal justice system in your country?”

\textsuperscript{99} Question 4: “Are other kinds of social research methodology (e.g. criminology, survey methods, and/or qualitative analysis) used for policy purposes?”
tends to assume ‘completeness of knowledge’ of all the effects and corresponding weights, one should be wary of an overly narrow focus on a limited set of economic factors in CBA assessments. The CRCC project has offered an illustration of “bad-practice example”, where a consultant calculated costs without any background knowledge of the prison system: “If the new prison turned out to be too expensive, he simply cut staff by half, and recommended to keep prisoners inside the cell for most time, which – as he said – would be less cost intensive than having them running around all the time” (Alfé & de Wever, 2011, p. 25). Such a case is not only narrowly focused and poorly modeled. Following to this, there can be a risk involved in daily practice that economic analyses result in judgments that are without justification (Sen, 2000, p. 939-941).

This overall “calls for a more rigorous, scientific approach to the collection, collation and analysis of data would help to ensure the most effective use of manpower and financial resources. Where good practice is identified, it needs to be highlighted and encouraged throughout the EU” (Alfé & de Wever, 2011. p. 3). Although the CBA mindset in criminal justice matters does not come without its flaws, it needs to become clear that by using methods such as CBA (system analyses and program budgeting), economists are striving to develop criteria for an improvement in the allocation of resources in the criminal justice setting (law enforcement and crime prevention).

Bergin (2013) articulated four rationales that summarize a range of potential advantages of using CBA in criminal justice policy making. A key rationale for employing CBA in policy-making is the innate clarity of its results. CBA can produce findings that are simple to interpret and provide a straightforward answer to the question of whether a policy decision is economically ‘worthwhile’. Crime cost estimates show how even modest reductions in certain types of crime can generate substantial economic benefits. This way findings are “easy to interpret and, for non-specialists at least, would likely have a greater intuitive appeal than a complex list of regression coefficients and significance levels” (Bergin, 2013, p. 64). The normative and purposeful-oriented framework that is created with economic approaches is the reason why economic arguments sometimes receive greater acceptance among policy makers (Cook et al. 2012).
A second rationale for employing CBA is that the technique requires policymakers or bureaucrats to think through a policy’s potential outcomes and consequences (Brown 2004, p. 335). As Pearce, Atkinson, and Mourato (2006, p. 34-35) have argued, CBA encourages decision-makers to think about who will benefit and who will be harmed as a result of a decision and, since CBA takes into account all costs and benefits, it requires decision-makers to adopt a broader perspective regarding a decision’s impact. In other words, performing CBA calculations makes it more difficult for policymakers to ignore that certain citizens might be harmed by a policy (Bergin, 2013, p. 64).

A third rationale is that CBA could help save taxpayer’s money. Indeed, CBA is often specifically employed to achieve this purpose (see Chapter 5.1.1.). The increases in criminal justice costs in countries, such as the United States, and the related desire to curb these costs have likely helped drive the increased application of CBA to criminal justice policy-making (Bergin, 2013, pp. 64-65). As cost of crime estimates and the employment of CBA are to follow the principle of transparency, a decrease as well as an increase in taxes can be presented in a more transparent way. The impacts of crime prevention policies on different members in society (taxpayers, victims, offenders, and overall society) are further investigated in Chapter 5.1 (including the key principles surrounding CBA).

A fourth rationale is that CBA can contribute additional information that other evaluations of criminal justice policies’ effectiveness cannot convey. Marsh, Chalfin, and Roman (2008) found that, across numerous studies of criminal justice interventions, effect size (indicating the intervention’s impact) and net benefit were not strongly related. Thus, evaluations and CBA do not always produce similar results and could in fact actually lead policymakers to endorse different policies. “CBA thus has the potential to contribute unique and important information to policy decisions that is not available through other sources” (Bergin, 2013, p. 65). Reduced crime costs are regarded as savings that can be invested in more productive and welfare-enhancing activities” (Dodds & Colman, 1999, p. 7).

As findings from the literature review in the third chapter demonstrated, comprehensive CBA studies for criminal justice and policy matters are still few in number. CBA has been recommended as a horizontal tool for strategic decision-making. In comparison to the most often used top-down policies, policy-making targeting ‘at risk’ populations
including migrants, youth, unemployed and addicted persons, involving them in identifying solutions appear to be more successful (Alfé & de Wever, 2011, p. 28). Also from the academic side – engaged in evaluation research of crime prevention – it has been increasingly laid down that CBA not only can be used, but actually should be used in policy-making (Czabanski, 2008).

4.3 Interim findings: European cost of crime assessment model and CBA

The aim of this chapter was to re-direct the attention to the FP6-EU initiatives on the field of the costs of crime (MMECC and CRCC projects) that have been conducted between the years of 2007-2009. The projects reveal some important information on the remaining difficulties in generating figures on the cost of crime estimates and lack of familiarity with CBA assessments in criminal justice matters. Besides the problematic data situation in most countries, these include: the level of influence of economic arguments about the costs and benefits of government projects and programs in the criminal justice sphere, requirements to prepare an appraisal of the costs and returns of investment projects, economic methodology in research, or the use of other kinds of social research methodology for policy purposes (see Appendix E).

For most of the cost categories a preferred methodology and standardized methodology is given (see Appendix B). The data requirements for generating figures on different cost components clearly demonstrate that victimization surveys are the point of departure. To date, the model serves as the first most complete tool (Bowles, 2009, p. 5) for estimating the cost of crime for a number of countries to conduct their own estimates. There still remain some important unresolved technical challenges to consider, such as: “How much scope exists for extending ‘top-down’ approaches to measuring the costs of crime? Is the QALY approach the best way of characterizing the losses from violent and sexual offenses? Can we use the average property loss reported by crime victims as a proxy for losses from recorded crimes?” (University of York, 2008).

Indeed, CBA can be used for a wide range of legal issues, and help policy makers to find solutions to complex questions. For policy evaluation purposes, strategic planning and decision-making, the tool however still requires a better understanding of the rationales (this chapter) behind and principles (next chapter) of employing CBA. All
this can be used as a strong argument for introducing CBA as a horizontal recommendation for policy analysis (evaluation, planning, and decision-making). The next chapter further addresses the lack of means for developing an evidence-based documentation of costs and benefits of criminal justice interventions, and emphasizes on the contemporary importance of and feasibility of CBA as an analytical tool in the crime prevention context.
5. Implications for actual criminal policy

Criminal policy is the part of legal policy that deals, in particular, with criminal law, correctional treatment and crime prevention (Lange, 2008). In a broader sense, criminal policy covers “the public debate and decision-making pertaining to crime prevention and to control and sanctioning of criminal behavior”, as well as “other comparable deviant behavior inviting punitive sanctions” (Lahti, 2000, p. 142). This particular policy field is therefore understood as the systematic design and analysis of social strategies, tactics and sanctions for the purpose of optimal crime control. The special tasks of criminal (justice) policy are to seek the most effective and efficient way of criminal justice with respect for human and fundamental rights and the principle of proportionality (fairness in justice). In its practical manifestations (and democratic settings) this should include the decisions of society with regard to crime and the measures against crime (Lahti, 2000, p. 142).

In the context of any rational crime and justice policy “implementing a sustainable policy agenda requires that its advocates ‘tell a good story’, consistent with cultural sensibilities about why crime occurs and what should be done in response” (Knepper, 2007, p. 17). Hereby, “research-based crime policy is the most effective way of getting rid of the emotion-based and ideology-based policies” (van Dijk, 1997, p. 26). Hence, a more rational approach means that policy and decision-making should be based on empirical evidence. This policy requirement, however, demands a well-functioning research or evidence-based framework. In the fields of criminal justice and related public sectors, “many researchers have complained that policy makers and practitioners have not paid enough attention in the past to evidence about what works” (Farrington, 2013, p. 295). In many ways, there is often still a disproportionate influence of political expediency, ideology, and special interests in the forging of policy (Mears, 2007, p. 668).

The role of criminology as a discipline is a vital one in criminal justice and prevention research. “Research into criminal policy comes close to research into general legal policy and into applied criminology” (Lahti, 2000, p. 142). In Germany, however, research into criminal policy is at a rather critical stage, not the least, because of a general weak influence of criminological findings, and shortcomings of the current German prevention strategies. These include the absence of systematic impact and
evaluation assessments, which are essential to determine the effectiveness of prevention measures on a secured basis (BMI, 2006, p. 101). In spite of a number of articulated demands for a systematic provision of evidence-based crime prevention measures, Germany is missing a well-articulated crime prevention strategy on a federal level.

Although countries like Canada are greatly involved in prevention on social development, researchers are still faced with country-specific challenges in regard to the implementation of already established strategies (such as the NCPS). Hereby, the economic analysis of crime prevention plays an essential role, because “although evidence-based crime prevention has been identified as a priority in many political and policy settings, still very little is known about the economic efficiency of crime prevention programs” (McIntosh & Li, 2012, p. 1). In order to acquire a basis for decision-making, the comprehensive conversion of costs and returns of public as well as private intervention measures in a unified manner, does not only seem very reasonable, but they are in fact inevitable. In the recent evaluation on the economic analysis (of costs and benefits) of prevention in preparation for the 20th German Congress on Crime Prevention (GCOCP) the assigned evaluator speaks of a substantial neglect of the topic (Thomsen, 2015, p. 6). In order to produce good evidence on the economic efficiency of crime prevention, the generation of comprehensive figures of cost of specific offense types is the most underestimated step to consider and should no longer be ignored.

In the criminological discourse, there is the widely supported notion that “the best criminal policy is a good social policy” (von Liszt, 1882), where the objective of social policy is welfare (Hill, 1988, p. 2). From an economic perspective, Liszt’s thesis implied a reversal of the previously planned share of the government budgets for classic crime prevention in the direction of general social policy objectives (Entorf & Meyer, 2004, p. 37-38) – towards more welfare-enhancing activities. Among the more contemporary aspirations in this regard the establishment of a preventive welfare state (or preventive social policy) has reached a prominent place (Jochem, 2012).

100 Over the last decades, in Germany there seems to have evolved a fairly broad consensus in the society about the basic expectations in this regard, originally, in the economic sector, characterized with the label social market economy (“Soziale Marktwirtschaft”). Nevertheless, differences obviously still exist, for instance, concerning the remaining role of the State and its involvement in the economic sector, privatization, extent of intervention and support for disadvantaged people, immigration of refugees etc.
Cullen and colleagues argue that criminologists who advocate social policy as an approach to crime have simply not been as successful in guiding politically relevant investment decisions as advocates for changes in crime policy within the more narrow range of policy functions (legal doctrine): “It is clear that being right about crime – developing solid knowledge through ‘good’ criminology – is not enough to influence public policy” (Cullen, Wright & Chamlin, 1999, p. 195). As social scientists are moving towards more applied-oriented levels, the economic analysis toolkits offer new opportunities to be heard.

In the contemporary research setting, the results of value-added analyses (or CBA) help to inform decision-makers about prudent resource allocations, and guide decisions on interventions at a more targeted strategic planning on the basis of a responsible policy appraisal and evaluation) – whether at a local, state, or federal level. Estimates for costs of crime form the basis for analytical tools, such as CBA assessments of prevention programs, for deriving net benefit to society and whether a project should be expanded, and, in turn it can be used to identify areas of future crime prevention research and action. As already explained before, crime prevention becomes more and more closely linked to and interconnected with the comprehensive target of building sustainable development within the respective societies, far beyond the mere economic aspects. Against this background, the research on crime prevention evolving around addressing

This has also been reflected in the manifestation of the main political parties like the following example shows:

The Preventive Welfare State represents an organised solidarity between the strong and the weak, the young and the old, the healthy and the sick, those who are working and the unemployed, the able-bodied and the handicapped. The basis of the welfare state is formed by state guaranteed social security and participation, the legally enforceable entitlement to social benefits and workers’ rights...guaranteeing security in the course of transformation...Preventive social policy promotes employment that provides people with a livelihood, assists in child raising and puts the emphasis on preventive health care. It shapes demographic change and promotes a higher employment rate among women and older people. It prevents exclusion and facilitates labour market integration. It does not release anyone from their responsibility for their own life. The preventive welfare state conceives of education/training as a key element of social policy. Paramount objective of the preventive welfare state is the social integration of everyone. To that end, preventive social policy links up a range of tasks, such as economic, financial and labour market policy, education/training and health care policy, family and equal opportunities policy and the integration of immigrants (Hamburg Programme, 2007, p. 56).

As the Executive Director of the United Nations Office on Drugs and Crime (UNODC), Yury Fedotov, has said, people aspire to be free from the grip of crime, violence, corruption and insecurity: “This basic human aspiration chimes with a growing recognition across the international community that crime is not simply a social problem, but a grave obstacle to achieving sustainable development.”
societal issues in a sustainable way offer new ground for strategic planning and decision-making. The growing evidence base on the economics of crime prevention is giving rise to a new political economy in that respect – the political economy of (crime) prevention. As it is argued in this dissertation, the enhancement of the cost of crime research branch, could not only greatly contribute to the realization sustainable development concepts (such as the SDGs), but could also bring criminal policy in Germany back on track, and in line with EU demands and international crime prevention policy ideals.

In light of contemporary societal and economic challenges, the underlying goal of this chapter is to emphasize on the importance of a profound foundation on the costs of crime in political decision-making processes. The first part looks closer at the CBA framework to demonstrate potential impacts of crime prevention policies on different members in society (taxpayers, crime victims, offenders, and overall society) along the corresponding taxonomy of crime cost categories of the MMECC model. The second part of the chapter is devoted to a discussion on rational criminal policy as a basic goal for society and as a future task. The first section addresses the critical state of criminal policy in Germany in light of its dominant legal doctrine, the critical standing of criminology, and the current stage of crime prevention with respect to the growing international relevance of the topic. The second and third sections are committed to the economics of crime prevention as a new political parameter: The economization of crime prevention and the corresponding applied-oriented framework along five decisive elements of future work for the German case. The final section summarizes key findings on the political implications of the cost of crime approach in Germany.

102 see Gough (2013) on the political economy of preventive public policies.
5.1 CBA (different members of the society) and crime prevention

Although the roots partly date back early, research on a more comprehensive CBA framework, in particular with regard to social welfare economics, achieved a more prominent body in line of the century. CBA began to set off as a widely practiced decision-making instrument in the 1980s, notably in the fields of environmental policy, transport planning, and healthcare. In the 21st century knowledge-based economy\(^{103}\), this particular economic toolkit is now recognized as the major appraisal technique for public investments and public policy. The extension from CBA to social CBA is usually linked to social and urban planning.\(^{104}\) The application to criminal justice matters has enjoyed fluctuating fortunes since the introduction of Becker’s prominent article in the 1960s and is still now considered as a “market for suspicion” (Bergin, 2013, pp. 59). In comparison to the environmental and healthcare sector, the evidence-based framework of crime prevention and justice policy is faced with a number of country-specific institutional challenges. In criminal justice policy, it has only just begun to gain traction (Rosenberg & Mark, 2011, p. 2), and hence, does not come without its criticism (Bergin, 2013). This part of the chapter aims to overcome some of the extant deficiencies, underline the feasibility of the CBA framework to crime prevention policies (and project appraisal), which should not exclude the limitations in approach.

For policy evaluation purposes and project appraisal, a distinguishing feature of the CBA assessment is its comprehensiveness. Downey and Roman (2014) emphasize the capacity of this analysis tool (or appraisal technique) in the following manner: CBA can, first of all, tell us the impact of a program on a wide range of outcomes; second of all, offer guidance on how to balance these diverse impacts; and thirdly, tell us how the program draws from (or contributes to) the pool of available resources. CBA cannot, however provide the end-all, be-all, irrefutable, definitive answer to all policy questions, and it cannot do anything without a strong impact analysis (p. 7-8). In fact, without an impact evaluation there are no effects to value (Downey & Roman, 2014, p. 10). The

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\(^{103}\) The term "knowledge-based economy" stems from this fuller recognition of the place of knowledge and technology in modern OECD economies.

\(^{104}\) In social CBA the aim is to systematically survey all relevant socio-economic impacts caused by an urban project and security threat, and attach a price to as many effects as possible in order to uniformly weigh these heterogeneous effects. The estimated costs reflect the value a society attaches to a caused effect enabling decision-makers to inform statements about net social welfare effects of a project.
application of CBA in justice policy analysis provides a set of rules for answering questions on what factors allow crime prevention to maximize the net social benefit that it can produce, and more generally encourage a comprehensive approach to evaluation.

The evaluation and program effects must be carried out with the same care and diligence as the planning, design and implementation of the program (Thomsen, 2015, p. 10). There is as well a possible discrepancy between what researchers think they are producing (namely, estimates of societal well-being) and what stakeholders think they are receiving (such as advice about fiscal savings). Contemporary CBA applications are not designed to answer the question on how much money an agency can expect to save from a particular program (as opposed to, for instance cost-savings analysis). The fact that, the application of CBA in criminal policy is about improving the social well-being and resulting in an enhancement of an effective and efficient allocation of resources representing a crucial and often overlooked point that must be considered (Downey & Roman, 2014, p. 8).

Matthies (2014) summarizes the guiding principles for CBA and justice policymaking in a useful manner. First, as a decision tool rather than a decision rule CBA should not replace other measures of crime control and prevention, but as a planning technique complement conventional practices in making consequences of actions more transparent. Second of all, analysts should strive to quantify all impacts of a policy alternative relative to current policy and to monetize costs and benefits for all members of society and provide reasoning for why excluding other perspectives

105. Third, the principle of transparency should be uphold in order to enhance the value of results. Fourth, areas of uncertainty should be disclosed and clearly described how uncertainties have been addressed. The fifth and the sixth principles address elements of encouragement aspects, in that “the effort required for a CBA should not outweigh the expected value of the resulting information” and “the pursuit of a perfect analysis should not prevent the completion of a useful one” (Matthies, 2014, p. 2-3).

The following model (see Figure 9) demonstrates the trade-off between perspectives (narrow to broader) and level of difficulties (easier to harder) to quantifying and monetizing impacts.

105 Include at least the perspectives of taxpayers and victims (Matthies, 2014, p. 4)
The wider the perspective, the more difficult it is to quantify and monetize impacts. The benefits that should be measured and valued in a criminal policy evaluation include health, employment, education benefits, and crime reduction (Welsh & Farrington, 2000, p. 305). Where in some cases societal costs and benefits may be hard to quantify because of insufficient information to isolate the impacts of a policy on all members of society, at other times the impacts may be difficult to convert into money values. In particular in the absence of comprehensive cost of crime estimates (mostly of intangible nature) the latter remains uncertain. Other limitations arise from the remaining uncertainties with regard to determined costs and income as well as the assessment of its future development. Hence, as CBA is subject to a high degree of subjectivity, the

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106 see Cowell, Roman and Lattimore (2009) for the subsequent study on an economic evaluation of serious and violent offender reentry initiatives.

107 In practice, studies may not account for all perspectives, given the many challenges of conducting rigorous CBAs, as well as diverse opinions about which perspectives matter in an analysis. It is recommended that: (1.) Justice CBAs should include at least the taxpayer and crime-victim perspectives; (2.) CBAs should be explicit about any relevant perspectives that are excluded and the reasons for the exclusion; (3.) When reporting the results of a CBA, analysts should disaggregate and display the costs, benefits, and net benefits (or other metrics) for each perspective included in the study. CBAs should be explicit about any relevant perspectives that are excluded and the reasons for the exclusion (Matthies, 2014, p. 4).
choice, involvement and assessment of cost and benefit variables require scientific expertise and refined quality standards (Thomsen, 2015, p. 10).

As it is argued, “crime is another policy area in which preventive discourses figure greatly” (Gough, 2013, p. 8). As a policy framework “crime prevention comprises strategies and measures that seek to reduce the risk of crimes occurring, and their potential harmful effects on individuals and society, including fear of crime, by intervening to influence their multiple causes” (ECOSOC Resolution 2002/13, Annex).

