Evaluating Harm Indexes: Conceptual Framework, Benefits, and Limitations

Working Paper 2024-09

Hayder Alhafedhi,
Research Assistant, Center for Public Safety Initiatives
hragcj@rit.edu

Irshad Altheimer, Ph.D.,
Professor, Department of Criminal Justice
Director, Center for Public Safety Initiatives
Rochester Institute of Technology
ixagcj@rit.edu

Introduction

Harm indexes are newly introduced metrics that serve to quantify and address various forms of harm within society. This multidisciplinary index encompasses issues in crime rates, drug use, road safety, etc., providing a structured approach to understanding and mitigating adverse outcomes. This paper explores the various methods for evaluating harm, the need and usefulness of harm indexes, and the possible challenges linked to their implementation. These indexes are becoming increasingly more utilized in the public health sector, environmental sciences, and criminal justice. As our society faces increasingly complex issues, harm indexes have emerged as valuable instruments; they offer a systematic way to prioritize and address the most pressing harms, facilitating more effective policymaking and resource allocation. Despite their potential, the implementation of harm indexes is not without challenges. Issues related to data quality, subjectivity in weighting indicators, and the risk of oversimplification must be carefully managed to ensure these tools provide accurate and meaningful insights.

# Methods of Measuring Harm Indexes

Crime Harm Index

The Cambridge Crime Harm Index (CHI) aims to measure the total harm from a crime-based viewpoint on sentencing guidelines. The purpose of a crime harm index is to provide a more accurate representation of the impact of crime on society by considering the severity and consequences of offenses, thereby aiding in the allocation of resources and the formulation of policies. This approach addresses the issue of counting all crimes equally, highlighting the need for a weighted approach to prevent distortion in risk assessments, resource allocation,

and accountability. This index was developed using the starting point of national sentencing guidelines to assign harm based on days of imprisonment. This method facilitates cost-effectiveness, consistency, and democratic legitimacy (Sherman et al., 2016). The Cambridge Crime Harm Index brings a perspective to evaluating crimes by focusing on the seriousness of offenses rather than treating all crimes equally. This approach aims to prioritize law enforcement and policy actions to allocate resources more efficiently, safeguarding communities from crime. Utilizing sentencing guidelines as a foundation for the index offers an unbiased method for assessing harm, which helps reduce biases that may arise from other methods of measuring crime. By assigning harm based on the duration of imprisonment the CHI ensures that significant attention is given to the most serious crimes thereby aligning law enforcement efforts with the true impact of criminal acts. It is important to mention that this is only one of many crime harm indexes used around the world; when developing a crime harm index many countries use a similar approach to the Cambridge Crime Harm Index while modifying it to their own needs. There are also many ways to assign each crime a harm level besides sentencing guidelines. While aggregates such as the FBI's measure of aggravated assault and standardized rates attempt to address this issue, they still may not fully capture the varying levels of harm caused by different offenses.
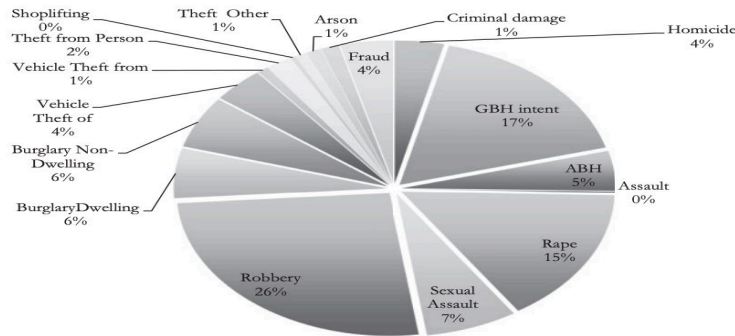
In comparison to the Cambridge Crime Harm Index, traditional methods of measuring crime often rely on counting the number of crimes, which can be misleading as it treats all crimes equally regardless of their severity. These crime counts give a false impression of crime rates to the public resulting in resources being ineffectively used. In contrast, the Cambridge Crime Harm Index takes a more detailed approach by considering the severity of each crime. According to the article, "A focus on CHI values rather than crime counts would provide far

