

THE ROUTLEDGE HANDBOOK OF EUROPEAN PENOLOGY

Edited by
**Sonja Snacken, Gaëtan Cliquennois, Ioan
Durnescu, Diète Humblet and Elena Larrauri**

First published 2026

ISBN: 9781032435114 (hbk)

ISBN: 9781032435558 (pbk)

ISBN: 9781003367888 (ebk)

Chapter 17

METHODOLOGICAL CHALLENGES IN EUROPEAN PENOLOGY

Strategies for comparing prison and probation
systems using criminal justice statistics

*Marcelo F. Aebi, Edoardo Cocco, and
Yuji Z. Hashimoto*

(CC-BY-NC-ND) 4.0

DOI: 10.4324/9781003367888-22

METHODOLOGICAL CHALLENGES IN EUROPEAN PENOLOGY

Strategies for comparing prison and probation systems using criminal justice statistics

Marcelo F. Aebi, Edoardo Cocco, and Yuji Z. Hashimoto

Introduction

Comparative analyses of prison and probation systems offer valuable insights into how different countries address crime and administer justice (Tarde 1886; Linde and Aebi 2020; Tonry and Farrington 2005; Meško 2023). By examining custodial and non-custodial sanctions across various jurisdictions, these analyses help contextualise global trends in criminal justice. Typically, such analyses rely on prison and probation statistics produced by different countries. However, comparing these statistics presents methodological challenges (Aebi 2009). Differences in legal frameworks, statistical practices and criminal policies complicate the process, making reliable comparisons difficult. Additionally, varying social and economic contexts shape the administration of justice in each country, adding further complexity.

Prison statistics, often the focus of comparative studies, provide crucial insights into a country's punitive practices, particularly its reliance on imprisonment as a primary sanction (Tonry 2015). Equally important, though less frequently analysed, are probation statistics, which shed light on non-custodial measures increasingly adopted as alternatives to imprisonment, particularly since the 1990s (Durnescu 2013; Aebi, Molnar, and Cocco 2024). Together, these two types of data reveal important trends, such as the rise of community sanctions across much of the Western world and the variable impact these measures have had on prison populations.

However, data alone often fails to provide a complete picture. While prison and probation statistics are valuable (Harrendorf 2018), they are only meaningful when accompanied by metadata—the critical information that provides context, definitions and methodologies behind the numbers (Gartner 2016). Metadata helps researchers understand the conditions under which data is collected, revealing key differences in how countries define offences, apply sanctions and record outcomes. Without this contextual information, cross-country comparisons can easily lead to misinterpretation or inaccurate conclusions. A movement to improve the comparability of criminal justice statistics by enhancing metadata collection began in the 1990s with the efforts of the European Sourcebook Group and the Council of Europe (Aebi et al. 2021), creating a network of experts focused on improving data comparability. This initiative has since been supported by other

organisations, and a major step towards harmonisation came in 2015 with the development of the International Classification of Crime for Statistical Purposes (ICCS) by the United Nations, which provides a common framework for classifying criminal offences. These initiatives are having an impact on all sorts of crime and criminal justice statistics as well as on the way in which they are analysed by researchers.

This chapter examines four key factors that significantly impact the comparability of prison and probation statistics: legal, statistical, criminal policy and substantive considerations (Von Hofer 2000; Aebi 2010). For each factor, we identify potential pitfalls, review ongoing efforts to improve comparability, illustrate the challenges with examples and propose strategies to address them. The goal is to enhance the reliability and utility of comparative analyses in criminology and penology. In the final section, we synthesise these proposed strategies, offering practical guidance to researchers conducting comparative analyses of prison and probation statistics. These recommendations also hold particular value for legislators and policymakers looking to promote evidence-based policies through comparative research.

Legal factors

Legal frameworks fundamentally shape how prison and probation statistics are collected, categorised and interpreted. These frameworks determine not only what constitutes a criminal offence but also how offenders are processed through the criminal justice system and what sanctions are available. As a result, legal factors present one of the most significant challenges to the comparability of prison and probation statistics across jurisdictions.