In essence, crime prevention policies aim to address causal factors of crimes occurring. Figure 10 illustrates the dimensions of factors influencing the risks of crime and violence. Among the key risk factors are: relative poverty and inadequate housing; inconsistent and insufficient parental or guardian guidance; limited social and cognitive abilities; exclusion from school; family violence; few opportunities for employment and economic exclusion (Waller & Sansfaçon, 2000, p. 5).

![Factors influencing risks of crime and violence](image)

Source: Taken from the UNODC and ICPC “Handbook of the Crime Prevention Guidelines: Making them work”, p. 10 (Figure 1), originally adapted from A. Masten and J. Powell on “A resiliency framework for research, policy and practice”, in Resilience and Vulnerability: Adaptation in the Context of Childhood Adversities, S. Luthar, 2003, pp. 1-29.

Studies have shown that a small group of individuals (5-10%) account for most offenses (50-70 percent) committed each year. Researchers in the field have concluded that youth exposed to any or all of the following conditions are more likely to commit delinquent acts than those who are not (Waller & Sansfaçon, 2000, p. 5).
In health policy, it is being usually distinguished between three levels of public intervention in health policy (Coote, 2012; Gough, 2013, p. 2): *Upstream interventions* (to prevent harm before it occurs, usually focusing on whole populations and systems); *midstream intervention* (to mitigate the effects of harm that has already happened, usually targeted at groups or areas considered ‘at risk’); and *downstream interventions* (to cope with the consequences of harm that has not been – or cannot be – avoided).

In crime prevention research, these are termed primary, secondary and tertiary measures of crime prevention.\(^\text{109}\) In earlier works, Brantingham and Faust (1976) defined *primary crime prevention* as to identify “conditions of the physical and social environment that provide opportunities for or precipitate criminal acts...and the alteration of those conditions so that no crimes occur”. *Secondary crime prevention* is defined as an activity that “engages in early identification of potential offenders and seeks to intervene in their lives in such a way that they never commit criminal violation” (p. 290), whereas *tertiary crime prevention* “deals with actual offenders and involves interventions in such a fashion that they will not commit further offenses” (Brantingham & Faust, 1976, pp. 289-292).

In light of the developments within the criminological discourse, Welsh and Farrington include the victimization perspective and define primary, secondary and tertiary prevention as measures “focused on improving the general well-being of individuals”, “on intervening with children and youth who are at risk for becoming offenders or victims”, and “measures directed toward those who have already been involved with crime or victimization” (Welsh & Farrington, 2010, p. 2) respectively. These three basic categorizations have been refined and are nowadays further divided into the strategical sub-categories of developmental, social, situational, and criminal justice prevention measures (Chainey & Ratcliffe, 2005).

*Table 11* summarizes these contemporary forms of crime prevention strategies and points out where CBA analyses have already been applied.

\(^{109}\) *Crime prevention* involves any activity by an individual or group, public or private, which attempts to eliminate crime prior to it occurring or before any additional activity results. By drawing on the public health model, some theorists have distinguished between primary crime prevention (universal), secondary crime prevention (at-risk) and tertiary crime prevention (known offenders) (Chainey & Ratcliffe, 2005).
<table>
<thead>
<tr>
<th>Model / Strategy and CBA feasibility</th>
<th>Examples (and/or CBA applications)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Developmental crime prevention&lt;sup&gt;110&lt;/sup&gt;</td>
<td>- Parenting programs&lt;sup&gt;111&lt;/sup&gt;</td>
</tr>
<tr>
<td>- Parenting programs&lt;sup&gt;111&lt;/sup&gt;</td>
<td>- Early intervention programs&lt;sup&gt;112&lt;/sup&gt;</td>
</tr>
<tr>
<td>- Early intervention programs&lt;sup&gt;112&lt;/sup&gt;</td>
<td>- Treatment programs&lt;sup&gt;113&lt;/sup&gt;</td>
</tr>
<tr>
<td>- Treatment programs&lt;sup&gt;113&lt;/sup&gt;</td>
<td>- Rehabilitation and reparation</td>
</tr>
<tr>
<td>- Rehabilitation and reparation</td>
<td>- Employment and re-entry programs&lt;sup&gt;114&lt;/sup&gt;</td>
</tr>
<tr>
<td>- Employment and re-entry programs&lt;sup&gt;114&lt;/sup&gt;</td>
<td>- Community-based interventions&lt;sup&gt;115&lt;/sup&gt;</td>
</tr>
<tr>
<td>Social development</td>
<td>- Community building activities and local partnerships</td>
</tr>
<tr>
<td>Social development emphasizes measures on strengthening neighborhoods (enhance the sense of community), as local communities with strong bonds and where people know each other are less prone to experience crime, and as enhancing ‘social capital’ or the relationships between people can be beneficial in protecting people from crime.</td>
<td>- Provision of welfare services (social service)</td>
</tr>
<tr>
<td>- Provision of welfare services (social service)</td>
<td>- Community support groups and</td>
</tr>
<tr>
<td>Situational crime prevention (SCP)</td>
<td>- Projects aimed at high-crime areas and work with potential problem youths&lt;sup&gt;116&lt;/sup&gt;</td>
</tr>
<tr>
<td>SCP is aimed at eliminating opportunities for crime. The strategy includes opportunity reducing measures that are targeted at specific forms of crime and aimed at increasing “the effort and risks of crime and reduce the rewards as perceived by a wide range of offenders” (Clarke, 1992, pp. 3-4). These measures include target hardening and design measures, risk prediction and assessment, assessment of ‘dangerousness’ and ‘risk’.</td>
<td>- Crime Prevention Through Environmental Design (CPTED)</td>
</tr>
<tr>
<td>- Crime Prevention Through Environmental Design (CPTED)</td>
<td>- Surveillance (CCTV)</td>
</tr>
</tbody>
</table>

<sup>110</sup> see section 3.1.4. of this dissertation: Also defined as defined as “interventions designed to prevent the development of criminal potential in individuals, especially those targeting risk and protective factors discovered in studies of human development” (Welsh & Farrington, 2012, p. 128).

<sup>111</sup> see Reynolds, Temple, Robertson, and Mann (2002) cost-benefit analysis on the Chicago Child Parents Centers (CPC). (see Dossetor, 2011, pp. 29-32)

<sup>112</sup> For instance, the Perry High Schope Pre-School Program (see Chapter 3.1.3. of this dissertation).

<sup>113</sup> see Caldwell, Vitacco, and Van Rybroek (2006) on the treatment of violent offenders at the example of the Mendota Juvenile Treatment Center (MJTC). Dividing total benefits by total costs produced a desirable cost-benefit ratio of 7.18:1. For each USD 1 that was invested in this program, taxpayers received USD 7.18 in benefits from reduced recidivism (see Dossetor, 2011, pp. 17-19).

<sup>114</sup> For instance, the Serious and Violent Offender Reentry Initiatives (SVORI), Center for Employment Opportunities (CEO).

<sup>115</sup> Robertson, Grimes, and Rogers (2001) on a short-run cost-benefit analysis of community-based interventions for juvenile offenders. Dividing total benefits by total costs produced a desirable cost-benefit ratio of 1.96:1. For each USD 1 that was invested in this program, taxpayers received nearly USD 2 in short-term benefits from reduced justice system expenditure (Dossetor, 2011, pp. 19-22).

<sup>116</sup> see Bowers, Johnson, and Hirschfield (2004) for an evaluation of alley-gating, who found that restriction to access via rear alleyways increased the number of burglaries for which access was gained at the front of the houses, or other entry points (tactical displacement). The analyses that focused on action areas where the gates had been installed for 12 months or more produced a positive CBA of 1.86:1 (Dossetor, 2011, pp. 15-17).
Criminal Justice & crime prevention

| The more traditional criminal justice interventions (police, courts, probation or community penalty, and prison) work best when accompanied by the other models. | - Probation and community penalties
- Drug courts
- Treatment programs |

Source: Own summary based on the literature findings.

Some strategies, such as the ones through social development appear to be less suitable for CBA assessments, in particular because factors involved are harder to quantify. That however, does not make them less considerable. Also, it is important to note that an inefficient program does not mean that the question of the effect target or the field of prevention is irrelevant. But it means that designing, implementing and expense disproportionate to the achieved goals and effects are (Thomsen, 2015, p. 13). Waller and Weiler (1985) draw attention to the many reasons for focusing on crime prevention through social development, including the diminishing public’s fear of crime and the number of crime victims as a result in a reduction of crime. Furthermore, while the police, courts and corrections attempt to control crime, their scope for further crime reduction, using their traditional methods, is limited. In addition to that, while the opportunity reduction can displace crime and reduce it in the short term, it may not reduce crime in the long term. Many of the relevant factors linked systematically to crime by longitudinal studies can be influenced by social development (p. 7).

CBA assessments have been mostly undertaken in the field of developmental (parenting programs, school enrichment initiatives, pre-school regimes; rehabilitation and treatment programs for offenders and ex-offenders, such as training of job skills and the social reintegration of offenders), situational (surveillance programs, crime proof designs), criminal justice in combination with crime prevention (drug courts). Wherever a program has undergone a CBA assessment, the program itself should be viewed as case studies. Research and practice have shown that local programs developed into best-practice examples and crime prevention projects and development of new guidelines (to

117 For examples on drug courts and drug abuse treatments (Carey & Finigan, 2004; Daley, Love, Shepard, Petersen, White, & Hall, 2004; Acumen Alliance, 2005; Roman, Chalfin, Reid, Reid, & Center, 2008): Multnomah county drug courts; Anchorage Wellness Court (AWL); Victorian Drug Court; Connecticut’s in prison substance abuse treatment.

118 see, for instance, Drug Abuse Reduction Education (DARE), or Rajkumar and French (1997) on Treatment Outcome Prospective Study (TOPS).
promote such efforts). The growing body of guidelines addresses interested parties from technical, practical as well as policy backgrounds (Henrichson & Rinaldi, 2014).

The next four sections provide a brief overview on the perspectives and roles different members in society, taken into account in comprehensive CBA: The taxpayers (or government perspective), crime victims (and potential victims) and offenders (or program participants), and overall society (families of victims and offenders, communities, businesses, public spaces). In order to decide on how society might value changes due to crime prevention interventions (such as reduced victimization cost, reduced fear, reduced crime, confidence in justice) the analysis applies findings from the previous chapter on the different cost categories and components as presented in the MMECC model. The emphasis is put on who may benefit and the extension of view from the criminal justice perspective to the wide area of public sector agencies involved.

5.1.1. Taxpayers (or government perspective)

Taxpayers bear the costs of resources devoted to governmental crime prevention programs, and bringing offenders to justice. Taxpayer’s funds are the primary source of the CJS as well as the related public sector functions linked to the criminal justice system, including public assistance, social services, and education. CBA studies therefore routinely include the taxpayer perspective. As it is as well synonymous with government budget perspective, it lies in the accountability of the state to use or distribute these financial resources wisely. Since these parties do not always agree about how public funds are being spent; the principle of transparency (of CBA assessments) offers to enhance the legitimization of the use of resources, and in turn, build greater confidence in justice. In that sense, the taxpayer’s perspective is a very crucial perspective to take into account.

Comprehensive CBA assessments of criminal justice and prevention measures aim to extend the narrow perspective of the stakeholder (in this case the taxpayer or government perspective). In the MMECC model (see Table 12): Costs of government programs aimed at crime prevention (strategies, activities and particular programs) and criminal justice costs (police, prosecution, court, legal defense, prison, probation, enforcing financial penalties). Many programs (alternative crime control policies) are designed to decrease tax revenues. Accurate estimations of the costs to taxpayers are
critical to CBA. The Vera Institute of Justice provides a detailed guide on how to calculate justice system *marginal costs*\(^{119}\) to arrive at a taxpayer’s benefit (Henrichson & Galgano, 2013). The “economic consequences of a reduction in government workload are called taxpayer benefits rather than taxpayer savings” (Henrichson & Galgano, 2013, p. 5).

\(^{119}\) *Marginal cost* is the amount of change in total cost when a unit of output changes.

*Table 12* Impacts on MMECC cost categories relevant to taxpayers

<table>
<thead>
<tr>
<th>Cost categories/components</th>
<th>Parties who bear the costs</th>
<th>Relation to different public sector functions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Costs of crime prevention activity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Government crime prevention programs</td>
<td>Society/government</td>
<td>CJS, public assistance, social services, education</td>
</tr>
<tr>
<td>Police</td>
<td>Society/government</td>
<td>CJS</td>
</tr>
<tr>
<td>Prosecution service</td>
<td>Society/government</td>
<td>CJS</td>
</tr>
<tr>
<td>Court</td>
<td>Society/government</td>
<td>CJS</td>
</tr>
<tr>
<td>Legal defense</td>
<td>Society/government</td>
<td>CJS (public/private)</td>
</tr>
<tr>
<td>Costs of investigation and criminal justice proceedings (CJS costs)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prison costs (or cost of imprisonment)</td>
<td>Society/government</td>
<td>CJS</td>
</tr>
<tr>
<td>Probation costs</td>
<td>Society/government</td>
<td>CJS</td>
</tr>
<tr>
<td>Enforcing financial penalties</td>
<td>Society/government</td>
<td>CJS</td>
</tr>
<tr>
<td>Costs to victims and witnesses</td>
<td>Society/government</td>
<td>CJS</td>
</tr>
<tr>
<td>Victim compensation</td>
<td>Society/government</td>
<td>CJS</td>
</tr>
</tbody>
</table>

Source: Own summary based on the MMECC model (University of York, 2008)

*Table 13* illustrates a few examples of comprehensive and comparable CBA results that can give specific information on the amount of net benefits to taxpayers from the WSIPP. The results demonstrate how the taxpayer’s benefit changes when taking into account the victim’s net benefit. For example, the net benefit of adult drug courts per participant in the state of Washington is USD 4,767 if taxpayer and victim perspectives are included, but drops dramatically to USD 372 when only the taxpayer perspective is included. In comprehensive CBA the principle of transparency prevails whether tax raises and reductions are in mind. If proceeding in this way, transparency certainly enhances its value on the willingness to pay for effective and efficient programs on alternative crime control programs and have the power to enhance confidence in justice. Nevertheless, results as such cannot always be demonstrated in this manner if comparability is not given.
Table 13  
Evidence-based options to reduce crime in Washington State (in 2006 USD)

<table>
<thead>
<tr>
<th>Program</th>
<th>Marginal program costs</th>
<th>Benefits (for a reduction in crime)</th>
<th>Net benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Taxpayer costs</td>
<td>For taxpayers</td>
<td>For victims</td>
</tr>
<tr>
<td>Vocational education in prison</td>
<td>1,182</td>
<td>6,806</td>
<td>8,114</td>
</tr>
<tr>
<td>Drug treatment in community</td>
<td>574</td>
<td>5,495</td>
<td>5,133</td>
</tr>
<tr>
<td>Adult drug courts</td>
<td>4,333</td>
<td>4,705</td>
<td>4,395</td>
</tr>
<tr>
<td>Juvenile drug court</td>
<td>2,777</td>
<td>3,167</td>
<td>4,232</td>
</tr>
<tr>
<td>Restorative Justice for low-risk offenders</td>
<td>880</td>
<td>3,320</td>
<td>4,628</td>
</tr>
<tr>
<td>Nurse-Family Partnership-Mothers</td>
<td>5,409</td>
<td>8,161</td>
<td>11,531</td>
</tr>
<tr>
<td>Nurse-Family Partnership-Children</td>
<td>733</td>
<td>4,922</td>
<td>8,632</td>
</tr>
</tbody>
</table>

Source: Based on a selection of cases from Evidence-Based Public Policy Options to Reduce Future Prison Construction, Criminal Justice Costs, and Crime Rate, S. Aos, M. Miller, and E. Drake, (Washington State Institute for Public Policy, 2006).

5.1.2. Crime victims (and potential victims)

The central goal to criminal justice policies is to maintain or improve public safety. The role of crime victims is probably the most crucial one to take into account in the assessment of criminal justice and policy. Victims can be individuals, households, businesses or even the government itself. Next to the taxpayer’s perspective, the perspective of crime victims is a critical part in CBA assessments on criminal justice interventions. When victimization is prevented or reduced, the avoided harms are counted as social benefits (Matthies, 2014, p. 5), including economic benefits. In the case of crime prevention, programs aim to achieve a reduction in victimization costs as a result of a successfully reducing causal risk factors of the offender, as well as address causal risk factors of victimization.

Table 14 summarizes the MMECC cost categories (see Chapter 4.1.) that are directly relevant for the victim’s perspective (victimization costs that are aimed at being reduced). This particular important perspective in CBA underlines the importance of monetizing tangible and intangible costs (Matthies, 2014). Depending on the particular crime or ‘problem’ being addressed with a crime prevention intervention, a successful reduction in crime might directly have a cost reducing impact on property loss, productivity loss, medical and mental healthcare cost, and pain, suffering and lost quality of life. Although mostly omitted from the costing models the avoidance of crime
might also further (then indirectly) have an impact on lost school days (long-term educational attainments), long-term consequences of victimization, and a reduction in the fear of crime (overall enhanced quality of life). The benefits that should be measured (or valued) in an evaluation on crime policy interventions include health, employment, education benefits, and crime reduction (Welsh & Farrington, 2000, p. 305).

Table 14  Impacts on MMECC cost categories relevant to victims

<table>
<thead>
<tr>
<th>Cost categories/components</th>
<th>Parties who bear the costs</th>
<th>Relation to different public sector functions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Costs to potential victims (in anticipation of crime)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Avoidance costs and precautionary expenditure</td>
<td>Potential victims</td>
<td>Security industry</td>
</tr>
<tr>
<td>Fear of crime by the public</td>
<td>Potential victims</td>
<td>Public spaces (loss in social capital)</td>
</tr>
<tr>
<td>Victimization costs (as a consequence)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Property loss</td>
<td>Victim/society</td>
<td>Insurance market</td>
</tr>
<tr>
<td>Productivity loss</td>
<td>Victim/society/employers</td>
<td>Labor market</td>
</tr>
<tr>
<td>Household services</td>
<td>Victim/family</td>
<td>Replacement service</td>
</tr>
<tr>
<td>Lost school days</td>
<td>Victim/society</td>
<td>Education</td>
</tr>
<tr>
<td>Medical and mental healthcare cost</td>
<td>Victim/family/society</td>
<td>Healthcare</td>
</tr>
<tr>
<td>Pain, suffering and lost quality of life</td>
<td>Victim/family</td>
<td>Healthcare</td>
</tr>
<tr>
<td>Victim support services</td>
<td>Victim/society/government</td>
<td>Social service</td>
</tr>
<tr>
<td>Legal expenses of tort claims</td>
<td>Victim/society</td>
<td>Income</td>
</tr>
<tr>
<td>Long-term consequences of victimization</td>
<td>Victim’s family/Society</td>
<td>Health and social care</td>
</tr>
<tr>
<td>Costs to victims and witnesses (in response)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Victim and witness costs</td>
<td>Victims/witnesses</td>
<td>Victim and witness support service</td>
</tr>
</tbody>
</table>

Source: Own summary based on the MMECC model (University of York, 2008).

5.1.3. Offenders (or program participants)

There are far less easily quantifiable or indirect costs to society, such as those borne by the victims of these crimes. The costs associated with an offender formerly incarcerated may be substantial. They often rely on social services (rather than contributing to society) or might require extra support from non-governmental agencies. In particular, re-offending implies an additional cost imposed on society (Alfé & de Wever, 2011, p. 27). Hence, the causal (and consequential) factors must be addressed in an effective and efficient manner (see Section 3.1.4. on criminal careers). For instance, a potential benefit produced by the penal system is determined by a successful re-integration of a prisoner into the labor market and society after imprisonment. In CBA assessments of
intervention measures, the benefits that should be measured (or valued) include crime reduction, reduction of recidivism, effect on their families, as well as health, employment, and education benefits. Although somewhat debated\textsuperscript{120}, there is a widespread agreement and overall practice to include offenders in CBA assessments of criminal justice and prevention interventions. More than that, “the rationale for including the offender perspective is that if CBA is used to decide between two programs with the same impact and benefits to the rest of society, the program that leads to better outcomes for offenders is preferable” (Matthies, 2014, p. 5).