greater clarity for evidence based policies, ensuring a standard 'currency' for cost-effectiveness comparisons of alternative strategies of targeting, testing, and tracking resource allocation by police, prosecutors, sentencers, offender managers, and a wide range of government policies—from education and social services to housing construction codes" (Sherman et al., 2016). This method also sheds light on the potential for increased transparency and accountability in governance. By offering a way to measure harm it becomes simpler to assess and compare the effectiveness of public safety efforts. This openness can help build trust among the public towards the criminal justice system as people can clearly observe how decisions are reached, and resources are utilized. Moreover, the detailed information provided by the crime harm index can enhance research and progress in crime prevention, allowing researchers and practitioners to spot patterns and create interventions. It also promotes an approach to criminal justice by integrating insights from social sciences, public health and urban planning to tackle the complex nature of crime and its societal impacts. This all-encompassing perspective may result in enduring solutions that contribute to enhancing the overall well-being and resilience of communities.
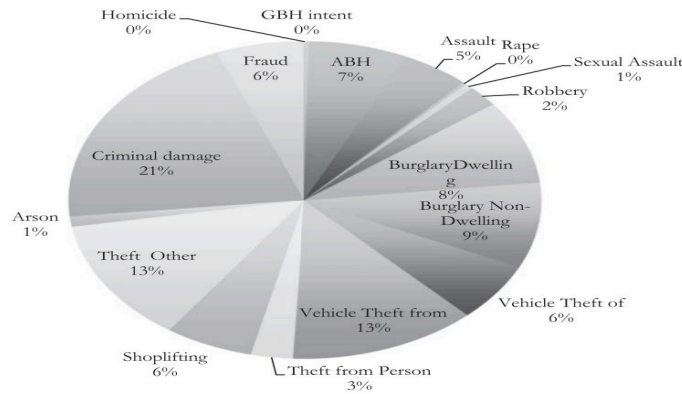
Figure 1: Crime in UK 2002/2003 by number of crimes.

Figure 2: Crime in UK 2002/2003 weighted using the CHI.

Source: The Cambridge Crime Harm Index (Sherman et al., 2016)

The provided figures illustrate the distribution of crimes in the UK for the year 2002/2003, highlighting two different perspectives: the raw number of crimes and the weighted impact using the crime harm index. Figure 1 presents the breakdown of crimes by their occurrence. The most prevalent categories include criminal damage (21%), theft other (13%), and vehicle theft (13%). These categories dominate the landscape of criminal activity by sheer volume. Notably, less frequent crimes such as homicide, GBH intent, and rape are represented with minimal or zero percentages, indicating their relatively lower occurrence rates. Figure 2 shifts the focus to the weighted impact of these crimes using the CHI. This index assigns different weights to crimes based on the severity of harm they cause, rather than their frequency. The CHI-adjusted chart reveals a starkly different landscape. Robbery, which accounted for only

2% of the total number of crimes, now represents 26% of the total harm. Similarly, GBH intent and rape, both of which were negligible in Figure 1, now constitute 17% and 15% of the total harm, respectively.

This comparison underscores the significant disparity between the frequency of crimes and their respective harms. While high-frequency crimes like theft and criminal damage dominate the number-based chart, they recede in importance when considering the CHI. Conversely, severe but less frequent crimes such as robbery, GBH intent, and rape rise to prominence in the harm-based analysis. By comparing these two perspectives, it becomes evident that the raw number of crimes does not adequately capture the societal impact of criminal activities. The CHI provides a more nuanced understanding, emphasizing the necessity of prioritizing resources and interventions towards high-harm crimes, even if they occur less frequently. While non-violent crimes are recognized for their potential to cause harm, their effects are considerably less impactful compared to those of serious violent crimes. Figure 1 clearly misrepresents the harm inflicted to communities by these serious violent crimes. As shown in the pie chart, these violent crimes are being overshadowed by non-violent crimes and are being hidden. Figure 2 represents why it is so important to use the crime harm index to reveal these violent crimes. This shift allows for evidence-based policing to correctly divert resources where the most harm is being inflicted.

In law enforcement, officers often face challenges when deciphering raw crime data and turning it into insights. According to the article, the usefulness of a crime harm index: analyzing the Sacramento Hot Spot Experiment using the California Crime Harm Index, "Police do not have time to translate crime counts into a complicated metric. The CHI is an approach that is cost effective, easy to teach and apply, and is based on democratic values; it

is a simple index that could benefit policing" (Mitchell, 2017). Teaching and using the CHI is straightforward, making it easy for law enforcement agencies to quickly integrate it into their work. This helps officers concentrate on their tasks without facing steep learning curves. The CHI simplifies crime measurement, enabling police to make informed decisions, which ultimately enhances public safety and builds trust within the community.

The most common critique of a crime harm index is that using a sentencing index to define harm weight cannot account for the harm that is experienced by the individual or community. This leaves the fact that certain crimes can impact people and communities in various ways; even if two crimes of the same type are the same, victims can still experience harm in different ways (van Ruitenburg & Ruiter, 2022). This means that the Cambridge Crime Harm Index does not take victim impact or societal views into consideration. This restriction underlies the importance of taking an approach to assessing the personal & community harm caused by crime. Although the CHI offers a structure for interpreting and ranking crime according to sentencing standards, it could be enhanced by considering other elements that encompass the wider social and emotional repercussions of criminal activities. For instance, including surveys from victims and evaluations of community impact could offer an understanding of harm guaranteeing that the index accurately represents the actual seriousness of crimes.