Challenges posed by legal factors

A primary challenge related to legal factors is the variability in legal definitions across countries. Different jurisdictions often have distinct definitions of what constitutes criminal offences such as theft, assault or drug-related crimes. For example, what one country classifies as a minor offence might be considered a more serious crime in another, leading to discrepancies in sentencing and, consequently, how offenders appear in prison and probation statistics (Von Hofer 2000; Tonry and Farrington 2005; Harrendorf 2012).

These differences extend to the types of sanctions that can be imposed. In some countries, probation may be widely used as an alternative to imprisonment, while in others, it might be less common or reserved for specific offences (Aebi and Molnar 2024). The legal threshold for imposing probation rather than a custodial sentence also varies, resulting in significant differences in probation rates between countries.

Another important legal factor is the classification of sanctions. Different jurisdictions may categorise sanctions as custodial, semi-custodial or non-custodial in varying ways, which influences how offenders are tracked and counted in national and international statistics (Linde and Aebi 2021; Aebi et al. 2021). These classification discrepancies further complicate efforts to compare probation and prison statistics across borders.

Examples of the influence of legal factors

A clear example of legal variability is the concept of probation. According to the Council of Europe's Recommendation CM/Rec (2010)1, probation is defined as the community-based implementation of sanctions and measures aimed at offender supervision, guidance and reintegration

into society. The Council's 2017 Recommendation further broadens the concept, encompassing 'community sanctions and measures' that impose restrictions on liberty but maintain offenders in the community. This broader definition contrasts with many common law jurisdictions, where conditional release (parole) is often treated as a separate category, while in the Council's definition, it is included as a probation measure.

Similarly, the legal treatment of home detention varies. In some jurisdictions, it is a standalone sanction, while in others, it may be part of a broader probationary sentence. Such variations impact how these sanctions are recorded and compared in statistics (Aebi et al. 2021). The same holds true for community service.

At a more abstract level, differences in offence definitions affect the comparison of inmates convicted for similar crimes. For instance, Sweden's legal definition of rape has expanded over time to include a broader range of acts and victims (Von Hofer 2000). By contrast, Switzerland defines rape more narrowly, limiting it to vaginal penetration of female victims. Such definitional differences make it difficult to compare rape statistics across countries. Another example is the divergence between European countries and common law jurisdictions on the concept of burglary. In the US and UK, burglary involves breaking and entering with intent to commit a crime, while in Switzerland, no equivalent crime exists in the legal code (Tonry and Farrington 2005; Harrendorf 2012).

Translation challenges also arise when comparing legal systems. For example, Spain's legal concept of *hurto* differs from the English concept of 'theft'. *Hurto* refers specifically to the non-violent taking of property without consent, closer to the concept of 'larceny' in the US, but its translation as 'theft' does not capture these nuances (Linde and Aebi 2021). Such differences in legal concepts and translations complicate the comparability of offence statistics.

Additionally, procedural differences in criminal justice systems, such as varying statutes of limitations or differences in prosecutorial discretion, can have a significant impact on the number of offences brought to court. The principles of legality and opportunity play a role here: in some countries, prosecutors must pursue all offences (legality), while in others, they may choose which cases to prosecute based on public interest or the offender's cooperation (opportunity) (Aebi 2008; Harrendorf 2018). These variations lead to differing numbers of offenders prosecuted and sentenced across jurisdictions and, ultimately, placed in prison or on probation.

Minimisation strategies for legal factors

To address these challenges, international efforts have been made to standardise legal definitions and classifications. One such effort is the International Classification of Crime for Statistical Purposes (ICCS), developed by the United Nations in 2015. The ICCS provides a common framework for the classification of criminal offences and encourages countries to adopt standardised definitions. This standardisation helps reduce discrepancies in how offences are categorised and reported, improving the comparability of prison and probation statistics. However, full adoption of the ICCS remains limited, with only a few countries having incorporated it into their national systems.