\textbf{Table 15} Impacts on MMECC cost categories relevant to the offender

<table>
<thead>
<tr>
<th>Cost categories</th>
<th>Parties who bear the costs</th>
<th>Relation to different public sector functions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Costs of crime prevention activity (in anticipation)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Government crime prevention programs</td>
<td>Society/government</td>
<td>CJS, public assistance, social services, education</td>
</tr>
<tr>
<td>Non-governmental crime prevention programs</td>
<td>Society</td>
<td>Charitable and voluntary sector</td>
</tr>
<tr>
<td>Costs to offenders (as a consequence)</td>
<td>Offender</td>
<td>Labor market, social services</td>
</tr>
<tr>
<td>Police</td>
<td>Society/government</td>
<td>CJS</td>
</tr>
<tr>
<td>Prosecution service</td>
<td>Society/government</td>
<td>CJS</td>
</tr>
<tr>
<td>Court</td>
<td>Society/government</td>
<td>CJS</td>
</tr>
<tr>
<td>Legal defense</td>
<td>Society/government</td>
<td>CJS (public/private)</td>
</tr>
<tr>
<td>Costs of investigation and criminal justice proceedings (in response)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prison costs (or cost of imprisonment)</td>
<td>Society/government</td>
<td>CJS</td>
</tr>
<tr>
<td>Probation costs</td>
<td>Society/government</td>
<td>CJS</td>
</tr>
<tr>
<td>Enforcing financial penalties</td>
<td>Society/government</td>
<td>CJS</td>
</tr>
<tr>
<td>Costs of criminal sanctions (in response)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lost productivity</td>
<td>Offender/society</td>
<td>Labor market</td>
</tr>
<tr>
<td>Victimization to offenders whilst in prison</td>
<td>Offender/society</td>
<td>Healthcare</td>
</tr>
<tr>
<td>Offender costs from lost freedom</td>
<td>Offender</td>
<td>Leisure</td>
</tr>
<tr>
<td>Loss to offenders’ families</td>
<td>Offender’s family/society</td>
<td>Family support</td>
</tr>
</tbody>
</table>

Source: Own summary based on the MMECC model (University of York, 2008)

\textsuperscript{120} Some authors argue that offenders should not always have a standing in CBA with respect to their illegal activities, precisely because the activities are prohibited. For instance, Rajkumar and French (1997) point out that “otherwise CBA would be ad odds with the rule of law, a scenario that could lead to the absurd interpretation of stolen property as merely a transfer of goods from the victim to the offender, with no net change in social welfare” (Matthies, 2014, p. 5). A related point, if a more controversial one, is that the system of publicly recording that a person has been found guilty of committing a crime can be destructive of human capital.
Table 15 summarizes the cost categories that address the offender in a CBA assessment. Economists argue that offenders often lack standing with respect to criminal activities and costs incurred from legitimate punishment for those crimes (offender cost, offender costs from lost freedom). The costs to offenders as a result of imprisonment are all costs that are normally omitted in the cost of crime calculations (lost productivity, victimization to offenders whilst in prison, loss to offenders’ families). Policies that promote skill investment and work will reduce crime, as these may confer future benefits to participants in the form of better job prospects, higher earnings, and more self-esteem. Nevertheless, as the human capital approach by Lochner (2004) implies, “the optimal mix of enforcement, education, training, and wage subsidy policies has yet to be determined” (p. 841). All of these initiatives are likely to be important components of an effective crime-tackling strategy. This implies that investment into human capital could lead to greater social benefits in the long-run.

“The promise of successful rehabilitation and control of known offenders, many of whom are poor and uneducated, has a strong humanitarian and moral appeal. It has implications for the behavior and future income, if not the actual welfare, of these individuals...The restraining, retraining, counseling, and direct guidance offered to convicted offenders have been viewed as forms of social engineering aimed at effecting a reallocation of human resources away from crime toward socially more useful endeavors” (Ehrlich, 1981, p. 307). Overall, the offenders play an increasingly important role in rethinking priorities in criminal justice and policy decision-making around the world. “It is decisive that the argument for economic efficiency carries equal weight with efficiency in terms of well-being and human rights of prisoners and offenders” (Karstedt, 2013, p. 6).

5.1.4. Overall society

The central goal of sustainable prevention policy is the protection of society and enhancement of confidence in justice. The two most obvious costs associated with crime are the burden imposed on the victims of crime and government expenditure on police and the criminal justice system. Crime, however, has impacts on many other segments of society (Alfé & de Wever, 2011, p. 25). The costs imposed on communities, businesses are far less easily quantifiable or indirect costs to society,
because there may not be enough information available. For the wider impact on the society, the following cost components of the MMECC model can be highlighted (see Table 16).

### Table 16 Impacts on MMECC cost categories relevant to society

<table>
<thead>
<tr>
<th>Cost categories/components</th>
<th>Parties who bear the costs</th>
<th>Public sector considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Costs of crime prevention activity (in anticipation of crime)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Avoidance costs and precautionary expenditure</td>
<td>Potential victims</td>
<td>Security industry</td>
</tr>
<tr>
<td>Fear of crime by the public</td>
<td>Potential victims</td>
<td>Public spaces</td>
</tr>
<tr>
<td>Non-governmental crime prevention programs</td>
<td>Society</td>
<td>Voluntary sector</td>
</tr>
<tr>
<td><strong>Victimization costs (as a consequence)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Household services</td>
<td>Victim/family</td>
<td>Replacement services</td>
</tr>
<tr>
<td>Medical and mental healthcare cost</td>
<td>Victim/family/society</td>
<td>Healthcare (public/private)</td>
</tr>
<tr>
<td>Pain, suffering and lost quality of life</td>
<td>Victim/family</td>
<td>Healthcare (public/private)</td>
</tr>
<tr>
<td>Long-term consequences of victimization</td>
<td>Victim’s family/society</td>
<td>Health and social care</td>
</tr>
<tr>
<td><strong>Costs to offenders as a result of imprisonment (in response)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loss to offenders’ families</td>
<td>Offender’s family/society</td>
<td>Family support, social service</td>
</tr>
<tr>
<td><strong>Other more sensible context specific costs (in response to crime)</strong></td>
<td></td>
<td></td>
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<tr>
<td>'Over-deterrence’ costs</td>
<td>Innocent individuals</td>
<td>Public spaces, financial market</td>
</tr>
<tr>
<td>Society</td>
<td>Offender</td>
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<tr>
<td>Justice costs</td>
<td>Society</td>
<td>Public costs</td>
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Source: Own summary based on the MMECC model (University of York, 2008).

Communities and businesses might, for instance, benefit from reduced crime through increased property values and commercial activity (Matthies, 2014, p. 6). Reduced victimization costs could not only have a positive impact on the families and communities, but also other parts of the public sector (medical and mental healthcare cost, pain, suffering and lost quality of life, long-term consequences of victimization). Moreover, families of offenders directly and indirectly benefit as well (loss to offenders’ families, household services). For instance, children whose parents complete a drug treatment program might perform better in school or could be less likely to follow the path of their parents later on. As attitudes towards crime might change (including solidarity, resilience), also the other more sensitive costs come into play (over-deterrence costs, justice costs).
5.2 Rational criminal policy as a basic goal for society and as a future task

According to the *Second Periodic Safety Report* (2. PSB) the German Federal Government expressed its conviction that a rational criminal policy requires, among other things, a solid empirical basis: A *rational criminal policy* should always be able to refer to contemporary empirically supported knowledge, which applies to *prevention* as well as to *repression*. Without reliable knowledge anything could be justified anywhere. As long as reliable and verified findings about a ‘problem’ were missing, by what means and under what conditions the best results and adverse side effects can be most likely avoided, a rational choice between alternatives was not possible (BMI, 2006, p. 3). Blath & Schnauhuber (2006) articulated this in the following way: “A *rational crime and criminal law policy* requires a solid empirical scientific basis that must encompass findings, among others, regarding current societal development and developments in internal security, the activities of criminal prosecution and penalty enforcement authorities, and the consequences of prosecution measures and criminal law sanctions” (pp. 1-2).

The established approach of evidence-based crime prevention interventions are those identified by the most complete, methodological carefully evaluated overviews of impact evaluations that are proven to make a preventive contribution. Only those programs justify to the satisfaction of the followers of this approach to the use of taxpayer funds. What proves to be ineffective or even counterproductive in experimental or quasi-experimental evaluations must be given up, in order not to waste taxpayers’ money (BMI, 2006, pp. 678-679). Based on these results tax money can then be focused on effective strategies (BMI, 2006, p. 101). There, however, remains sufficient need for action at the national level to improve the empirical basis in order to make crime and criminal (law) policy more rational (Blath & Schnauhuber, 2006, p. 10).

Factors that usually decrease the possibility of rational implementation and communication in criminal policy are the media, the party politics, ‘moral panics’, public anxiety about crime, and public trust in the criminal justice system. Also in the United States, it has been criticized that “if evidence-based, cost-efficient crime
prevention is the standard, there is little indication that current policies, such as programs, laws, and court decisions are rational” (Mears, 2007, p. 667).

A number of authors from different countries argue that crime policy on the whole lacks a rational foundation in the sense of resting on an evidence-based evaluation research platform that would certainly help ensure that it is effective and efficient (Eskridge, 2005; Mears, 2007). At the current state of shortcomings of crime prevention strategies, including the absence of systematic impact and evaluation assessments, the determination of the effectiveness of prevention measures cannot be provided on a secured basis. Mears (2007) argues that “for rational, evidence-based crime policies to be adopted, a foundation—currently lacking—is needed for deciding which ones constitute the best, most efficient investments” (p. 678).

A rational criminal policy “must conform to the public preferences and may not ignore people’s evaluation of many adverse consequences of crime” (Czabansky, 2008, p. 3). On the Scandinavian side, Lahti argues that “we should naturally require that the goals and means of criminal policy are framed in a manner meeting the general criteria of rationality that may reasonably be required of public debate” (Lahti, 2000, p. 146). In his work he puts emphasis on the special goals of criminal policy as follows: “(a) to minimize the suffering and other personal or social costs (injuries, inconvenience) caused by crime or by the measures of society to control crime, and (b) to allocate these costs in a fair manner” (quoted from Törnudd, 1971, pp. 29-31). Under the leading principle that crime should not be minimized ‘whatever the cost’, indicators of cost impact assessments both from crime and from its control are necessary, so that the relative costs can be measured (Lahti, 2000, p. 146).

Costs of crime are recognizably becoming an integral part of the international evidence-base framework on crime and criminal justice, and “several applications of cost of crime estimates have provided the necessity of such estimates (in any rational crime policy)” (Czabanski, 2008, p. 2). If CBA (or CEA) are carefully prepared, its use in the social dialogue can contribute to a more objective and evidence-based practice in the design of policy (Thomsen, 2015, p. 5). This way the results of advanced economic analyses of crime control and prevention measures enable to “explicate the values in a manner that makes them ‘better considered, more rational’” (Jareborg, 1974, p. 229 cited in Lahti, 2000, p. 146). Consistent use of costs of crime estimates helps public
policy to stay in line with the public preferences, and eliminates clearly unjustified projects. As it was argued, a “great deal of criminal justice policy discussion can be usefully illuminated with estimates on the costs of crime” (Cohen & Bowles, 2010, p. 160).

Fig. 11 Flowchart of rationalization process based on comprehensive cost estimates

- 'Cost of crime' as a common unit measurement (indicator)
  - Economic & social costs of crime (true cost/public value costs)
  - Cost-weighted harm assessment (severity indicator)

- Cost-impact evaluation of crime control/prevention measures
  - CBA (CEA) of interventions (social benefit/public value benefit)
  - Value chain analyses (social returns on investments)

- Adding value to justice outcomes
  - “What is worthwhile?” (policy/program/project appraisal)
  - “Was it worthwhile?” (policy/program/project evaluation)
  - “What will work?” (translational criminology)

- Public value oriented investment decision-making
  - Public or private institutions (target stakeholders)
  - Investment appraisal requirements (new standards for public resources)
  - Justice reinvestment, SIBs (social investment strategies)

- Outcomes and re-assessment/-evaluation
  - Short-term vs. long-term benefits (milestone realization)
  - Impact on wellbeing, GPI (measure of prosperity)
  - Change in crime statistics (severity harm index)

- Continuation or expansion of project/program size
  - Improving state wide outcomes (communal, federal level)
  - Identification of ‘best-practice’ (national, international)
  - Sustainable prevention, SDGs (sustainable strategies)

Methodology:
- Standardized estimation method (MMECC model)

Research-based evaluation:
- Standardization of economic evaluation (analysis guidelines)

Evidence:
- Portfolio of (comparable) ‘values’

Economization strategies: re-allocation or displacement of resources, unlocking ‘new’ investments

Effectiveness and efficiency of results (scientific quality scale; rate of return)

Source: own summary based on the findings of this dissertation
In economics, rationalization aims at an efficiency increase by better use of existing possibilities. In the theory of modernity Weber viewed rationalization as the emergence of a distinctive way of thinking (instrumental rationality). In an act of replacing traditions, values, and emotions (as motivators for behavior in society) with rational, calculated ones, “many sociologists, critical theorists and contemporary philosophers have argued that rationalization, as falsely assumed progress, has a negative and dehumanizing effect on society, moving modernity away from the central tenets of enlightenment” (Habermas, 1985, p. 2). Initially, in the framework of fundamental criticism of capitalism, the process of rationalization has been characterized as an “icy waves of egoistical calculation” (Marx & Engels, 1967, p. 2). Andenaes (1974) argued: “The requirement that criminal policy should be more based on empirical and other research does not exclude the role of values; it is more likely that we become increasingly conscious of them” (p. 170).

As an act or practice of using or managing resources to the best effect, the concept of economization refers to the spread of markets and development of strategies to allocate resources accordingly. This way, ‘crime prevention’ (as a former non-market good) is also becoming similar to any other good people might buy (Webber, 2010, p. 10). The new economization strategies in the field of crime prevention certainly deserve greater attention. The economization of crime prevention is much more than simply adding a ‘price tag’ on intervention measures, since the availability of evidence on social benefits and social returns on investments (SROI) of particular interventions lead to diverse forms of investment options. Nevertheless, the evolving competitive process of “purely value-driven reasoning” (Appendix E, p. 12) certainly needs to be regulated or governed with care.

Considering rational criminal policy as a basic goal for society (Mears, 2007, p. 667) and future task (Schwind, 1985, p. 573), the next sections serve to enhance the understanding of the political economy of crime prevention. The first section examines the critical state of the criminal policy arena in Germany, due its stronger legal doctrine and rather weak criminology guided evidence-based framework. In light of the current demands for economic arguments in crime prevention matters, the second section emphasizes on the economization of crime prevention as a process or strategy of using resources aimed at crime prevention activities to the best effect. The third section
proposes an applied-oriented framework along five decisive elements for the German case for the development of a strong evidence-base framework, which implies the systematic provision of (objectified) comparable evidence.

5.2.1. Critical state of criminal policy in Germany

In Germany, criminal policy is often understood as a legal policy in the field of criminal law and therefore reform of legal policy (Feltes, 2006, p. 160). This rather narrow perspective does not correspond to the criminological discourse (Feltes, 2006). Criminal policy includes an interagency crime strategy, which relates the corresponding activities not only on repressive areas, but also on the use of preventive measures (Schwind, 2004, p. 13). Therefore, criminal policy has also been characterized as an interagency approach (ressortübergreifende Kriminalpolitik) (Kerner, 1991, p. 201) or policy of legally protected interests (Rechtsgüterpolitik) (Hassemer 1973, p. 193) that follow the socially broader objectives (Feltes, 2006). In the declaration (Karlsruher Erklärung) of the 19th GCOC in 2014 a course correction of criminal policy towards crime prevention was postulated (Marks & Steffen, 2014, p. 7).

As Waller and Sansfaçon (2000) have emphasized, “for too long, we have left problems of crime to law enforcement and criminal justice” (p. 15). In Germany, the rearrangements of research and policy fields into crime and security policy have diverted the understanding of criminal policy in its more coherent nature (away from its traditional focus). In a critical analysis of the constitutive conditions of criminal policy, German criminologists Fritz Sack and Werner Lehne speak of a “reorganization of the policy field of internal security” (Lehne, 1998) and an economization of crime and security policy (Sack, 2012), characterized by demand-side to supply-side policies in the field of internal security (Sack, 2003). Consequentially, in a functional transition to independence crime prevention in Germany evolved as an autonomous subsystem that works under different principles than the democratic legal and social state (Sack, 2012, p. 121).

In particular with regard to the emergence of security research, which covers conventional fields of criminological research, such as fear of crime measurements (or alternative crime measurement indicators), crime control and surveillance, as well as trust in security, enforcement and justice institutions. The large amounts of resources
that have been devoted to the federally funded research branch on security (Sifo) by the Federal Ministry of Education and Research (BMBF), over the past decade\textsuperscript{121}, certainly include general crime prevention ideals and innovative solutions of social and economic improvement. Studies, however, also have come to the conclusion that “security research has only partly addressed the concerns of EU citizens and that security research has been mainly put at the service of industry rather than society”\textsuperscript{122} (Bigo, Jeandesboz, Martin-Mazé & Ragazzi, 2014; Armborst, 2015).

Over the past quarter of a century, crime prevention research and practice in Germany has been expanded and established in many ways\textsuperscript{123}. In line with the new field of action and policy that has emerged worldwide, actors within the field of crime prevention in Germany include, among others, the police and justice, school, child and youth services, and civil society organizations (Steffen, 2014). The resolution of the 19\textsuperscript{th} GCOCOP 2014 on the state of crime prevention – practice, policy and research\textsuperscript{124} – in Germany

\textsuperscript{121} Since 2007, the BMBF has spent more than 400 million euros on the security of Germany's citizens in the first national framework programme for civil security. The funding priorities of the new framework programme on "Research for civil security 2012-2017" are as follows: Societal aspects of civil security, Urban security, Infrastructure and business security, Protection and rescue of people, and the Protection from hazardous substances, epidemics and pandemics. see http://www.bmbf.de/en/11773.php?hilite=security+research

\textsuperscript{122} The EU report “Review of security measures in FP7 2007-2013”. The study analyses how the public-private dialogue has been framed and shaped and examines the priorities set up in calls and projects that have received funding from the European Commission under the security theme of the 7\textsuperscript{th} Research Framework Programme (FP7 2007-2013). The study addresses two main questions: “to what extent is security research placed at the service of citizens? To what extent does it contribute to the development of a single area of fundamental rights and freedoms?” The conclusion is consistent with the experience of the BESECURE project, presented at the BMBF Sifo-Dialog and explaining how this can be better harnessed in future (Armborst, 2015).

\textsuperscript{123} In the UNODC Handbook on crime prevention guidelines (UNODC, 2010, p. 31): In Germany, the Crime Prevention Council of Lower Saxony was set up in 1995 by a resolution of the state government to reduce crime in the state and improve feelings of security among citizens. It now includes 250 member organizations (government departments, authorities, associations) and 200 municipal crime prevention bodies and associations. The Council undertakes projects to support state-level policies. Its work has focused on community safety, establishing standards for the management of crime prevention projects (the Beccaria Standards), hate crimes and the implementation of the state action plan on violence against women. It has developed the Beccaria Standards for quality management to guide the implementation and evaluation of local programmes and projects (www.lpr.niedersachsen.de; www.beccaria.de).