Drug Harm Index

A drug harm index is a method utilized to assess the harm caused by drugs. This tool was created to evaluate how drug consumption affects people and communities negatively. The

negative effects of drugs can be intricate and diverse, and a drug harm index aims to grasp this intricacy by considering various aspects of harm.

The 2020 New Zealand Illicit Drug Harm Index is a tool used to calculate the cost of illicit drug-related social harm in New Zealand. It aims to estimate the total harm caused by illicit drug use, including personal and community harm. The index considers factors such as drug consumption, harm to individuals and society, and the associated costs (McFadden et al., 2022). This drug harm index assesses the harm caused by drugs using monetary values. Each drug's harm level is determined by assessing its overall impact. This includes personal harm, such as health-related costs like premature death and reduced quality of life, as well as community harm, such as social and economic costs like crime and damaged relationships. These harms are measured in dollars to assess the harm inflicted by each illicit drug type (McFadden et al., 2022). This information is valuable to government agencies, healthcare providers, and law enforcement, as it guides resource allocation and the development of effective strategies. Furthermore, the index helps guide public awareness initiatives by emphasizing the dangers associated with certain drugs. This enables effective messaging targeted at reducing drug usage and its harmful consequences. Understanding the impact of drug-related issues can also help communities rally support for local prevention and recovery initiatives. When updating the index with data, policymakers may track the efficiency of policies over time. This constant evaluation ensures that programs stay relevant and efficient in addressing the shifting landscape of drug use. The index's findings can also help other countries develop measures for assessing and reducing drug-related harm.

Table 5. Summary of social harms ($) per kilogram by drug type[21]

Drug type	Personal harm $ per kilogram	Community harm $ per kilogram	Total harm $ per kilogram
Methamphetamine	544,451.68	563,910.03	1,108,361.71
Cocaine	125,917.23	173,755.03	299,672.26
MDMA	62,283.36	76,455.46	138,738.82
Cannabis	4,847.90	10,876.13	15,724.02

Overall, the estimated harm resulting from the use of Illicit drugs is $1,904.3 million (Table 6). This compares with the estimate of $1,493.7 million in 2016, noting that there are significant methodological improvements in the 2020 report so that these figures are not comparable.

Table 6. Summary of social harms by drug type ($ million)[22]

Drug type	Personal harm $ million	Community harm $ million	Total harm $ million
Methamphetamine	404.52	418.98	823.50
Cocaine	6.44	8.89	15.33
MDMA	23.53	28.88	52.42
Heroin	18.16	*	18.16
GHB/GBL	1.13	1.93	3.06
Cannabis	280.97	630.34	911.31
Synthetic cannabinoids	78.35	2.13	80.47
Total	813.09	1091.15	1,904.25

* Insufficient data for an estimate to be made.

^ Partial estimate due to insufficient data.

Source: The New Zealand Illicit Drug Harm Index 2020 (McFadden et al., 2022)

Tables 5 and 6 from the New Zealand Illicit Drug Harm Index 2020 provide a detailed financial assessment of the harms caused by various illicit drugs. Table 5 breaks down the per kilogram harm of different drugs, such as methamphetamine, which incurs a total harm of $1,108,361.71 per kilogram, including both personal and community harms, while table 6 aggregates these values to present the overall societal harm in millions of dollars, with methamphetamine causing $823.50 million in total harm and cannabis resulting in $911.31 million (McFadden et al., 2022). This monetary valuation of harm makes it easier for policymakers to understand the relative severity of different substances and to prioritize interventions accordingly. When funding is directed towards areas where the most harm is being inflicted these funds can make the most significant impact improving public health outcomes and societal well-being. The index highlights the significant costs associated with various substances, emphasizing the significance of investing in prevention measures,

treatment programs, and law enforcement operations to minimize these harms. This targeted approach guarantees that resources are allocated efficiently, addressing the most important issues, and eventually lowering the societal impact of drug use.

 The 2020 Report, on the Impact of Illicit Drugs in New Zealand points out drawbacks associated with drug impact assessments. One key issue is the risk of underestimating harm because of relying on data sources like hospital admissions, which may not account for individuals with long term drug problems who do not seek help or broader societal effects such as unemployment and mental health challenges (McFadden et al., 2022). Moreover, the intricate nature of drug markets poses a challenge for a metric to fully capture the varied and evolving aspects of drug-related harms. Critics argue that these assessments may oversimplify the realities of drug use and its consequences potentially failing to offer a perspective (McFadden et al., 2022). Additionally, the report underscores the challenges in assessing the effectiveness of interventions and policies due to differences in data sources and methodologies used across impact assessments making comparisons and interpretations intricate and potentially misleading.