Earlier, the pioneer effort of the European Sourcebook Group (ESG) took a different approach. In the 1990s, the ESG, which initially began within the Council of Europe, created the European Sourcebook of Crime and Criminal Justice Statistics (ESB). Understanding that harmonisation of definitions would be difficult, the ESG focused on documenting differences in definitions across countries (Aebi et al. 2021). By developing standard definitions for offences and breaking down complex criminal justice concepts into their components, the ESG made it easier for countries to

align their data collection efforts. This approach also led to the collection of metadata on definitions, allowing researchers to better understand the contextual nuances behind the statistics. The ESG continues to be a pioneer in this regard, gathering metadata on statistical rules, which will be addressed in the following section.

Statistical factors

While legal factors set the foundation for how offences and sanctions are defined, statistical factors determine how this information is collected, categorised and reported. Statistical methodologies vary significantly across countries, and these variations introduce substantial challenges to the comparability of prison and probation statistics (Aebi et al. 2021; Harrendorf 2018). Understanding these statistical differences is essential for interpreting comparative data accurately.

Challenges posed by statistical factors

The primary challenge in this field is identifying the statistical counting rules applied by each country for its national crime and criminal justice statistics. These rules determine what gets counted and how it is classified. For example, one country might count an individual placed on probation multiple times if they are subject to separate probation orders for different offences, while another country might count the individual only once, regardless of the number of probation orders (Aebi and Molnar 2024). Such differences in counting rules can distort comparisons of probation statistics across countries.

Other challenges include the specific indicators used, the frequency of data collection and the level of detail provided. For instance, some countries may report prison population as a ‘stock’ measure, representing the number of inmates on a specific date, while others may report ‘flow’ data, capturing the number of admissions and releases over a period (Aebi and Kuhn 2000). These differing approaches can lead to varying interpretations of the same statistical data.

Additionally, variations in data categorisation further complicate comparisons. Categories such as ‘serious offenses’ or ‘minor offenses’ may be defined differently across jurisdictions (Paoli et al. 2017), resulting in inconsistencies in how inmates and probationers are classified. These differences can significantly affect the interpretation of data on the use of probation and imprisonment.

Examples of the influence of statistical factors

When comparing prison statistics, it is essential to consider the differing counting rules regarding multiple offenses committed by a single offender. In some jurisdictions, if an individual is convicted of multiple offences, each offence may be recorded separately in prison statistics (Aebi and Cocco 2024). In others, only the most serious offence is recorded, following the principal offence rule. This discrepancy can lead to significant differences in the reported number of prisoners by offence type. A country that records every offence separately may report higher numbers of prisoners for specific offences compared to a country that applies the principal offence rule, even if the actual prison populations are similar.

The stage at which offences are recorded in prison statistics can also vary. Some countries classify an individual based on the offence at the time of the original conviction, while others may update the classification after an appeal or even after the person has entered the prison system. This variability in recording practices complicates direct comparisons of prison populations by

offence type, as differences in statistical approaches can obscure actual similarities or disparities in incarceration rates.

Another factor influencing comparability is the reference date used for prison and probation statistics. For example, while most countries participating in the Council of Europe Annual Penal Statistics on Prisons (SPACE I) report numbers of inmates as of 31 January, some countries use other reference dates, such as 1 January or 31 December (Aebi and Cocco 2024; Aebi, Molnar, and Cocco 2024). These discrepancies can distort data comparisons, particularly during periods when inmate populations fluctuate, such as during the year-end holiday period when some inmates may be temporarily released.

A stark example of the impact of reference dates occurred during the COVID-19 pandemic. In mid-March 2020, many countries implemented emergency measures that led to the early release of inmates to reduce prison overcrowding and prevent the virus's spread (Aebi and Tiago 2020b; 2020a). Countries that provided prison statistics before these releases occurred reported significantly higher inmate numbers than those that recorded data afterwards. As a result, comparisons of prison populations during this period could give misleading impressions of incarceration trends.