\textsuperscript{124} The 19\textsuperscript{th} GCOCOP was held in Karlsruhe (12-13 May 2014) and addressed the following questions: Whether and how far the three areas of work (practice, policy, research) have implemented their duties; what challenges had to be overcome and remain; to establish what conclusions to draw from this and what demands have to be made in order to enhance crime prevention by cultivating, entrenching and systematically aligning the three main fields of work.
emphasized the fact that crime prevention is more effective than punishment, as reflected by fewer victims and harm, less needed intervention of police and use of prisons, as well as lower consequential costs for taxpayers (Steffen, 2014). Steffen harshly criticizes: while one can speak at the local level by a “brilliant idea of rationality” in practice on a local level, criminal policy on a federal level seems to be deaf to the knowledge that has long been developed by criminology and other related disciplines. The overall lack of support for prevention leads to persistent emphasis on repression (Marks & Steffen, 2014, p. 7). In the Karsruhe declaration the experts refer to the proposal of the Canadian criminologist Irvin Waller, to invest 5 percent of the current expenditure on the response to crime (police, judicial and penal systems) to in effective crime prevention. At all levels, it should be considered how this proposal could be realized (Marks & Steffen, 2014, p. 8).

Although, crime or criminal justice policy ought to be guided by science rather than by ideology (Barlow & Decker, 2010, p. xi), one of the main issues is that criminologists, especially theorists, “rarely contemplate the policy implications of their work” (Barlow, 1995, p. 7). In Germany, criminology and in particular applied criminology is at a critical state, partly because the discipline remains an interdisciplinary research field (of law, psychology, and sociology) and has not grown into an independent academic discipline. “There is still a noticeable rift in German criminology between ‘mainstream’ and ‘critical’ approaches, contributing to a rather incoherent research landscape” (Oberwittler & Höfer, 2005, p. 465).

One of the more rooted problems lies within the German university system for criminology, as reflected in the fixed attachment to the faculties of law. Consequentially, there is an overall weak criminological influence in criminal policy-making or, in rare cases, it might only be assumed, whether criminological research had an impact on political decision-making (Liebl, 2008, p. 405). The Freiburger Memorandum provides a diagnosis of the current critical state of criminology and offers a number of solutions for an adequate way to meet the new demands that universities face in teaching as in research sector (Freiburger Memorandum, 2012).

Crime prevention must be realized in an evidence-based manner (Marks & Steffen, 2014; Steffen, 2014; Marks & Thomsen, 2015). The need for a stronger and better-founded evidence-based framework that integrates comprehensive cost estimates to
develop valuable sources of investments is confronted with a number of barriers. In evaluation research, these often constitute a lack of prestige that academic programs afford applied policy research and limited funding for large-scale policy evaluations (Mears, 2007, p. 668). Hence, the goal to work towards a more systematic foundation for identifying evidence-based crime prevention and repression measures (criminal sanctions) and their relative effectiveness (Mears & Barnes, 2010) can only be achieved with sufficient support for funding.

5.2.2. Economization of crime prevention

The pressure for ‘efficiency in government’ is not the expression of an entirely new idea. It actually emerged in the post-war era, the search was on for ways to ensure that public funds were efficiently utilized in major public investments (Pearce, Atkinson, & Mourato, 2006, p. 16). Nowadays, sustainable prevention has reached an important position on the agenda. In the United States the processes are characterized by ‘balanced justice’ ideals125, where CBA is considered as the leading tool to help correct imbalances by shedding light on the wide range of social consequences associated with criminal justice policy (Rosenberg & Mark, 2011, p. 11). Hence, a redefinition process of the political economy is taking place126.

In relation to the modernization of the criminal justice system and the security sector there had been numerous criticism, in particular concerning economization strategies or marked-led approaches with regard to the privatization of penal institutions127. In this context, some authors, like Garland (1996) should be referred to, who postulate that the state should not give up sovereignty in crucial areas. Aside from this, authors like

125 see Rosenberg and Mark (2011) on “Balanced Justice: Cost-Benefit Analysis and Criminal Justice Policy”. In light of the rising relevance, UNODC was explicitly requested “to pay attention to crime prevention with a view to achieving a balanced approach between crime prevention and criminal justice responses” (ECOSOC Resolution 2002/13).

126 One can speak of an act of reinventing classical political economy (Clarke, Gewirtz & McLaughlin, 2000; Dickins, 2006; Fine & Milonakis, 2009), particularly characterized by microeconomic advancements (Cowell, 2012). In some way, this means a merging of Gough (2013) on the political economy of prevention and arguments for investing wisely into crime prevention (Waller & Sanfacon, 2000).

127 For example, object of criticism has been the so-called ‘prison-industrial-complex’ (PIC) and ‘profit-for-prison’ mentality as not being necessarily in the interest of the overall society.
McLaughlin and Muncie (2013) emphasize critiques of pursuits of rationalization strategies with regard to managerial reforms such as New Public Management (NPM) that have been linked to a decrease in levels of public confidence and trust in governments and increase levels of dissatisfaction with criminal justice agencies. This is due to the fact that ‘command and control’ models of governance and resource allocation were not delivering the desired long-term changes: The “hyper-regulatory, over-commanding managerial state that has done nothing to reverse and decrease levels of public confidence in the crime control capacity of the state” (p. 262).

In nowadays modernization of the criminal justice chain the importance of trust, cooperation, human and social capital developments are in the forefront. The growing body of evidence documenting positive outcomes of crime prevention interventions has already been substantial in the past (Goldblatt & Lewis, 1998; Loeber & Farrington, 1998; Sansfçon & Welsh, 1999; Gauthier, Hicks, Sansfçon & Salel, 1999; Sherman, Gottfredson, MacKenzie, Reuter & Bushway, 1997, Waller & Sansfçon, 2000). Crime prevention activities (strategies, policies, programs, projects etc.) are once again being discovered as valuable and sustainable sources of investment. Economic arguments go as far as “let us be reminded that prevention is five times less expensive than other policies, and in that regard is not only humanly but also economically more efficient” (EFuS, 2012, p. 1).

The Stockholm Programme reiterated the importance of crime prevention as follows: “The best way to reduce the level of crime is to take effective measures to prevent it from ever occurring, including promoting social inclusion, by using a multidisciplinary approach which also includes taking administrative measures and promoting cooperation between administrative authorities, citizens and the Union that have similar experiences and are affected in similar ways by crime and related insecurity in their everyday lives” (European Commission, 2012).

The UNODC Standards and Norms in Crime Prevention articulated the following: “There is clear evidence that well-planned crime prevention strategies not only prevent crime and victimization, but also promote community safety and contribute to the

128 Research on “Justice in Relation to Society” is an expanding domain but is generally lacking a multidimensional approach in the social sciences. On 30-31 October 2014 an International Conference was held in Brussels, National Archives, on Modernization of the Criminal Justice Chain – The Importance of Trust, Cooperation and Human Capital.
sustainable development of countries. Effective, responsible crime prevention enhances the quality of life of all citizens. It has long-term benefits in terms of reducing the costs associated with the formal criminal justice system, as well as other social costs that result from crime. Crime prevention offers opportunities for a humane and more cost-effective approach to the problems of crime” (ECOSOC, 2002/13, annex, para. 1). The UN Guidelines on the prevention\textsuperscript{129} of crime emphasize the benefits of shared responsibility in developing and implementing prevention strategies, and they specifically include the business and private sector\textsuperscript{130} (Shaw, 2015). In particular in the development of the (post-2015) Sustainable Development Goals (SDGs) crime prevention is receiving growing attention\textsuperscript{131}.

Given the widespread austerity efforts and the continuous attempts to sustain welfare, the important advancement in research and development (social sciences) need to be underlined. Also at a European level, if there is one thing to learn from the last crises, that is to sustain state welfare in hard times (Taylor-Gooby, 2001). “Europe needs reforms that generate budget margins through effectiveness and efficiency. Savings should flow from structural reforms that enable economic growth, streamline the public sector and stabilize the welfare state” (De Vos, 2013). Hence, the economization of crime prevention can be defined as a multi-sectorial and interdisciplinary process of optimizing and implementing investment strategies, aimed at reducing the risk of crimes occurring, and their potential harmful effects on individuals and society (victim and fear of crime), by intervening to influence their multiple causes in a (cost-) effective and efficient manner.

\textsuperscript{129} Two sets of crime prevention guidelines have been adopted by the Economic and Social Council (ECOSOC): the Guidelines for Cooperation and Technical Assistance in the field of Urban Crime Prevention (in 1995) and the Guidelines for the Prevention of Crime (in 2002).

\textsuperscript{130} Also with further reference to the UN Global Compact (2000) and Six Principles for Responsible Investment (2006) as well as the UN Guiding Principles on Business and Human Rights.

\textsuperscript{131} As stated in the report of the Secretary-General on the rule of law and transitional justice in post conflict societies (S/2004/616, para. 4): “prevention is the first imperative of criminal justice”. In 2005, the Economic and Social Council (ECOSOC), in its Resolution 2005/22 on actions to promote effective crime prevention. In 2008, ECOSOC, in its Resolution 2008/24 on strengthening prevention of urban crime (integrated approach), encouraged member states to integrate crime prevention considerations into all relevant social and economic policies and programs in order to effectively address the conditions in which crime and violence can emerge.
Figure 12 graphically illustrates the costs of crime and the economic dimensions of crime prevention. Hereby, the relational and influential path (cycle) of crime prevention on criminal behavior (and recidivism rates), crime rates and consequential victim costs, the media, fear of crime, and resulting pressure on politicians are mapped. The public prevention provision is subject to the pressure on politicians (or decision-makers). Private crime prevention on the other hand is related to general fears persistent in the public. In the model an emphasis is put on the interacting and/or interchangeable relationship between public and private crime prevention.

Crime prevention is a task to society as a whole and works on an interagency level with many actors involved. Waller and Sansfaçon (2000) formulated the key elements of successful and sustainable crime prevention to include an elaborate action plan with defined priorities and targets that should influence the policies and decisions of relevant organizations, and stimulate and sustain community partnerships (p. 15). The interaction between public and private crime prevention activities can be very dynamic and have received attention from different angles so far.

In this section, the relationship is characterized by four types of patterns (and strategies) that involve the interaction between these two:

(1.) Strategies for adequate provision of public resources (re-allocation of resources)
(2.) Private expenditures on crime prevention (role of the private security sector in the displacement of resources)
All these strategies offer a road map of new directions to take financial (re-) investments into communities. In essence, these practices need to be guided by the scientific community, whereas “together with more recent resolutions, it is being stressed that crime prevention strategies must be established alongside criminal justice reform” (UNODC, 2010, p. 2). Targeted strategies and action plans are underpinned by the basic principles for the prevention of crime. Among these are the principles of sustainability and accountability, and knowledge-based strategies.

Strategies for the adequate provision of public resources

According to the fifth basic principle for the prevention of crime (ECOSOC Resolution 2002/13): “Sustainability and accountability can only be achieved if adequate resources to establish and sustain programmes and evaluation are made available, and clear accountability for funding, implementation, evaluation and achievement of planned results is established” (Annex, para. 4). The strategies to address this particular important basic principle of crime prevention vary among countries. The British Treasury (Home Office, 1999), for instance, allocated the equivalent of 5 percent of spending (USD 7 per household per year on enforcement and deterrence to the CRP (based on proven ways to reducing crime). Ten percent of this money was to be spent on evaluation the costs and benefits of the investments (Waller & Sansfaçon, 2000, p. 13). In the Netherlands (van Dijk, 1997), an equivalent of USD 100 million was reallocated over 5 years to reinforce social prevention, based on evidence-based results from crime prevention research (Waller & Sansfaçon, 2000, p. 9). A strategy as such could also be used to invest in government programs aimed at crime prevention in Germany.

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132 “Knowledge base strategies, policies and programmes need to be based on a broad multidisciplinary foundation of knowledge, together with evidence regarding specific crime problems, their causes, and proven practices” (ECOSOC Resolution 2002/13, Annex, para. 4). The other six basic principles for crime prevention are: (1.) Government leadership; (2.) Socio-economic development and inclusion; (3.) Cooperation and partnerships; (6.) Human rights/rule of law/culture of lawfulness; (7.) Interdependency; (8.) The principle of differentiation (Guidelines for the Prevention of Crime, ECOSOC Resolution 2002/13, Annex).
Another important example of a specifically targeted social (re-) investment strategy is ‘justice reinvestment’ in the United States. The purpose of this particular strategy is to manage and allocate criminal justice populations more cost-effectively, generating savings that can be reinvested in evidence-based strategies: “Justice re-investment is a data-driven approach to improve public safety, reduce corrections and related criminal justice spending, and reinvest savings in strategies that can decrease crime and strengthen neighborhoods” (Council of States Governments Justice Center, 2015). Justice reinvestment provides jurisdictions an opportunity to implement cost-effective and evidence-based strategies to manage the corrections population while enhancing public safety (LaVigne, Bieler, Cramer, Ho, Mayer & Samuels, 2014).

Private expenditures on crime prevention

“Public expenditures on crime prevention can displace private expenditures, and vice versa” (Anderson, 1999, p. 4). The level of private expenditure on crime prevention in anticipation of crime depends on the level of fear or threat by individuals, businesses, and society of a particular crime form the nature of crime. The efforts individuals and businesses put into risk-reducing measures (including insurance schemes) are very important to consider (where the state himself becomes a client). In the cost of crime literature the role of the private security sector (classic security industry, IT security industry and/or cybersecurity) has gained a particular important role in the prevention of crime (and vice versa), in particular in light of the new arising complex crime phenomena such as cybercrime. The economics of security established its own theoretical foundation,133 whereby security protection is theoretically grounded as a public, private or collective good (Stuchtey & Skrzypietz, 2014). In practice, a displacement of resources can be actively used as a strategy (privatization and/or outsourcing strategies) when costs to governments are considered too high or accountability by the state is shifted to the responsible (privatization).

133 see Weißgerber (2012) on the economic dimension of inner security as well as Folkers and Weißgerber (2009) on the economics of inner security.
Public-private partnerships (PPPs) and Cooperate Social Responsibility (CSR)

PPP is a “co-founding approach to the development of public investments such as infrastructure projects, or the provision of services. This may involve partnerships between the private sector and governments, government bodies, the police etc. and non-government organizations, institutes, foundations, universities” (Shaw, 2015, p. 5). The relationship between public crime prevention and private crime prevention is characterized by strategic partnership for effective crime prevention. Since the first generation of PPPs (beginning in the 1980s), the second generation of PPPs (from the 2000s onwards) include much more awareness of benefits to the community and of Corporate Social Responsibility (CSR).

The new forms of cooperation between the public and the private sector include a range of approaches to prevention (social, community, educational, developmental, situational) (Shaw, 2015, p. 11). The International Centre for the Prevention of Crime (ICPC) issued a “Public-Private Partnerships and Community Safety: Guide to Action” (ICPC, 2011). This particular practical guide demonstrates is designed to help companies gain a better understanding of the importance of community safety and the role that the private sector can play in it. In the United Kingdom the “Cost-Benefit Analysis Guidance for Local Partnerships” (2014) specifically targets transformations in the public sector to enhance the collaborative task of conducting CBA assessments (Henrichson & Rinaldi, 2014, pp. 8-9).

Social (re-)investment strategies and innovative new financing strategies

In viewing crime prevention as an indispensable part of welfare for all citizens, the importance of new investment strategies need to be underlined. With new social and economic capital benchmarks social investment strategies are advancing in an

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134 The first generation of PPPs (1980s-1990s) was initially characterized by benefiting the private sector (and businesses). Cooperations forms back then are said to have mainly focused on defensive and deterrent measures using situational approaches to prevention, such as the use of security technology, surveillance (CCTV), private security guards etc. (Shaw, 2015, p. 11).

135 Corporate social responsibility (CSR) “involves the development of initiatives or policies which acknowledge an ethical responsibility on the part of businesses or cooperations to contribute to society, or to reduce the negative impacts of their operations. It generally includes environmental, economic and social responsibility, and sustainability concerns” (Shaw, 2015, p. 5).

136 For instance, central to the debate of the 5th ICPC colloquium in 2005: “Strategic partnerships for effective crime prevention” was that cooperation is the key.
innovative fashion. Innovation financing models as a potential way to reduce costs and services, such as social impact bonds (SIBs) have gained considerable attention. SIBs work under the principles of ‘pay for success’ or ‘payment by result’. This way private institutions have the chance or are being encouraged to invest into promising programs (that are, for instance, aimed at strengthening the communities).  

5.2.3. Demand for an applied-oriented framework

An applied-oriented approach also requires a well-functioning applied-oriented framework. In reference to the insistence of the 19th GCOCP 2014, “prevention needs practice, policy and research” (Steffen, 2014; Marks & Steffen, 2015) and a much closer cooperation as a basis for “a systematic, overall social and, above all things, sustainable prevention policy” (Lösel, Bender, & Jehle, 2007, p. XV). At the heart of the process of a successful crime prevention strategy is a responsible central organization that brings together key departments (justice, education, health, social services, housing and urban planning, community citizens) (Waller & Sansfaçon, 2000, p. 11). All in all, crime prevention is a “multi-sectorial, multi-disciplinary, and integrated endeavour” (UNODC, 2015). The demands for an applied-oriented framework for the specific case in Germany combine findings from the previous chapter with conclusions from the past two GCOCP in 2014 and 2015.

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see as well Shaw (2015) for possible challenges.
Prevention practice as the key engine of (sustainable) prevention policy

Prevention practice is the key engine of sustainable prevention policy (Junger et al., 2007) and needs to be understood as a task for the society as a whole. The primary actors are governmental (criminal justice, police, education, social work) and non-governmental institutions (NGOs, charitable organizations, volunteers). In Germany, these are police and justice, school, child and youth services, and civil society organizations (Steffen, 2014). Prevention practice should be enhanced on all levels, including courts, probation and parole services, general social services, educational institutions, planners, private citizens, businesses, and religious institutions. More sophisticated administrative records could greatly enhance the estimation of these activities, as for instance in making better distinction between ‘responsive’ and ‘preventive’ activities or better records on voluntary work in order to value these accordingly.

The best-practices for sustainability for crime prevention are supposed to be the result of strategies that are community and people centered (Government of Canada, 2015). Hereby, it is of utmost importance to make it meaningful to the community. In reference to the Canadian strategy, this can be achieved through working with local groups and organizations in order identify needs, problems and solutions that can be followed up and find widespread acceptance. By building local connections, community-wide/public issues can be identified and addressed accordingly. This opens the option to effectively exercise local ownership and leadership.

Formulation of goals and strategies on a federal level and cooperation

Governmental reports may direct research and practice towards a common approach and better comparability of appropriate preventive measures to addressing the problem of crime in an effective, efficient and sustainable way. It should be targeted to adapt rational policy objectives accordingly and articulate the goals of crime prevention more clearly and communicate them more precisely (see section 5.2.). This way, the attention could be better directed to economic and social harms. For instance, crime prevention should be integrated into the formulation of goals towards a more rational and humane, more unified and harmonized criminal policy (Lahti, 2000, p. 146). “Good
governance for crime prevention ensures that organizations are mobilized to take on the necessary responsibility. Whether at the state, or federal level a central crime prevention organization is needed to be responsible for inter-sectoral work that brings together different agencies, stimulate partnerships, facilitates the dissemination of knowledge and tools, and encourages monitoring and reassessment” (Waller & Sansfaçon, 2000, p. 15). Demand for a coherent national crime prevention strategy, as the NCPS in Canada could also help to set the contemporary tone.

Finally, as mentioned before, evidence-based research on crime prevention also requires the adequate funds for research resources.