Road Harm Index

A road harm index is an instrument for identifying collision-prone locations and reducing the frequency of significant injuries and deaths. The Cumbria Constabulary uses statistics from the Department for Transport (United Kingdom) to prioritize the degree of harm over the number of collisions. The index can be used to identify high-risk areas for crashes, improve road safety operations, promote road safety education, and distribute collision data (Road Harm Index, 2024). The road harm index in Cumbria was created after a thorough review of

collision-related expenditures. Cumbria Constabulary obtained five years' worth of data from the Department for Transport to analyze the financial impact of road accidents on a variety of fronts, including casualties, societal expenses, ambulance replies, and police reactions. This broad data collection enabled a thorough knowledge of the economic impact of crashes. By dividing these aggregated expenses by Cumbria's collision data in 2022, the force was able to develop a harm index that classifies crashes into four severity levels: damage, minor injury, serious injury, and fatal injury (Road Harm Index, 2024). This system of categorization offers a nuanced approach to ensuring road safety, allowing for authorities to prioritize actions based on the seriousness of harm than just the frequency of accidents. Concentrating on the outcomes like fatalities and major injuries resources can be distributed more efficiently in areas where they can make the biggest difference. The road harm index promotes cooperation among stakeholders such as local authorities, emergency services and traffic management agencies; this collaborative approach ensures that all parties are working together towards a shared objective of reducing road harm using the data from the index to guide their strategies and decisions. Additionally, the ongoing monitoring and evaluation made possible by the harm index enable interventions effectiveness to be assessed over time pinpointing measures and areas needing enhancement. In essence the road harm index deepens our understanding of collision impacts propelling for a more efficient and targeted road safety efforts ultimately leading to safer roads for everyone.

Conclusion

Harm indexes are becoming increasingly popular as they offer a valuable framework for measuring and addressing various societal harms. These indexes enhance our ability to

predict and mitigate negative outcomes making interventions more effective. Countries

around the world are developing different types of harm indexes, each using unique weights

and methodologies to assess the impact of crime, drug use, and traffic accidents. As their

adoption continues to grow globally, harm indexes are providing to be essential in fostering

safer, healthier, and more resilient communities.

References

McFadden M., Bellamore, L., & MacDonald, B. (2022, February 11). The New Zealand Illicit Drug Harm Index 2020: Version 1.1. Wellington: Ministry of Health. https://www.health.govt.nz/publications/the-new-zealand-illicit-drug-harm-index-2020-research-report

Mitchell, R.J. (2017). The usefulness of a crime harm index: Analyzing the Sacramento hot spot experiment using the California Crime Harm Index (CA-CHI). *Journal of Experimental Criminology 15,* 103-113. https://www.ojp.gov/ncjrs/virtual-library/abstracts/usefulness-crime-harm-index-analyzing-sacramento-hot-spot

Road Harm Index (2024, January 24). College of Policing. https://www.college.police.uk/support-forces/practices/road-harm-index

van Ruitenburg, T., & Ruiter, S. (2022, October 8). The adoption of a crime harm index: A scoping literature review. *Police Practice and Research, 24*(4)*,* 423–445. https://www.tandfonline.com/doi/full/10.1080/15614263.2022.2125873

Sherman, L., Neyroud, P. W., & Neyroud, E. (2016, April 3). The Cambridge Crime Harm Index: Measuring total harm from crime based on sentencing guidelines. University of Cambridge. *Policing: A Journal of Policy and Practice, 10*(3), Article 171-183. https://academic.oup.com/policing/article/10/3/171/1753592

About the Center for Public Safety Initiatives

The Center for Public Safety Initiatives (CPSI) is a multi-disciplinary research center that examines strategies to reduce crime and enhance the administration of justice. It provides program evaluation, data analytics, and project management services to area law enforcement, community non-profits, and other criminal justice professionals, and it contributes to general knowledge generation of the nature and causes of crime and violence. Its educational goals include training graduate and undergraduate students in strategic planning, program evaluation, and policy analysis.

The foundation of the Center is the practice of action research in which relevant data and analyses are brought to bear on the day-to-day decision-making processes of organizations. The Center serves the practice of policy development and implementation in real time and is a testing ground for 21st century university engagement, demonstrating how rigorous research and analysis can play a role in improving the lives of society's most marginalized citizens.

To access our full library of white papers, visit our website at rit.edu/cpsi.

Learn more
- rit.edu/cpsi
- CPSI@rit.edu
- (585) 475-6386