Thought-out planning of criminological research

The demands for a “well thought out planning of criminological research” (Anttila, 1971, pp. 20-21) are also of contemporary relevance. In the 1960s/1970s in the United States “there has been a considerable shift in the proportion of resources devoted to more operational or management-oriented approach to criminological research and development. To a large extent this shift, has been accomplished by the influx of researchers or practitioners from outside the ranks of traditional criminological researchers” (Hann, 1972, p. 12).

In comparison to other European countries such as Great Britain (science politics) or the Netherlands, Germany is a latecomer with respect to the NPM reforms of its university system to the process of attempts to install the regime and the introduction of public policy programs (Schimank & Lange, 2009). In order to further enhance the applied-oriented criminology in the long run, the attention is to be directed to the Freiburger Memorandum on the situation and future of criminology in Germany. The authors propose herein before in 10 theses to intensify criminological studies at the Universities,

138 The UN-HABITAT (2004) has developed a more comprehensive understanding of governance, related to urban settlements: Urban governance is the sum of the many ways individuals and institutions, public and private, plan and manage the common affairs of the city. It is a continuing process through which conflicting or diverse interests may be accommodated and cooperative action can be taken. Good urban governance is characterized by sustainability, subsidiarity, equity, efficiency, transparency and accountability, civic engagement and citizenship, and security, and that these norms are interdependent and mutually reinforcing (Idriss, Jendly, Karn, & Mulone, 2010, p. 103-105).
particularly in the sociology departments and law schools and to focus through the development of multidisciplinary centers on the various criminological activities.

According to the Practice Survey (see Chapter 4.2. and Appendix E), in the majority of countries (including Germany), the role of economic methodology in research on the criminal justice system is not widely acknowledged. In the United States, on the other hand, programs have been implemented, in order to particularly encourage (University of Maryland) the integration of the two disciplines through courses, seminars, summer institutes and increased formal and informal dialogue. Research groups and consortia have been established over the past few years to cope with the tasks of the research branch together on an interdisciplinary basis, such as the Working Group on the Economics of Crime (CRI) of the National Bureau of Economic Research (NBER) (Barlow & Decker, 2010, p. xi).

In Germany, there is certainly a remaining lack of interdisciplinary cooperation between criminologists and economists to adapt the current framework in a more systemized manner. Although some critique remains, in Germany as well the influence of economics on criminology is considered as a fresh impetus (Albrecht & Entorf, 2003; Oberwittler & Höfer, 2005) and help in addressing the rather critical state of criminology. As two disciplines of social science origin, economics and criminology will need to be acknowledged as disciplinary complements. Together with economics and econometrics such an approach opens the perspective of employing managerial power and provides the chance for criminology to overcome its existing deficiencies. At the same time, it is certainly desirable to strengthen the role of economic methodology in research on the criminal justice system. This should not be viewed as the often-feared economic imperialism, but rather as an interdisciplinary strength.

Further on, it should be created a culture of evaluation in the field of prevention and criminal policy that meets the methodological requirements for the determination of causal effects of interventions and projects. The fiscal relevance of research guiding resource allocation will become more important to political decision-making in the future. As a consequence, criminology in combination with the application of economic methods could greatly enhance the future development a body, which deal more profoundly with the costs and benefits of crime, crime control and prevention. There is
a need for both the systematic analysis as well as a continuous dialogue in criminology and prevention in this country (Thomsen, 2015, p. 6).

Research standards and scientific scales

Comprehensive rigorous evaluation must be undertaken for the majority of programs, if the criminal justice sector is to develop sustained investment in evidence-based crime prevention programs. In the search for programs addressing strategies of effectiveness, efficiency and sustainability, best-practice examples have to be collected, addressing security, justice and development. It seems to be exceedingly difficult to compare results of economic analyses across studies due to variations in assumptions, methodology, and outcome measures. These developments are to be accompanied by the elaboration of specific guidelines and standards in order to enhance the comparability of results.

Crowley and colleagues are precisely correct in their call for increased standardization, and they have usefully highlighted the issues that must be addressed with regard to the rudiments of a comprehensive framework (Crowley, Hill, Kuklinski, & Jones, 2013). On 19th annual conference of the Society for Prevention Research four priorities were articulated, expressing that, if followed, for future “Research Priorities in Economic Analysis of Prevention”, new priorities should be formulated in order to make prevention efforts easier to compare and more relevant to policymakers and community stakeholders: increased standardization of evaluation methods, improved economic evaluation of common prevention outcomes, expanded efforts to maximize evaluation, generalizability and impact as well as enhanced transparency and communicability of economic evaluations (Crowley, Hill, Kuklinski & Jones, 2013).

These recommendations serve only as one example, which could be included in best-practice guidelines in order to improve the comparability of outcomes. On the research side, experiments should focus as much on evidence-based criminological

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139 Building efficient crime prevention strategies (Crowley, 2013): These recommendations might be viewed as somewhat forcible, insofar as they advocate for prescribing the details of a standard methodology and establishing a means of verifying compliance. However, it is unclear that the best practices proposed by Crowley et al. will be widely adopted in the absence of a strong and determined approach.
development of new ideas as on the independent evaluation of Government policies (Sherman, 2006; Sherman, 2011; Lawrence & Sherman, 2014). In order to make CBA comparable, the methodological standards used should also be made comparable. The so-called *Maryland Scientific Methods Scale* (SMS) categorizes the different study designs with the aim of being able to make a choice or quality assessment (Farrington, Gottfredson, Sherman & Welsh, 2002).

*Evidence-based platform*

The establishment of the CBKB is part of a project of the Vera Institute of Justice in New York with financial support from the US Department of Justice’s Bureau of Justice Assistance. The CBKB assists researchers and practitioners in project planning and policy modeling, to strengthen knowledge and practice in this area to expand and deepen, and to support practitioners in further education. Learning-platforms play an important role in the dissemination of findings and in the process of developing skills. Creating effective criminal justice systems is a work in progress (create consortia). The topic itself is still developing in a presentational manner, in order to make them more transferrable to researchers, practitioners and policy-makers in this field, who use empirical information with the intention to obtain guidance and validation for the allocation of resources. The yet pending PSB reports could also be used as a channel140.

“It the central crime prevention organization must have: the capacity to analyze trends in crime, identify key risk factors and ways to address them effectively, and organize rigorous assessment for actions; resources to invest in pilot projects, sustain action, disseminate information, and foster training; the ability to ensure coordination among the various sectors; the means to inform the public and change practices if necessary” (Waller & Sansfaçon, 2000, p. 15). Following the model of Canada and other multidisciplinary and -agency networks, the establishment of a *National Crime Prevention Center* (NZK) in Germany is urgently needed and must be sufficiently equipped in order to foster applied-oriented interdisciplinary and inter-institutional research (GCOCP evaluation 2015). It could serve as a resource center and center of expertise to coordinate action, disseminate evidence and best-practice examples, and guidelines for

140 The PRC is geared toward as long-term an observation of the crime situation as possible and toward expansion and updating of the report at regular intervals (Blath & Schnauhuber, 2006).
valid CBA results, which could in turn enhance this cost of crime research branch to further develop.

5.3 Interim findings: Political implications of the cost of crime approach

This chapter emphasized on the importance of a profound foundation on the costs of crime in political decision-making processes. The first part emphasized the roles and perspectives of different members in society (taxpayers, crime victims, offenders, and overall society) in CBA assessments of crime prevention policies by using the taxonomy of crime cost categories (as introduced in the fourth chapter). The second part emphasized the importance of availability of properly done cost of crime estimates in the rational policy framework as well as the change in the discourse towards more crime prevention measures.

The CBA framework and refinements of methodologies have developed substantially both in terms of the underlying theory and in terms of sophisticated applications (Pearce, Atkinson & Mourato, 2006) and represent a suitable framework for realizing crime prevention goals. The CBA toolkit (and extended social CBA framework) could be used to reveal important information on the social benefits (or public value benefits) that include economic, human, and social capital effects (as well as other determinants of the GPI). Nevertheless, as long as the required data sources are not available or, alternative ways (transferability) need to be considered to generate more comprehensive estimates, the precisability is weakened; and as long as there is a lack of availability of comprehensive cost of crime estimates, the number of CBA assessments in criminal justice matters will remain rare and very narrow in focus.

Most importantly, the availability of empirical findings as such could enhance important investment decisions. Among the economization of crime prevention strategies explored are the adequate provision of public resources (re-allocation of resources), the proper displacement of resources (private security sector), PPPs (co-funding of public resources), and innovative financing models (unlocking ‘new’ investments). Since all these strategies need to be guided by the scientific community, the functioning of the applied-oriented framework – characterized by interdisciplinary cooperation between criminologists and economists, multi-agency cooperations, independent verification of
data, and learning-platforms for the better dissemination of findings – becomes indispensable.

One could say that in the contemporary setting, the best crime policy is not only a good social policy, but also one with a strong evidence-based foundation (knowledge-based economy). The evolving approach and focus on the social harm enhances the ways on how to strive towards a rational and humane, more unified and harmonized criminal policy. Hence, the agenda for rational criminal policy as a future task should include the facilitation for the development of a more profound body of knowledge on the costs and benefits of crime and crime prevention.
6. Recommendations to enhance the generation of cost of crime figures in Germany

In essence, “sound cost of crime estimates are needed to allow for better measurement and evaluation of policy performance and management” (Alfé & de Wever, 2011). Within the preceding analysis, it could be elaborated that the enhancement of the generation of cost of crime figures in Germany is one key element for future approaches towards a more effective and efficient criminal policy. Against this background, the following remarks are targeted to present a consolidated list of more important recommendations in regard to this key element. Most of these recommendations had already been presented in diverse parts of this analysis.

This chapter provides three main recommendations: Firstly, crime data limitations need to be addressed accordingly, in particular with regard to the frequent conduction of victimization surveys is the key; secondly, for an empirical engagement the adaptation of the standardized methodology (see Chapter 4) is proposed as the future-oriented framework to focus on; thirdly, the new required skills development need to be fostered.

6.1 Address crime data limitations accordingly

Good data and crime measurement indicators are crucial, because they influence the adequacy of examination of theories of offending and victimization as well as the assessment of the effectiveness of public policies. The prevailing conventional crime measurement practices (see section 2.1.1.) in Germany are certainly not sufficient enough for fulfilling the contemporary research needs and practical purposes. Hence, the first recommendation specifically addresses the need for a frequent conduction of victimization surveys at a federal level in Germany.

Although the requirements have been formulated at the EU and international level, and a number of explicit pending proposals for a periodic implementation of victimization surveys have been made (Feldmann-Hahn, 2011; Feltes, 2013; Blath, 2012), too little has been done in comparison to other industrial countries. Even though different research groups have already conducted a number of large nationwide victim surveys, data has not been collected regularly. In 2010, the German Federal Government
established a work group to establish an annual survey, which has prepared and submitted a detailed proposal (Blath, 2012). Necessary improvements in standard crime data integration (as included in official statistics) depend on the governments’ willingness to address these issues and to allow for the more costly undertaking of required data collection efforts.

Good crime statistics are the underlying requirement for the successful implementation of foundational crime costing models and generation of robust estimates. With regard to victimization surveys, closer matching between the framing of survey questions and the cost typologies used in cost of crime estimation could make the surveys more productive, as could larger sample sizes (University of York, 2008). While, in particular, security research has taken over conventional areas of criminological research (received funding for specific projects), it is also following specific directions in research, policy and practice. Hereby, it would be an option to combine efforts.

6.2 Adapt standardized framework (MMECC)

The model review in the fourth chapter aimed to enhance the knowledge about the European framework to assessing the harms of crime and to develop a common understanding of the different cost components. The main objective of the MMECC project was to make cost of crime methodology more widely available in order to encourage criminal justice policy-makers to make use of cost of crime estimates when evaluating interventions and projects (Bowles, 2009). The European cost of crime assessment model (or MMECC model), however, has received less attention than it was hoped for. Even after six years have passed since the completion of the initiatives at the EU level to standardize methodologies on estimating the costs of crime, there remains a lack of awareness, understanding, skill and efforts for the implementation of the model.

In addressing the complexity of the topic at hand, one of the underlying purposes of this dissertation is to put emphasis on the availability of the first and so far only attempt to standardize the methodologies on estimating the costs of crime for specific offence

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141 For instance, the Federal Ministry for Education and Research (BMBF) could issue calls for proposals in this regard.
types. Hence, the second recommendation proposes the adaptation of this feasible methodological framework for future orientation.

The greater implications behind this wellspecified costing model are that it is based on good practice, that it has been developed by an interdisciplinary team of researchers, practitioners and policy-makers, and was adjusted to ensure the feasibility of applications in different countries. The ‘how to manual’ demonstrates what kind of cost components should be taken into account (and have been agreed upon), providing information on definitions, preferred estimation methodologies, required data sources and usage. Overall, a thought-out data audit is certainly required (see Appendix D). Measures should be taken for the easing of dialogues between researchers, practitioners, journalists and politicians, as well as ensuring the informed participation of citizens in matters of practical criminal policy. The reactivation of the website will serve as a future learning platform for refinements in methodologies and addressing these questions.

Implementing the MMECC model as a standard assessment tool (or set standard) still requires time, not the least because of the necessary adaptation of data requirements. Overall, a standardized approach would in particular be useful for better comparative research at the EU and international level and the enhancement of comparable CBA results. One specific standard to set, as retrieved from the literature review is to estimate and re-estimate the social and economic costs of individual offenses every five years.

6.3 Foster development of required skills

“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” (Smith, 1901). Although – more than a hundred years later – the measurement of the costs of crime has been realized. Social sciences have advanced to more applied-oriented levels in this regard, but when certain disciplines collide, a mutual understanding is not directly given. As a result of the limited, but required, interdisciplinary undertakings between criminologists and economists, most researchers in Germany are not

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142 The website (“Legacy resource for the MMECC project”) has been re-launched in 2015. see http://www.costofcrime.org
acquainted enough with the available methodologies and use. Hence, the third recommendation is to foster the development of the required skills.

In essence, criminology and economics are social sciences and bring a different set of strengths to the study of crime. Criminologists have a richer understanding of the institutions of criminal justice, the character of crime itself and the data sets that describe crime and criminal justice. Economists bring unusually strong modeling and statistical skills (Bushway & Reuter, 2012). Economics as a science incorporates a well-developed normative framework that defines the public interest and lends itself to policy perspectives. The research and practice portfolio provides tools and mind-set application to public policy as a mechanism to control, direct or steer individual and collective behavior in society (Bushway & Reuter, 2012). The research on costs of crime signifies that economists (and/or econometricians) and criminologists need to work much closer together in order to bring techniques forward in the most efficient way.

Overall, a critical mass of academic economists has specialized in the study of crime and its control, and there is now a steady flow of economics doctoral dissertations on this topic. This is especially due to schools boosting their programs on public policy and economics and led to the fact that: “...it is fair to say that the economics of crime is no longer a ‘fringe’ topic, but part of the standard portfolio that makes up economics” (Cook, Machin, Marie & Mastrobuoni, 2012, p. 1). Hence, in incorporating knowledge into study curricula of criminological research agenda and the other way around (Entorf course curriculum) in Germany would greatly enhance knowledge and skills. This way, the next generation of criminology students will become accustomed with the interdisciplinary approach. The Frankfurt declaration is an important step of acknowledgement to move further ahead in the field of crime prevention.

In addition to that, the required skills also lead to a new skills development and job prospects. For instance, Mark Cohen began his research as an ‘Expert on Government Enforcement and Policy Mandate’. At the Vera Institute of Justice (think tank) researchers have specialized in the field. The skills are very suitable for researchers

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143 As Cohen (2000) articulated when the topic on the costs of crime began to gain popularity among US scientists, practitioners, and policy-makers: the next generation of criminal justice students will soon be learning about these tools in courses on criminology and criminal justice policy” (p. 265).
working in an applied-setting at ministries, independent research institutes, or think tanks. The United States probably has the greatest employment market for researchers specializing in the field, such as criminal justice cost-benefit analysts, government economists, advisors, and social and urban planners.
7. Final remarks

In an era of growing importance of sustainability and prevention the public sector and the society as a whole are undergoing unprecedented changes. There are a number of lessons to be learned from the economic crises: “The implication that European welfare states face a strained future, between increasing demands and constrained resources, which may lead public opinion support to dwindle further” (Taylor-Gooby, 2001, p. 133).

Key elements of political framework conditions have changed over the last decades. This refers in particular, for instance, to the consequences of technological progress in combination with new communication structures, the complexity of new challenges to be tackled (for example, violence, organized crime, cybercrime), and, in connection with this, a larger international interdependence. All this puts strategies and specific actions in criminal policy and beyond at a national level into an entirely new dimension. Separate approaches together with the existing institutional framework are not sufficient to tackle the new challenges. The findings of this dissertation with regard to criminal policy have highlighted the necessity of overcoming traditional barriers between the different disciplines concerned. It will be no easy task to overcome these barriers in connection with the cost of crime complex and beyond. Here, like in other fields, the development of interdisciplinary structures is absolutely inevitable in the search for optimal results.

Outlook: From national to European and global strategies

The same refers to the mentioned international dimension. The described European approach (MMECC project) reflects the conviction that the search for effective solutions cannot be limited to the national level. On the contrary, it is being offered some kind of manual for tackling the difficult task to estimating the costs of crime with a comprehensive concept. Nevertheless, one has to start at home, making use of the experiences made, in particular, at the European level.

An efficient national and international cooperation can also contribute to promoting sustainable development on a worldwide scale. National and international institutions are called for to concert action with regard to new kinds of measurement of economic development schemes, reflecting the criminal policy achievements as part of the
sustainability measurements (such as the GPI). Whether this is regarded to the redefinition of the political economy of (crime) prevention could be left open in this context.

If one succeeds to create the foundation for an efficient/effective measurement of the costs of crime – wherever this is possible and adequate – it could be a most valuable contribution for a better rationalization of criminal policy as an important part of politics as a whole.
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Appendices (MMECC project)

Appendix A: Cost of crime terminologies

Definitions of the principle cost categories in the MMECC model (in alphabetical order)

**Avoidance costs and precautionary expenditure** (cost in anticipation of crime): Costs of security measures taken by individuals and businesses.

**Costs as a consequence of crime**: Represents the second taxonomy of crime cost category and mainly refers to victimization costs (such as property loss, productivity loss, medical and mental healthcare cost, pain, suffering and lost quality of life, household services, lost school days, victim support services, legal expenses of tort claims, and long-term consequences of victimization), but also includes an offender cost category that is usually omitted.

**Costs in anticipation of crime**: Represents the first taxonomy of crime cost category and includes costs to potential victims (anticipatory costs and precautionary expenditure, and fear of crime by the public), costs of crime prevention activity (government crime prevention programs and non-government crime prevention programs).

**Costs in response to crime**: Represents the third taxonomy of crime cost category and refers to costs of criminal justice proceedings against the offenders (police, prosecution services, courts, legal defense, and jury services), costs of criminal sanctions (prison costs, probation, and enforcement of financial penalties), costs to offenders as a result of imprisonment (lost productivity, victimization to offenders whilst in prison, offender costs from lost freedom, and loss to offenders’ families), costs to victims and witnesses (victim and witness costs, and victim compensation), and other more sensitive costs (over-deterrence costs and justice costs).

**Court costs** (CJS cost in response to crime): Costs of providing facilities for the hearing of cases (incl. the provision of judges and court staff), i.e. the court time spent on processing cases involving a particular offense type. This includes costs of employing judges and other court staff and also cost of providing courtroom and holding facilities, video links etc.
Criminal career costs: Opportunity costs associated with the criminal’s choice to engage in illegal rather than legal and productive activities.

Emotions and physical (intangible) harms (victim cost as a consequence of crime): The pain and suffering resulting from personal injury in an assault, which may include psychic loss or Posttraumatic-Stress-Disorder (PTSD) (see as well pain, suffering and lost quality of life).

Fear of crime by the public (cost in anticipation of crime): These are the costs experienced by households from the residual fear of crime which remains even after they have taken their own precautions and are aware of the crime prevention measures implemented by criminal justice agencies. For example the loss of welfare associated with living in a high crime area rather than a low crime area. Finding ways of putting values on the losses resulting from fear of crime is a developing field.

Enforcement of financial penalties (CJS/criminal sanction cost in response to crime): Costs incurred by the agency responsible for collecting fines, fixed penalties and any other financial orders (incl. compensation orders) made against offenders on conviction.


Health services (victim cost as a consequence of crime): Costs to health services (whether funded through the public sector or otherwise) incurred in treating victims of crimes involving violence, or the threat of violence. See as well Medical and mental health care costs)

Household services (victim cost as a consequence of crime): Costs of interruption of normal daily activities as a result of crime that leaves victims either relying on other household members to increase their service contribution or having to employ external suppliers of these services.

Intangible cost (or harm): Emotional and physical ‘intangible’ harm looks at the pain and suffering resulting from personal injury in an assault, which may include psychic loss or Posttraumatic-Stress-Disorder (PTSD). See as well emotions and physical intangible harms)
**Jury services** (CJS cost in response to crime): The opportunity costs of the time jury members tie up in a case.

**Jury compensation**: Jury award data from personal injury trials used to estimate the value of pain and suffering.

**Justice costs** (cost in response to crime): Costs incurred by non-offenders taking costly steps to avoid liability to prosecution if sanctions (are usually disproportionately high).

**Legal defense cost** (CJS cost in response to crime): Costs of providing legal services to defendants charged with an offense type (incl. legal advice, assistance and also representation). These costs may be split between public budgets (funding services for defendants with limited means) and defendants responsible for funding themselves (incl. spending by the defendant and/or the government).

**Legal expenses associated with tort claims** (victim cost in response to crime): Costs incurred by victims of bringing their own private actions against offenders.

**Long-term victimization** (victim cost as a consequence of crime): Cost of long-term consequences of victimization or longer-term effects of crime.

**Lost freedom to inmates** (offender cost in response to crime): A welfare loss (loss of amenity) resulting from the time offenders spend in prison: The loss of liberty is what makes prison a deterrent.

**Lost productivity** (offender cost in response to crime): Net loss of output from having offenders in prison and able only to work less productively than otherwise.

**Loss to offenders’ families** (offender cost in response to crime): Costs imposed on the remainder of an offender’s family as a result of imprisonment. The costs may be the cash costs of buying in replacement services or in kind if other members supply greater effort.

**Lost school days** (victim cost as a consequence of crime): Crime victims in full time education may lose time off school or college or training program.

**Medical and mental health care costs** (victim cost as a consequence of crime): Costs to health services (whether funded through the public sector or otherwise) incurred in treating victims of crimes involving violence, or the threat of violence.
Non-governmental crime prevention program (cost in anticipation of crime): Costs of efforts by non-government agencies including both individuals and business (non-governmental crime prevention activity).

Offender costs (offender cost as a consequence of crime): The opportunity costs involved when preparing to commit crimes offenders may invest in specialist equipment.

Over-deterrence (cost in response to crime): The losses resulting from behavior changes on the part of citizens seeking to protect themselves from being (wrongly) accused of an offense.

Pain, suffering and lost quality of life (victim cost as a consequence of crime): The value of losses to an individual or household resulting from victimization (typically the pain and suffering resulting from personal injury in an assault but can be psychic loss or PTSD).

Police (CJS cost in response to crime): The prospects for allocating police time (costs) by offense type.

Prison (CJS/criminal sanction cost in response to crime): The cost of imprisonment for an offense reflects the Present Value of the flow of costs associated with the average term of imprisonment imposed for an offense type and also the proportion of offenders imprisoned for that offense type.

Probation (CJS/criminal sanction cost in response to crime): Cost of probation, sometimes referred to as a community penalty or community punishment (a widely used disposal in many countries): Offender supervision at varying degrees of intensity, where programs may be tailored to offender needs, particularly if criminogenic needs such as substance misuse, cognitive deficits or weak basic skills have been identified.

Productivity loss (victim cost as a consequence to crime): Output is lost when employed crime victims have to take time off work. This is true irrespective of whether the victim has insurance against the losses.

Property loss (victim cost as a consequence of crime): Value of property stolen, damaged or lost as a result of an offense. Property loss may result from a wide range of crimes, although it will be most pronounced for the offense types referred to as property
crimes such as burglary, theft and robbery. The loss may result from items being stolen or damaged.

Prosecution services (CJS cost in response to crime): Costs of bringing proceedings against an offender or costs of prosecuting an offense type. This will include case preparation time, advocate time costs and court appearance time. It will also include the costs of reviewing cases and making decisions about whether prosecution is worthwhile.

Victim support services (cost as a consequence to crime): Costs of supplying support to victims in the immediate aftermath of a crime.

Victim and witness cost (cost in response to crime): Costs incurred as a result of time spent by victims and witnesses on a case.

Victim compensation (cost in response to crime): Cost of administering scheme to support victims of an offense: excludes the compensation element itself.

Victimization costs: Financial and non-financial harm inflicted on victims by criminal activity. These costs represent losses suffered by crime victims (loss of assets or loss in quality of life).

Victimization of inmates (offender cost in response to crime): Losses resulting from a higher probability of injury or death in prison than offenders outside, including higher suicide and self-harm risks, sexually transmitted disease etc.
Appendix B: Suggested methodologies and formulas

Source: Retrieved from the website (www.costsofcrime.org) of the MMECC project, online from 2008-2014 (MMECC project).

Table 17 Taxonomy of crime cost category 1: Costs in anticipation to crime (Preferred estimation methodologies, formulas, and data sources for conducting the different cost components to arrive at an average cost per offense or incident)

<table>
<thead>
<tr>
<th>Cost to potential victims</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Avoidance costs and precautionary expenditure</strong></td>
</tr>
<tr>
<td>Preferred estimation methodology: No standardized methodology available.</td>
</tr>
<tr>
<td>The average cost of avoidance behavior and precautionary expenditure can be based on various approaches. These costs vary and can often not be broken down into different costs for different offense types.</td>
</tr>
<tr>
<td>Data sources: Victimization surveys (no. of offenses), business surveys and industry estimates (aggregate precautionary expenses), insurance data (value of risk-taking behavior), stated-preference surveys (based on WTP surveys)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fear of crime by the public</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preferred estimation methodology: No standard methodology available.</td>
</tr>
<tr>
<td>The costs of the fear of crime by the public can be based on various approaches including QALY, stated preference or WTP</td>
</tr>
<tr>
<td>Data sources: Victimizations surveys (no. of offenses, incl. questions on fear), stated-preference surveys (based on WTP surveys) for an estimate for the reduced fear of the overall crime level or specific offense types) or revealed-preference surveys (QALY loss from crime estimate), some quality of life surveys ask about the degree to which fear of crime influences respondents’ happiness.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Crime prevention programs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Government crime prevention programs</strong></td>
</tr>
<tr>
<td>Preferred estimation methodology: No standardized methodology or formula available</td>
</tr>
<tr>
<td>Data sources: Victimization surveys (no. of offenses), government reports or documents (budgetary information)</td>
</tr>
</tbody>
</table>
Non-governmental crime prevention programs

Preferred estimation methodology: Product of the amount of time spent by (all) citizens involved in neighborhood watch (and other) programs and the average wage rate. This total cost is divided by an estimate of the number of offenses of relevant types to get an average cost per offense.

Note that the time given by ‘volunteer’ citizens has a positive opportunity cost which needs to be taken into account. It is time which can variously be valued at the minimum wage rate (conservative) or at an average wage rate (more generous). We note that this category refers in effect to avoidance behavior by organizations rather than by individuals or households.

Total cost of non-governmental crime prevention (formula):

Amount of time spent by citizens involved in neighborhood watch (and other) programs * average wage rate. Average cost per offense calculated by dividing this total cost by an estimate of the number of offenses

Data sources: Victimization surveys (no. of offenses), agency reports or documents (on time inputs)
Table 18 Taxonomy of crime cost category 2: Costs as a consequence of crime (Preferred estimation methodologies, formulas, and data sources for conducting the different cost components to arrive at an average cost per offense or incident)

<table>
<thead>
<tr>
<th>Costs to victims incurred as a consequence of crime</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Property loss</strong></td>
</tr>
<tr>
<td>Preferred estimation methodology: Based on mean value of property loss reported in victim survey data. Note: Property loss may be estimated as separate components (as in Dubourg et al 2005) for property stolen, property damaged and property recovered respectively (data from victim surveys); may be a case for looking at other parameters of the distribution of losses (e.g. median or estimated mean of a lognormal distribution): if survey data are not available it is sometimes possible to get data from police records or from insurance sources, although these other sources may be prone to error for reasons of under-reporting etc. explored elsewhere.</td>
</tr>
<tr>
<td>Average property loss (formula): Average value of [property stolen + property damaged-property recovered] per offense of type j (from victim survey) * proportion of households victimized (from victim survey) * no of households</td>
</tr>
<tr>
<td>Data sources: Domestic victimization survey, for instance the EU ICS or BCS (no. of households surveyed, no. of households in a country, proportion of households burgled, proportion of burglaries victims believe are known to police, average loss experienced by victim and no. of burglaries experienced by survey respondents), Eurostat or domestic statistical office (no. of burglaries recorded by the police), official recorded crime statistics (Ministry of Justice, national statistical office, etc.)</td>
</tr>
</tbody>
</table>

| Productivity loss                                  |
| Preferred estimation methodology: Use victim survey data to estimate the distribution of the days lost from work of victims. Multiply days lost by average wage rate (use of national average figures for value of lost time even if individual level data on income loss are collected in victim survey) to get productivity loss. May be possible to use health source to make these estimates. Note: Use of national average figures for value of lost time even if individual level data on income loss are collected in victim survey. |
| Average productivity loss (formula): Proportion of offenses in which time was lost from work * estimated no. of offenses * days lost per victim * average daily earnings / no of offenses |
| Data sources: Victimization surveys (no. of offenses, time or no. of days lost from work), |
national economic statistics (or IMF, OECD, Eurostat) for data on average daily earnings (national average wage figures as opposed to the figures from the victimization surveys)

<table>
<thead>
<tr>
<th>Household services</th>
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<tbody>
<tr>
<td>Preferred estimation methodology: Multiply the replacement cost per day for the lost services by the number of days lost on average. Note: where estimated these are sometimes calculated alongside estimates of productivity loss. Can use as a working assumption that the number of days of household services lost equals the number of days off work. Note: where estimated these are sometimes calculated alongside estimates of productivity loss. Can use as a working assumption that the number of days of household services lost equals the number of days off work.</td>
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<tr>
<td><strong>Average cost of household service (formula):</strong></td>
</tr>
<tr>
<td>Proportion of households where supply of services interrupted by injury to victim in household * average no of days lost * daily replacement cost / no of offenses</td>
</tr>
<tr>
<td>Data sources: Victimization survey (no. of offenses, information on interruption of daily activities), personal injury litigation (replacement costs)</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Lost school days</th>
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<tbody>
<tr>
<td>Preferred estimation methodology: The number of days of schooling lost by crime victims: may extend to further and higher education if data are available and measure lost education opportunities: usually valued at the cost of education provision. Note: not normally estimated where surveys exclude victims under the age of 16: may sometimes be separate surveys of young people that ask about time lost from school because of victimization</td>
</tr>
<tr>
<td><strong>Average cost of lost school days (formula):</strong></td>
</tr>
<tr>
<td>No. of school days lost per annum as a result of offense type j * average daily cost of school place provision / no. of offenses</td>
</tr>
<tr>
<td>Data sources: Victimization surveys (no. of offenses), school costs data from education authorities (no. of days lost by victims from crime, proportion of victims losing time from school, average cost of school day)</td>
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</table>

<table>
<thead>
<tr>
<th>Medical and mental healthcare cost</th>
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<tbody>
<tr>
<td>Preferred estimation methodology: Identify distribution of injury types suffered by victims multiply by unit costs of injury treatment costs. Note: These should cover costs of treating both physical and mental conditions including PTSD. Cost of providing health services to crime victims: this will include costs to government of provision (e.g. amount of practitioner time,</td>
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</tbody>
</table>
hospital costs): it may sometimes be based on the costs of treating particular sorts of injuries

**Average cost of treatment** (formula):

Average cost of health services per injury type \( k \) * proportion of households of offense type \( j \) suffering injury type \( k \) * proportion of households victims of offense type \( j \)

Data sources: Victimization surveys (no. of offenses, proportion of victims suffering an injury type), health services data (costs of different types of injury)

<table>
<thead>
<tr>
<th><strong>Pain, suffering and lost quality of life</strong></th>
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<tbody>
<tr>
<td>Preferred estimation methodology: Identify proportion of victims of an offense who suffer a particular type of injury; then use health data to measure cost. If the data do not enable such a detailed analysis then identify proportion suffering different degrees of injury e.g. ‘serious’ or ‘minor’ and use estimates from health sources to value these. Note: Based on application of the Quality-Adjusted Life-Year (QALY) concept developed in the health services literature, and information on the health impacts of violent crimes reported by respondents to crime surveys (e.g. BCS). Alternative is to transfer values used by other government departments: e.g. values estimated by transport departments for serious non-fatal road injuries. Other approaches include use of damage values from jury trials involving similar types of injuries in legal claims in respect of personal injuries.</td>
</tr>
<tr>
<td><strong>Average cost of pain, suffering and lost quality of life</strong> (formula):</td>
</tr>
<tr>
<td>Proportion of victims of offense type ( j ) with injury type ( k ) * average QALY-loss of injury type ( k ) * monetary value of a QALY * no of households victimized * [summed overall ( k ) for each ( j )] / no of offenses of type ( j )</td>
</tr>
<tr>
<td>Data sources: Victimization surveys (no. of offenses, distribution of injury types or severity), health services data (QALY)</td>
</tr>
</tbody>
</table>

| **Victim support services** (cost of supplying victim support service) |
| Preferred estimation methodology: No standard methodology available. |
| Data sources: Victimization survey (no. of offenses), nationally-financed governmental victim service programs, expenditures by other governmental organizations, non-profit organizations or volunteer time |

| **Legal expenses of tort claims** |
| Preferred estimation methodology: Legal expenses incurred by crime victims who bring tort claims against alleged perpetrators: may be difficult to estimate in a conditional or contingent |

200
fee setting. Note: should only be the legal costs of the action that are considered since any compensation awarded will be in respect of loss measured under some other head (e.g. intangible harm). We note that these costs are in addition to those associated with the costs of administrating public compensation schemes.

**Average cost of tort claim** (formula):

Proportion of households bringing legal claims in respect of losses from offense type j * average cost of action / no of offenses

Data sources: Victimization survey (no. of offenses), social insurance data (cost information), legal aid data (no. of cases, proportion of victims bringing tort actions, average legal costs per personal injury claim)

**Long-term consequences of victimization**

Preferred estimation methodology: Long-term losses to victims may include reduced lifetime earning capacity. Note: Victims of crime may themselves go on to offend e.g. as a result of being abused.

**Average cost of long-term victimization** (formula):

Proportion of victims of offense type j experiencing long term costs average long terms costs no of households victimized / no of offenses

Data sources: Victimization surveys (no. of offenses, questions addressing long-term effects of victimization), health services data (longer-term costs)

**Costs to offenders incurred as a consequence of crime**

**Offender costs**

Preferred estimation methodology: The largest element of the costs to offenders of crime is likely to be the opportunity cost of time at least for offenders with legitimate employment prospects. It may also include specialized equipment including planes and boats.

**Average cost to offenders of crime** (formula):

Proportion of offenders unemployed * average earnings (weeks * days * hours * hourly rate) * average daily population of offenders in prison

Data sources: Transcripts of court hearings (information on special investments), law enforcement agencies (costs of investment on special equipment made by law enforcement agencies), average earning figures, employment statistics
Table 19 Taxonomy of crime cost category 3: Costs in response to crime (Preferred estimation methodologies, formulas, and data sources for conducting the different cost components to arrive at an average cost per offense or incident)

<table>
<thead>
<tr>
<th>Costs of investigation and criminal justice proceedings (CJS costs)</th>
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<tbody>
<tr>
<td><strong>Police</strong></td>
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<tr>
<td>Preferred estimation methodology: No standard methodology available.</td>
</tr>
<tr>
<td>Note: The total costs of running a country’s police force (or forces) may be easy to establish. It is usually a great deal more difficult to find out how police allocate their time between the many different kinds of work they do. Swedish police keep diaries from which allocations can be deduced, but it is rare for such systems to be in widespread use. The Activity Based Costing system used in England can be used to make some broad estimates of costs by offense type, but much of the imputation is comparatively unreliable.</td>
</tr>
<tr>
<td>Data sources: Police records, budgetary reports (federal and state level), costing systems (ABC)</td>
</tr>
<tr>
<td><strong>Prosecution service</strong></td>
</tr>
<tr>
<td>Preferred estimation methodology: Ideally there will be data from a prosecuting body on the average cost of prosecution by offense type. This can be used to infer an average cost per offense committed by dividing the total spend on an offense type by an estimate of the number of offenses victims experience. Many countries have an independent organization responsible for bringing prosecutions.</td>
</tr>
<tr>
<td><em>Average cost of prosecution service</em> (formula):</td>
</tr>
<tr>
<td>Average cost of prosecuting an offense of type j (prosecuting agency cost analysis) * no of prosecutions of type j brought per annum / no of offenses</td>
</tr>
<tr>
<td>Alternative estimation methodology (sometimes used): Proportion of prosecutions involving offense type j * total prosecution budget / number of offenses of type j</td>
</tr>
<tr>
<td>Data sources: Victimization surveys (no. of offenses), annual or quarterly report from organizations responsible for bringing prosecutions (data on total spending, no. of prosecutions brought so at least a crude average cost of prosecution costs can be estimated), court data (no. of prosecutions, possibly disaggregated by offense type)</td>
</tr>
<tr>
<td><strong>Court</strong></td>
</tr>
<tr>
<td>Preferred estimation methodology: Identify the amount of time taken by the court on average to process a case involving a particular offense type. Identify total costs of running courts and the</td>
</tr>
</tbody>
</table>
total amount of time spent hearing cases. Multiply the average hourly cost of a court by the number of hours an average case takes to process to get an average cost per case heard. Multiply this by the number of cases of this type being processed annually to get the aggregate cost for the offense type. Divide by an estimate of the number of offenses of this type committed annually (from crime survey data) to get the court cost per offense.

Average court cost (hours) per case (formula):

\[
\text{Offense type } j \times \text{average (hourly) cost of running a court} \times \text{no of cases of type } j \text{ heard per annum} / \text{no of offenses of type } j \text{ committed per year}
\]

Data sources: Victimization surveys (no. of offenses), annual report of organizations responsible for courts (total budget for courts, total number of cases processed, staff employed etc.), sentencing statistics (no. of offenders dealt with, sanctions imposed on them). There are good sources of data on the costs of administering courts in the EU available from the CEPEJ report.

Legal defense

Preferred estimation methodology: Identify all spending on the defense of all individuals (or a sample) charged with a particular offense type: sum public spending on legal aid and any other spending incurred privately. Infer the cost per offense by dividing total spending by an estimate of the number of offenses derived from victim surveys.

Average cost of legal defense service (formula):

\[
\text{Average cost of defense services for cases involving offense type } j \times \text{no of cases brought for this offense type} / \text{no of offenses of their type}
\]

Data sources: Victimization surveys (no. of offenses), reports of the organization responsible for administering legal aid (no. of cases, cost of legal service provision by offense type). The CEPEJ (2006) report has good coverage of total spending on legal aid by EU countries although it does not disaggregate spending by offense type. Private law firms will typically be reluctant to disclose details. Some law societies (lawyer organizations) publish data on costs in criminal cases.

Jury services

Preferred estimation methodology: Estimate number of juror days used in cases involving offense type j and multiply by average daily earnings to get average cost per offense, divide this total by the estimated number of offenses.

Average costs of jury service (formula):

Proportion of prosecutions for offense type j for which a jury trial is used * number of offense of
type j where a suspect is tried * average length of trial (days) * average daily earnings/estimated number of offenses of type j to get from total offense cost to average cost per offense

Data sources: Victimization survey (no. of offenses), court or jury data (no. of cases, time data)

<table>
<thead>
<tr>
<th>Costs of criminal sanctions (CJS costs)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Prison</strong> (criminal sanction)</td>
</tr>
</tbody>
</table>

Preferred estimation methodology: Present value of the costs of imprisoning an offender for the average length of prison term imposed for an offense, weighted by the probability that imprisonment is the disposal when an offender is convicted of that offense.

Alternative is to base the estimate on the proportion of offenders in prison on audit day with a conviction for each offense type and to allocate total prison costs accordingly. If sentencing policy and offending patterns are stable through time then this approach should produce a similar estimate to the preferred methodology. Note that there are potential complications if the length of term actually served is significantly shorter than the term imposed and also where an indeterminate or life sentence is imposed. Since ex ante a court may assume the full term will be served this is the appropriate measure to use. With life terms the best response is to estimate the average length of term those who are released from such sentences have actually served. The total costs of prison places are generally fairly straightforward to estimate. In Justice statistics they are often split between costs of running establishments and Headquarters costs. For cost of crime estimation purposes we take the sum of the two. In practice there are costs associated with imprisonment that are included elsewhere.

*Average cost of imprisonment* (formula):

Total cost given by Present Value of the costs of imprisoning someone for the average term imposed for the offense type * no of offenders convicted and imprisoned for the offense / no of offenses

Data sources: Victimization surveys (no. of offenses), reports of the national prison service (costs per prisoner year, number in prison by offense type on audit day), sentencing statistics (proportion of offenders imprisoned), international data available includes UNODC survey (average length of imprisonment term by offense type), public expenditure data for the prison system (current spending and capital spending), detailed reports of each criminal justice agency involved, especially the prison service, data on the number of prisoners, if possible an inventory of prisoners by type of conviction at a single date, data on the costs per year of a prison place, crime statistics data (no. of recorded crimes by offense type, no. of persons sentenced by offense type, disposal type and length of prison terms
**Probation costs** (criminal sanction)

Preferred estimation methodology: As with prison terms the preferred methodology is to identify the number of offenders receiving probation disposals for an offense type, to identify the type of order and its average length and thereby to calculate the average cost of probation for offenders with whom it is used. This is then adjusted for the proportion of offenders convicted for that offense type with whom probation is used.

*Average cost of probation per case* (formula):

Average length of probation sentence per offense type \( j \) (e.g. in months) \( \times \) average cost per month per case of probation time \( \times \) no of offenders convicted of offense type \( j \) given probation sentences \( \div \) no of offenses

Data sources: Victimization surveys (no. of offenses), reports of probation service or agencies (budgetary information), sentencing statistics (no. of cases or sanctions)

**Enforcing financial penalties** (criminal sanction)

Preferred estimation methodology: Identify the number of offenders fined for offense type \( j \) per annum and the total fined for all offenses. Identify the total costs incurred by courts (or other agencies responsible for collecting the revenue). Multiply the total cost estimate by the proportion of fines involving offense type \( j \) to get total costs of enforcing financial penalties in respect of offense type \( j \). Divide by an estimate (based on survey data) of the number of offenses of type \( j \) committed per annum to infer an average cost per offense committed.

*Average cost of enforcing financial penalties* (formula):

Proportion of offenders convicted of offense type \( j \) who are ordered to pay a financial penalty \( \times \) no convicted of offense type \( j \) \( \times \) average cost of collecting a financial penalty \( \div \) no of offenses of type \( j \)

(Note: average cost of collecting a financial penalty estimated by dividing total expenditure on financial penalty collection by number of financial penalties imposed)

Data sources: Victimization survey (no. of offenses), annual reports of organizations responsible for the running of courts (data on total spending, the number of fines, penalties and compensation orders imposed)

**Costs to victims and witnesses**

**Victim and witness costs**

Preferred estimation methodology: Average number of days spent by victims and witnesses in
reporting an offense, giving evidence and attending court. May include time spent by friends and
daily in support activities such as escorting to court.

Data sources: Victimization surveys (no. of offenses, reported time spend), court data (no. of
court days). Court data rarely include estimates of victim and witness time inputs: Crime
victimization surveys (such as BCS) ask considerable numbers of questions about intimidation
of victims and witnesses

<table>
<thead>
<tr>
<th>Victim compensation</th>
</tr>
</thead>
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| Preferred estimation methodology: There is no standard methodology but if there are data
regarding the costs of administering schemes with compensation programs then they should be
included. Many governments have compensation programs to cover out-of-pocket expenses for
victims: note that it is only the costs of administering the scheme that should be included.

Average cost of victim compensation (formula):

Proportion of compensation schemes turn over going on administration * average ward to
victims of offense type j receiving compensation * proportion of population victim of offense
type j

Data sources: Victimization surveys (no. of offenses), report of compensation funds

<table>
<thead>
<tr>
<th>Costs to offenders as a result of imprisonment</th>
</tr>
</thead>
</table>
| Preferred estimation methodology: To measure lost productivity need an estimate of external
earnings; offenders could have generated if not in prison. Subtract the value of any production in
prison (generally agreed to be low)

Average cost of lost productivity to offender (formula):

Present value of average wage prior to conviction-average value of output while in prison *
proportion of offenders imprisoned for offense type j * number of offenses of type j / est. no of
offenses

Data sources: Victimization surveys (no. of offenses); earnings surveys (average wage rates) for
different groups of workers including those from which offenders are drawn.

<table>
<thead>
<tr>
<th>Victimization to offenders whilst in prison</th>
</tr>
</thead>
</table>
| Preferred estimation methodology: The difference in probability of death or injury for
comparable group living in the community and estimated value of reduced risk. |
### Average cost of victimization to offender (formula):

There is no standard formula but might be proportion of offenders of offense type j with injury type k * average QALY-loss (from health data) of injury type k * monetary value of a QALY

Data sources:

Morbidity and mortality tables for higher risk groups: prison services data on injury and death in prisons, prison services data on injury and death in prison, VSL estimates (estimate for homicide), QALY estimates (loss from relevant kinds of injury)

### Offender costs from lost freedom

Preferred estimation methodology: No standard methodology.

The loss of liberty to prisoners is normally ignored in cost of crime calculation; although some authors have attempted to estimate it. A QALY type methodology could be developed to estimate the value of the loss in quality of the life attributable to imprisonment. There may be, to some degree, an offsetting ‘benefit’ associated with the loss of liberty. The ‘retribution’ motive for imposing sanctions relies on the idea that citizens may be prepared to incur costs purely to make life unpleasant for those breaking social rules.

Data sources: QALY type methodologies

### Loss to offenders’ families

Preferred estimation methodology: It would require investigation of intra-household adjustments plus a valuation of these changes.

Data sources: Household expenditure surveys and time budgets might contain data from which the time implications and costs can be inferred.

### Over-deterrence and justice costs

#### ‘Over-deterrence’ costs

Preferred estimation methodology: There is no standard methodology: the costs and their estimation are context sensitive.

Data sources: Occasional research studies may highlight costs in a particular setting but no data gather systematically

#### Justice costs

Preferred estimation methodology: There is no standard methodology

Data sources: Would normally require special study to be condemned and are unlikely to be
discernible easily.
Appendix C: Idealized template

MMECC model

Source: Retrieved from the MMECC website (www.costsofcrime.org).

See next page
<table>
<thead>
<tr>
<th>MMECC model output</th>
<th>Burglary in a dwelling</th>
<th>Theft of vehicle</th>
<th>Theft from Vehicle Theft</th>
<th>Attempt Vehicle Theft</th>
<th>Criminal damage</th>
<th>Robbery</th>
<th>Common Assault</th>
<th>Sexual Offences</th>
<th>Homicide</th>
<th>Serious Wounding</th>
<th>Other Wounding</th>
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<tbody>
<tr>
<td>Costs in anticipation of crime</td>
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<td>avoidance costs</td>
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<td>Fear of crime</td>
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<td>Government crime prevention</td>
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<td>Non-government crime prevention</td>
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<td>Costs as a consequence of crime</td>
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<td>productivity loss</td>
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<td>household services</td>
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<td>lost school days</td>
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<td>medical and mental health care costs</td>
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<td>pain, suffering and lost quality of life</td>
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<td>victim support services</td>
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Appendix D: Data audit (manual)

MMECC model

Source: Retrieved from the MMECC website (www.costsofcrime.org).

Objectives: The purpose of the Data Audit stage is to identify sources of data that can be used in estimation. The results of this process can also be used to identify gaps and to formulate a research program to fill them. Identifying the best possible set of data to use as a base for cost of crime estimation is critical. It is ideally done in consultation with experts who have wide familiarity with national and international data sources. This may involve consulting a range of individuals or organizations with specialist areas of knowledge. For example, compiling estimates of the costs of violent crime will require as a minimum: good knowledge of health service cost structures; awareness of the definitions of categories of violent crime used in the country; Knowledge of the kinds (and costs) of sanctions used with violent offenders and of victim studies.

Requirements: The principal requirement for cost estimation is information on the following aspects:

- Physical victim impacts (proportion of crimes in which injuries are incurred and the extent of impact)
- Value of property stolen or damaged
- GDP per capita (for valuing time lost from work) - Health treatments and service cost (in relation to physical injuries to victims)
- Criminal Justice System (CJS) data and costs.

Approach: There are, in effect, two ways of going about a data audit. The first, set out in the previous paragraph, is to work back from the cost ‘lines’ or categories in the classification of the costs of crime. This proceeds from our account (in the costing principles and methodology section) of the idealized methods of estimating costs. It identifies what is required.

The other, which we outline below, is to review some likely data sources to see what is available. An effective data audit strategy will need to combine elements of both. It is
an exercise in pragmatism and opportunism. There are no countries where all the data ideally needed are actually available.

**Recommended method:** As a starting point we would recommend a data audit covering four key areas, as follows:

(1.) **Review EU and international statistical data resources**

Review standard EU and international data sources for coverage of the country for which estimates are to be made. This should include checks of the following:

- **European Source Book** for recorded crime numbers

  **ICVS** ask the following questions: Is the country covered? If so then establish:

  - When were sweeps completed?
  - Which offenses are included?
  - How much data is there on the incidence of offenses?
  - Are the classifications of offenses consistent as between ICVS and the recorded crime data for the country? If not then explore the scope for building a mapping between offense categories (e.g. from the Criminal Code) and the categories used in ICVS.

  **UNODC** for numbers in prison, proportion detained etc.

  **CEPEJ** for prosecution and other criminal justice system costs etc.

- **Other** list and detail relevant data from other sources

(2.) **Review of principal domestic statistical data resources**

Review main national data sources on criminal justice areas. List what is available and comment on things known to be unavailable. Expected coverage includes:

- **National crime victimization survey:** Is there a major national survey of crime victims? How often is it conducted? What is the sample size? How is the sample constructed?
Comment on:

• Is the sample size sufficient to make the findings representative at national level (and at lower levels as well?) The coverage of offense types Quality of data on loss of time, extent and type of personal injuries Coverage of the type and scale of injuries received in violent incidents, including:
  o the scale of emotional harm experienced
  o the value of victims’ property lost or damaged
  o time lost from work or other activities
  o length and type of disruption to normal activities
• Is the classification of offenses consistent with the ones used in the recorded crime data? if not then explore the scope for matching incidents

What other surveys (local or national) ask about criminal victimization?

**Recorded crime data:** Review web sources and documents such as annual reports of police authorities, annual general statistical reports etc. to establish:

• What offense classifications are covered?
• How frequently are data published?
• How far back do data stretch? (not needed in detail)
• Have there been significant changes in recent times in the classification of offenses, the recording practices used by the police etc.?

**Police data:** Review web sources and documents such as annual reports and any breakdowns by activity or offense type. Note whether the police record their activity (time use) in a way that can support estimates of the proportion spent on particular offense types.

**Sentencing data:** Establish the proportion given different types of disposal and what is known about:

• types of disposal used (by offense type), distribution of the length of custodial sentences and the average term served by offense type,
• the use made of community-based disposals and the distribution of program length by offense type

**Courts data:** If possible find out the average duration of hearings by offense type. Find
out what is known about how courts allocate their hearing time across offense types.

**Prosecutions:** Find numbers by offense type and, if possible, an indication of the resources per case required by offense type.

**Criminal injuries compensation:** Find data on the average amounts paid and the number of payments made by offense type.

**Probation:** Review annual reports and any data on numbers on community programs, and establish:

- Are estimates available of the costs of the various types of orders available to courts broken down by the length of order?
- If not what is known about the caseloads of probation officers by the type of offender or orders officers supervise?
- If probation staff supervise offenders released on license from prison is it known (by offense type) what proportion breach conditions and are returned to prison?

**Prisons:** Review annual reports of prison authorities plus sentencing statistics and any annual census of prisoner numbers to establish:

- What is known about the total costs of running prisons?
- Is it known how this varies with the type of prison (e.g. ‘local’, ‘high security’, ‘male only’)?
- Is an annual (or other frequency) audit conducted of inmates by offense type?
- Is use made of suspended sentences and, if so, on what scale?
- What are the breach rates and what is the distribution of time served

**Enforcement of fines:** Review reports on courts or organizations responsible for enforcing financial sanctions (and/or compensation orders against offenders) to establish the number fined by offense type and the total spending on enforcement. Try to establish:

- What use is made of fines?
- What is done with offenders failing to pay?
- If they get sent to prison, how much time do they serve?

**CJ sector budgets:** Review data on public expenditure programs (especially if based on international standards such as COFOG returns) to establish what is known about:
• spending by justice agencies
• the degree to which spending can be disaggregated by offense type.

Other surveys: Investigate whether there are any other surveys (local or national) asking about criminal victimization. If so, summarize any information or tables that might be useful

(3.) Review of other domestic statistical resources

Review one-off studies that may contain useful data. Promising areas where data may be available include:

Criminal injuries: Data collected by private or government insurers on the number of (and/or the extent of) criminal injuries e.g. payments from a criminal compensation fund

Value of life and limb: Review estimates used by other government agencies, e.g.: transport or environment or other departments who use estimates for appraising transport, environmental and other projects where physical injury is involved

Health data:
• Are data available on the costs of primary care and hospitalization (by case or day?)
• Are data available on the costs of treating particular injuries?

Insurance data:
• What data are available from the insurance industry about crime?
• What proportion of turnover is accounted for by transactions costs?
• What kinds of consequences of crime are insurable (e.g. property theft from dwellings or from the person; homicide; theft of or from vehicles; time lost from work)?

Jury awards for personal injuries:
• What data are available from court awards for injuries experienced in non-criminal settings, e.g. civil negligence claims?

Judicial commentaries on the scale of victim loss:
• What data are available from victim statements or judicial comments about the type
or scale of losses experienced by victims?

**Studies of the relationship between** recorded crime, victim survey and self-reported offense numbers.

**Estimates of the volume of drug-related crime:**

- Does the country file a Reitox report with ECMDDA?

**Estimates of losses from business crime** (shoplifting, fraud, credit card fraud, collated by business lobby groups)

(4.) National economic and demographic data

Data on:

- Population (number of individuals by age band, e.g. under 16, and adults)
- Households (number)
- GDP per capita Average adult earnings
- Unemployment rate Exchange rate (relative to Sterling and Euro)

**Next steps:** The purpose of conducting a data audit is to identify sources that are available and also where gaps occur. The result of an audit will thus be some data that can be readily used, some areas where data can be used to help inform working assumptions and some areas where little or nothing has been found. Judgments have to be made about how best to make use of what is available.

**Making best use of data available:** In the short term, the challenge is to make as much use as possible of the local data identified in the audit by applying standard methodology. This will include identifying gaps and the scope for filling them by making inferences from other domestic data sources (e.g. surveys of lost working time by reason for absence; social security or health data sources)

**Transferability:** Where nothing much can be found there remains the option of adapting estimates that are available from other countries. For example you might know how many victims of violence have suffered injuries that keep them off work but you do not have a detailed account of how many days were lost, or what the average loss of income was. It may, in this event, be possible to use information or estimates from elsewhere. For example you may have an estimate from another country about the average number
of days off work suffered by victims of assault. These days could be valued at a domestic wage rate to get a first approximation of the income loss from assault. In the case of homicide it may be possible to estimate a value of life lost by adapting calculations done for another country to domestic income levels.

Formulating a domestic research and data collection agenda: Identifying the gaps in coverage of existing data will give clues about how existing data collection efforts (e.g. domestic crime victim surveys) might be adapted to produce missing information. For example, it might be comparatively easy to add a question to the survey asking how many days assault victims took off work. Over the longer term there may be scope to develop survey instruments for collecting new sorts of primary data on the extent and consequences of victimization.
Appendix E: Results of the practice survey

Source: Retrieved from the MMECC website (www.costofcrime.org).

See next pages
The Role of Cost of Crime Estimates in Criminal Justice Policymaking

1. Introduction

The purpose of this section is to review the criteria used by policy makers in practice when appraising and evaluating crime prevention or crime reduction policies. It considers the role of cost of crime estimates as an indicator of benefits and the role played by economic arguments in the processes by which policy makers construct a project appraisal (or ‘business case’) for a criminal justice project or practice or evaluate the impact of such projects.

The focus is on identifying how policy makers in the EU currently formulate advice in practice and the role, if any, played by criteria or guidelines that can be traced in some way to cost benefit or cost effectiveness analyses or to cost of crime methodology. Policy makers and analysts working in criminal justice agencies in the EU (and also the US) were asked about their awareness of cost of crime methodology and about the use made of techniques such as cost benefit analysis in the policy process.

The study analyses responses to a short structured questionnaire developed to explore (a) how widely the methodology is used and (b) a number of related matters such as what other sorts of research methodology are employed by criminal justice departments. Responses were gathered for eleven countries.

2. Background

From the literature survey conducted for the MMECC project it is known that methodology to estimate the costs of crime has not been widely used. There had been earlier interest in the topic and a small number of academic researchers had been active in looking at some of the issues. But it was really the pioneering work of Cohen et al (1994) in the US, followed by Brand & Price (2000) and subsequently Dubourg et al (2005) at the Home Office that demonstrated the scope for a systematic approach across the board to producing a set of estimates of costs by offence type that could plausibly be used for project appraisal and evaluation purposes.

The technical feasibility of producing cost of crime estimates is clearly a very different matter from ensuring a political will to make systematic use of the estimates for policy analysis purposes. The stimulus in the UK for developing the estimates was
a wish to have tools that could be used for application to ex ante appraisal of criminal justice projects and for producing economic evaluations of pilot projects once they had been in operation for a while. The cost of crime estimates made by Brand & Price (2000) were developed alongside evaluation guidelines to be applied in analysis of the British Crime Reduction Programme: Dhiri & Brand (1999).

There are some suggestions of similar interest at an EU level. The EUCPN (EU Crime Prevention Network) was set up in May 2001 by an EU Council Decision to promote crime prevention activity in Member States across the EU, and to provide a means through which valuable good practice in preventing crime, mainly "traditional" crime, could be shared. There are indications that this Network has been interested, at least in principle, in the costs of crime. Their current work programme mentions developing a common methodology for identifying good practice in crime prevention. This mentions a work group on the costs and benefits of crime, and refers to a meeting in 2004 meeting in Finland where Mark Cohen, inter alia, presented material on the cost of crime. The Network’s Research & Validation Committee 'good practices' report has sections on cost-benefits although it does not contain much data at present. However there are plans to undertake a Willingness To Pay study.

In order to explore the extent to which Criminal Justice policy makers currently make use of cost of crime methodology a brief, informal study was conducted as part of MMECC. The purpose of the Survey of Practice was to explore the degree to which the methodology is in use within criminal justice departments in EU countries and more widely.

3. Methodology

A questionnaire was circulated in two phases. At stage 1 it was sent to MMECC participants, who were asked to review practice in their own country. The responses do not represent an official view of current practice within the official agencies

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1 [www.eucpn.org/workdocs/Work%20programmeDec06f.pdf](http://www.eucpn.org/workdocs/Work%20programmeDec06f.pdf)
2 [www.eucpn.org/keydocs/EUCPN%20evaluation%20report%202004.pdf](http://www.eucpn.org/keydocs/EUCPN%20evaluation%20report%202004.pdf)
3 [www.eucpn.org/keydocs/Good%20Practice%20Check%20Friedrich%202007.pdf](http://www.eucpn.org/keydocs/Good%20Practice%20Check%20Friedrich%202007.pdf)
represented in the consortium (namely UK, US, Sweden and the Netherlands). They do however provide an informal picture of the degree of interest in cost benefit methodology within the justice sector. Responses were collected for seven countries at stage 1. Six of these countries are represented amongst project participants\(^5\), while the seventh response collected refers to Poland.

In order to extend the range of countries covered a second round of responses was sought from a network of analysts working for national police boards in EU member states. This has elicited to date responses from a further fourteen countries. This improves coverage significantly over stage 1. But the failure of literature searches conducted for the project to find much reference to cost of crime publications for EU countries outside those represented in the survey inclines us to the view that it is unlikely that we are missing much application of the methodology.

The questionnaire was designed to be quick and easy to complete. Its focus is on the methods used rather than on the development and application of cost of crime estimates per se.

The responses do, however, suggest a fairly clear pattern, with some countries making some use of cost of crime methodology and other countries making very little or no use of it. The expectation was that in some countries there would be little if any use being made of economics-based methodology in the evaluation of criminal justice policy. The findings from the survey are outlined in Annex 1 below.

**Further development**

Establishing that many countries are not making much use of cost of crime methodology to inform criminal justice policy-making does not, by itself, convey a very positive message. It very much begs the question: what benefits might there be from greater application of the findings from cost of crime investigations? In order to explore this issue in further detail and to expand on the practice review two further papers were commissioned at this stage of the project.

\(^5\) The four listed earlier in the paragraph plus Spain and Portugal.
Annex 1 Survey of Practice

Influence of economic arguments on policy decisions (q. 1)
Respondents generally took the position that economic arguments about the costs and benefits of government projects and programmes have some influence on policy decisions in the criminal justice sphere. Only in Cyprus was it thought that the costs and benefits were very important. In four further countries (Hungary, Lithuania, Latvia and Slovenia) the costs and benefits were judged quite influential. Respondents in seven countries thought they are of some importance. A further seven saw them as not very important. Only the respondent for Spain views them as pretty much irrelevant.

Appraisal requirements for criminal justice projects (q. 2)
In seven countries there are investment appraisal requirements, although in the cases of both the UK and US respondents indicated that the requirement was not enforced completely across the sector. Respondents for twelve countries believed there was no appraisal requirement.

Role of economic methodology in research on the criminal justice system (q. 3)
This broader question about the use of economic methodology in criminal justice research produced a narrow range of responses, but all were basically negative. In fourteen countries it is reported to be not widely used. In the remaining six countries, however, it is said to be hardly used at all either by government analysts or others.

Use of other kinds of research methodology (q. 4)
The fourth question asked about research methodology other than economics used for policy purposes. As might be deduced from the criminology literature, academic research on criminal justice is dominated by those with a background in social sciences other than economics. Disciplines such as sociology and psychology tend to be more important influences particularly for proponents of qualitative research methodology, although there are of course other disciplines represented in the literature (including statistics, operational research and anthropology).
In countries such as the US and the UK the output of non-economics-based research on the CJS is high. The feeling seemed to be that, when these alternatives were probed, the studies are not particularly influential. Policy makers may take account of the findings from research, and will make use of them when expedient, but rather rarely allow research evidence to dictate policy development very directly.

**Prevalence of cost of crime methodology (q. 5)**

The final question asked whether cost of crime methodology had been used to make estimates in the respondent’s country. The responses were evenly divided between ten respondents for countries where estimates had been made and a further ten where they had not. In some cases, however the response was positive but the methodology used was reported to be not sophisticated.

This is consistent with the conjecture that the methodology (at least in its more sophisticated variants) has been used in comparatively few countries. This suggests that there is wide scope within the EU for greater use of cost of crime methodology.
Appendix: Raw Responses to Practice Review Questionnaire

1. To what degree do you think economic arguments about the costs and benefits of government projects and programmes in the criminal justice sphere in your country influence policy decisions?

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<th>of some importance</th>
<th>not very important</th>
<th>pretty much irrelevant</th>
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2. Is there a requirement to prepare an appraisal of the costs and returns on investment projects in the criminal justice sphere in your country?

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</tbody>
</table>
3. Does economic methodology play a prominent part in research on the criminal justice system in your country?

<table>
<thead>
<tr>
<th>Country</th>
<th>Yes: used by researchers in government and by others</th>
<th>Yes: by researchers in government only</th>
<th>Yes: by researchers outside government only</th>
<th>Not very widely used either in or out of government</th>
<th>Hardly used at all either in or out of government</th>
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<tbody>
<tr>
<td>Belgium</td>
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</table>
4. Are other kinds of social research methodology (e.g. criminology, survey methods, qualitative analysis) used for policy purposes?

<table>
<thead>
<tr>
<th>Country</th>
<th>YES</th>
<th>NO</th>
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</thead>
<tbody>
<tr>
<td>Belgium</td>
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<td>X</td>
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</tbody>
</table>

If yes, please specify what kind of research methodology and how influential you think it is:

**Country: Belgium:**

<table>
<thead>
<tr>
<th>Types of (non-economic) methodology used</th>
<th>A few years ago we started with large scale surveys to monitor the influence of police work on the security.</th>
</tr>
</thead>
<tbody>
<tr>
<td>How influential?</td>
<td>For local police the influence is rather great as the surveys indicate which police matters are important to the population. For the policy of the federal police the influence is less.</td>
</tr>
</tbody>
</table>

**Country: Cyprus:**

<table>
<thead>
<tr>
<th>Types of (non-economic) methodology used</th>
<th>Survey Methods – Qualitative Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>How influential?</td>
<td>Enough</td>
</tr>
</tbody>
</table>
**Country: Czech Republic:** Does not apply

**Country: Denmark:**

<table>
<thead>
<tr>
<th>Types of (non-economic) methodology used</th>
<th>Criminological research (all types of methods)</th>
</tr>
</thead>
<tbody>
<tr>
<td>How influential?</td>
<td></td>
</tr>
</tbody>
</table>

**Country: England & Wales:**

<table>
<thead>
<tr>
<th>Types of (non-economic) methodology used</th>
<th>Substantial application of social research methodology. Many evaluation studies make use of the findings. Also a lot of descriptive work generated from surveys and secondary data.</th>
</tr>
</thead>
<tbody>
<tr>
<td>How influential?</td>
<td>Findings used selectively</td>
</tr>
</tbody>
</table>

**Country: Estonia:**

<table>
<thead>
<tr>
<th>Types of (non-economic) methodology used</th>
<th>Monthly police conducts survey on trust of the police among people</th>
</tr>
</thead>
<tbody>
<tr>
<td>How influential?</td>
<td>Not very</td>
</tr>
</tbody>
</table>

**Country: Finland:**

<table>
<thead>
<tr>
<th>Types of (non-economic) methodology used</th>
<th>All kinds of social and criminological research and other information are used for policy purposes.</th>
</tr>
</thead>
<tbody>
<tr>
<td>How influential?</td>
<td>It is difficult to say how influential. In some degree, anyhow.</td>
</tr>
</tbody>
</table>

**Country: Germany:**

<table>
<thead>
<tr>
<th>Types of (non-economic) methodology used</th>
<th>different quantitative and qualitative methods including interviews, questionnaires, file analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>How influential?</td>
<td>A general answer is not possible</td>
</tr>
</tbody>
</table>

**Country: Hungary:**

<table>
<thead>
<tr>
<th>Types of (non-economic) methodology used</th>
<th>Survey methods, qualitative analysis, personal interviews both. Especially in researches led by the National Criminology Institute (OKRI) <a href="http://en.okri.hu">http://en.okri.hu</a>.</th>
</tr>
</thead>
<tbody>
<tr>
<td>How influential?</td>
<td>The main research institute in Hungary is OKRI belonging to the public prosecutor’s office. Researches are unique, generally recognized and influential.</td>
</tr>
</tbody>
</table>
### Country: Lithuania:

| Types of (non-economic) methodology used | Statistical, comparative analysis  
| | Sociological surveys  
| | Financial and management audits  
| How influential? | Useful while taking concrete decisions, solving concrete problems mentioned in surveys and audits (see box above) |

### Country: Luxembourg:

| Types of (non-economic) methodology used | Telephone surveying.  
| How influential? | Of some importance. |

### Country: Netherlands:

| Types of (non-economic) methodology used | Forecasting models, simulation models, criminology, sociology, econometrics, survey methods, qualitative analysis, data mining, regression analysis, evaluation techniques  
| How influential? | Depends on the issue |

### Country: Norway:

| Types of (non-economic) methodology used | Legal analysis, criminology, survey methods, qualitative analysis  
| How influential? | Quite influential, and more than economic analysis. |

### Country: Poland:

Does not apply

### Country: Portugal:

| Types of (non-economic) methodology used | Some surveys have been developed for specific issues; also general surveys provide information about perceptions about police, etc.  
| How influential? | In policy making, zero. Sometimes it makes the media but without any serious impact (which is not a bad thing given the typical problems with surveys). |

### Country: Slovakia:

Does not apply
### Country: Slovenia:

<table>
<thead>
<tr>
<th>Types of (non-economic) methodology used</th>
<th>In the term of methods or techniques: survey methods, qualitative and quantitative analysis, interviews, case studies, comparisons, evaluation etc. But those are also applicable in economics.</th>
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<tbody>
<tr>
<td>How influential?</td>
<td>Quite influential</td>
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</table>

### Country: Spain:

Does not apply

### Country: Sweden:

<table>
<thead>
<tr>
<th>Types of (non-economic) methodology used</th>
<th>Criminology reports from the National Council of Crime Prevention (Brå). A national crime and safety survey.</th>
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</thead>
<tbody>
<tr>
<td>How influential?</td>
<td>Not very widely used either in or out of government.</td>
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### Country: US

<table>
<thead>
<tr>
<th>Types of (non-economic) methodology used</th>
<th>Evaluation – Experiments and quasi-experiments Multivariate analyses</th>
</tr>
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<tbody>
<tr>
<td>How influential?</td>
<td>Competitive against purely value-driven reasoning</td>
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</table>
5. Are you aware of any cost of crime estimates that have been made for your country?

<table>
<thead>
<tr>
<th>Country</th>
<th>YES</th>
<th>NO</th>
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<tbody>
<tr>
<td>Belgium</td>
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If yes, please specify (in very outline terms) how they were made, whether they are widely used and what they are used for.

Country: Portugal, Poland, Slovenia, Slovakia, Estonia, Luxembourg, Hungary, Lithuania, Czech Republic, Latvia, Cyprus, Denmark does not apply.

Country: Spain

<table>
<thead>
<tr>
<th>Method used (crude guess, rough estimate, detailed analysis, Cohen et al/Brand &amp; Price methodology etc.)</th>
<th>Crude guess</th>
</tr>
</thead>
<tbody>
<tr>
<td>Please provide a bibliographic or web source</td>
<td>Serrano Gómez, A. (1986): El costo del delito y sus víctimas en España. Madrid: UNED.</td>
</tr>
<tr>
<td>How widely used are the estimates?</td>
<td>Never</td>
</tr>
<tr>
<td>Use to which the estimates are put (e.g. to value crime reduction, prioritise areas of spending or for descriptive purposes, advocacy for interest groups)</td>
<td>-</td>
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</table>
### Country: England & Wales

<table>
<thead>
<tr>
<th>Method used (crude guess, rough estimate, detailed analysis, Brand &amp; Price methodology etc.)</th>
<th>Brand &amp; Price methodology developed in UK. Revised methodology used by Dubourg et al (2005)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Please provide a bibliographic or web source</td>
<td>For a summary treatment see: <a href="http://www.homeoffice.gov.uk/rds/economic_faqs.html">http://www.homeoffice.gov.uk/rds/economic_faqs.html</a></td>
</tr>
<tr>
<td>How widely used are the estimates?</td>
<td>Estimates are quite widely used but often not in a rather crude and insensitive way.</td>
</tr>
<tr>
<td>Use to which the estimates are put (e.g. to value crime reduction, prioritise areas of spending or for descriptive purposes, advocacy for interest groups)</td>
<td>Used selectively by advocacy groups seeking to encourage spending on particular projects. Used for crime reduction valuation purposes in economic evaluations of interventions.</td>
</tr>
</tbody>
</table>

### Country: Sweden

<table>
<thead>
<tr>
<th>Method used (crude guess, rough estimate, detailed analysis, Brand &amp; Price methodology etc.)</th>
<th>Detailed analysis. Brand &amp; Price style.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Please provide a bibliographic or web source</td>
<td>“Costs of Violence Against Women”, <a href="http://www.socialstyrelsen.se/publicerat/2006/9376/2006-131-34.htm">www.socialstyrelsen.se/publicerat/2006/9376/2006-131-34.htm</a> (extended summary in English)</td>
</tr>
<tr>
<td>How widely used are the estimates?</td>
<td>Report commented (but not used in a wider sense) by Minister of Health in a national strategy formulated against men’s violence against women. This is the only time any results within the costs of crime research field have been commented or included in a decision by the government.</td>
</tr>
<tr>
<td>Use to which the estimates are put (e.g. to value crime reduction, prioritise areas of spending or for descriptive purposes, advocacy for interest groups)</td>
<td>As an argument in the decision made by the Swedish government, where it argues that men’s violence against women implies high costs for the society.</td>
</tr>
</tbody>
</table>
### Country: Netherlands

<table>
<thead>
<tr>
<th>Method used (crude guess, rough estimate, detailed analysis, Brand &amp; Price methodology etc.)</th>
<th>Detailed analysis on the CJS costs, rough estimates on all other costs.</th>
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</thead>
<tbody>
<tr>
<td>How widely used are the estimates?</td>
<td>Widely used by researchers and press but less widely used by policy makers</td>
</tr>
<tr>
<td>Use to which the estimates are put (e.g. to value crime reduction, prioritise areas of spending or for descriptive purposes, advocacy for interest groups)</td>
<td>Descriptive purposes, advocacy for interest groups</td>
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</table>

### Country: Belgium

<table>
<thead>
<tr>
<th>Method used (crude guess, rough estimate, detailed analysis, Brand &amp; Price methodology etc.)</th>
<th>Rough estimate and for some matters more detailed analysis</th>
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<tbody>
<tr>
<td>Please provide a bibliographic or web source</td>
<td>- only one paper of 2003, only published on a very small scale within the police . “Kostprijsberekening van de impact van Veiligheidsfenomenen” (Cost calculation on the impact of criminal phenomena) - Strategic study on the criminal phenomena in Belgium 2006 (Study intern police 2007)</td>
</tr>
<tr>
<td>How widely used are the estimates?</td>
<td>The last study is used to determine the policy of the Belgian police for 2008 - 2011</td>
</tr>
<tr>
<td>Use to which the estimates are put (e.g. to value crime reduction, prioritise areas of spending or for descriptive purposes, advocacy for interest groups)</td>
<td>For a small percentages these study influences the prioritisation of the criminal phenomena</td>
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<td>Country: US</td>
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<tr>
<td><strong>Method used</strong> (crude guess, rough estimate, detailed analysis, Brand &amp; Price methodology etc.)</td>
<td>Detailed, varying in sophistication, but generally good calibre. Some resemble Brand and Price but others of equal sophistication but different methods.</td>
</tr>
<tr>
<td>Please provide a bibliographic or web source</td>
<td>See MMECC documents.</td>
</tr>
<tr>
<td>How widely used are the estimates?</td>
<td>Estimates are used by political leaders when they reinforce political agendas.</td>
</tr>
<tr>
<td>Use to which the estimates are put (e.g. to value crime reduction, prioritise areas of spending or for descriptive purposes, advocacy for interest groups)</td>
<td>Attract interest in – and financial support for -- a problem; develop rationale for a national movement – incarceration, drug courts, hot spots interventions, youth violence, drug consumption.</td>
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<tr>
<th>Country: Germany</th>
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<tbody>
<tr>
<td><strong>Method used</strong> (crude guess, rough estimate, detailed analysis, Brand &amp; Price methodology etc.)</td>
<td>econometric analysis</td>
</tr>
<tr>
<td>Please provide a bibliographic or web source</td>
<td>see file attached</td>
</tr>
<tr>
<td>How widely used are the estimates?</td>
<td>rarely used</td>
</tr>
<tr>
<td>Use to which the estimates are put (e.g. to value crime reduction, prioritise areas of spending or for descriptive purposes, advocacy for interest groups)</td>
<td>no definite use</td>
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<table>
<thead>
<tr>
<th>Country: Norway</th>
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</thead>
<tbody>
<tr>
<td><strong>Method used</strong> (crude guess, rough estimate, detailed analysis, Brand &amp; Price methodology etc.)</td>
<td>Rough estimate of the total cost of crime in Norway.</td>
</tr>
<tr>
<td>Please provide a bibliographic or web source</td>
<td>“Hva koster kriminaliteten samfunnet”, utredningsrapport, Justisdepartementet 1990. A paper copy may be obtained from the Ministry of Justice and The Police.</td>
</tr>
<tr>
<td>How widely used are the estimates?</td>
<td>The estimate is mostly used in public policy discussions on crime prevention in the media etc.</td>
</tr>
<tr>
<td>Use to which the estimates are put (e.g. to value crime reduction, prioritise areas of spending or for descriptive purposes, advocacy for interest groups)</td>
<td>Advocacy of interest groups Descriptive purposes</td>
</tr>
</tbody>
</table>
Country: Finland

| Method used (crude guess, rough estimate, detailed analysis, Brand & Price methodology etc.) | Detailed analysis |
| Please provide a bibliographic or web source | There are two studies to estimate the costs of men’s violence against women in Finland (Markku Heiskanen & Minna Piispa 2000 and 2002: The Price of Violence; the Costs of Violence in a Municipality). See also: http://www.rikoksentorjunta.fi/uploads/lr4jjwoqi4(1).pdf |
| How widely used are the estimates? | Not widely |
| Use to which the estimates are put (e.g. to value crime reduction, prioritise areas of spending or for descriptive purposes, advocacy for interest groups) | For descriptive purposes |

Please add any additional comments you have on the application of economic methodology to Criminal Justice policy issues:

Country: Germany

Academic research on the topic of cost of crime is - particularly in a federally organised country – a rather complicated issue (Spengler, Ursachen und Kosten der Kriminalität in Deutschland, see attached file).

Country: Norway

In 2005 The Ministry of Justice and the Police issued a report on the cost of crime to society. The report is based on workshops and discussions with invited scholars, including economists. Among the conclusions are that we already know that the costs of crime to society are substantial, and that working to develop a better estimate is of limited value and interest. Furthermore, the report advises that future work on the cost of crime should seek to develop more use of cost-benefit analysis.

The report can be found here, and is only available in norwegian: http://www.regjeringen.no/upload/kilde/jd/nyh/2005/0056/ddd/pdfv/283334-krim_samfunnsmess_kostnader.pdf

Country: Denmark

As regards item 6, the Danish Ministry of Justice refers to memorandum “Direct Costs of Crime in Denmark” (Direkte omkostninger ved kriminalitet i Danmark), published by the Rockwool Foundation Research Unit.