The counting unit used in probation statistics is also a key issue. If probation agencies do not use the individual person as the counting unit, there is a risk of double-counting. For instance, the same probationer could be counted multiple times if they are serving two or more community sanctions simultaneously (Aebi, Molnar, and Cocco 2024). As of 2024 in Europe, 22 probation agencies use the person as the counting unit for their statistics, while eight use it only partially, and seven do not use it at all.

Minimisation strategies for statistical factors

Achieving regional harmonisation of definitions is a challenging task, but harmonising data collection methods may be even more difficult, if not utopian. In this context, the main efforts conducted by researchers tend to focus on documenting differences and, whenever possible, adapting the data accordingly.

This approach is exemplified by the European Sourcebook Group (ESG), which, since the first edition of the European Sourcebook of Crime and Criminal Justice Statistics (ESB), has gathered data on statistical counting rules. The ESB provides guidelines and tools for collecting data across multiple aspects of the criminal justice system, including police-recorded offences, prosecutions, court outcomes and sanctions. It maintains a network of national correspondents selected for their expertise in their respective legal systems. These correspondents, along with ESG experts, validate the data after collection, ensuring that the information is accurate and comparable across countries (Killias 1995; Lewis 2012; Harrendorf 2018; Aebi et al. 2021). By adapting data to be comparable with that of other countries, the ESB is not bound by the official statistics of any country, allowing flexibility in presenting adjusted figures.

In the field of prison and probation statistics, the Council of Europe Annual Penal Statistics (SPACE) initiative stands out. Since the 2002 edition of SPACE I, metadata started being collected alongside prison statistics to describe the counting rules and methods used (Aebi 2003). Over time, the metadata section has expanded, providing one of the most detailed descriptions of the way in which prison statistics are collected in Europe. Similarly, the SPACE II series on probation, relaunched annually in 2009, includes questions on metadata that address both legal and statistical factors (Aebi, Delgrande, and Marguet 2010).

In comparative research, the use of statistical adjustments is a basic strategy for addressing discrepancies in data collection methods. For example, when comparing incarceration rates, research-

ers can use the metadata collected to adjust for differences in how the population is defined (Meško 2023). For instance, does the total include juveniles, persons held in police stations, in institutions for drug-addicted offenders, in psychiatric institutions, under electronic monitoring or non-nationals held in detention for administrative reasons. Similar adjustments can be made for probation statistics to account for differences in counting rules, such as whether individuals are counted multiple times.

From the perspective of national statistical agencies, fostering collaboration is key. Countries can share best practices and work together to develop more consistent methodologies. Workshops, conferences and collaborative efforts provide opportunities for knowledge exchange and encourage the adoption of standardised practices. Lastly, transparency in reporting is crucial for minimising statistical challenges. Countries should provide detailed metadata along with their statistics, explaining how data was collected, what definitions were used and any adjustments made. This transparency allows researchers and policymakers to better understand the data and make more accurate comparisons.

Criminal policy factors

Mireille Delmas-Marty (1992) defined criminal policy as the set of strategies and principles implemented by governments to prevent and control crime, balancing between repression and prevention while considering social, legal and political factors. Rather than focusing solely on law enforcement and punitive measures, criminal policy involves a broader, multidimensional approach that encompasses legal norms, societal values and the overall functioning of the criminal justice system. Delmas-Marty's broad definition of criminal policy is particularly useful because it enables the operationalisation of its various features in two key dimensions. First, it highlights the role of criminal policy in enforcing the law, focusing on the priorities of criminal justice system actors – such as police, prosecutors and courts – in their day-to-day efforts to prevent and control crime. This perspective allows policymakers to assess how effectively the system is responding to crime and maintaining public order. Second, it emphasises the development and adaptation of laws, whether by making them harsher or more lenient, interacting thus with the legal factors discussed previously. This is crucial in recognising that criminal policy is not static; it evolves in response to societal changes, public attitudes and international influences.

Criminal policy factors significantly shape how countries respond to crime and administer justice, directly influencing statistics related to imprisonment and probation (e.g. Tham 2012). These factors encompass policies, practices and guiding philosophies that affect sentencing, the use of custodial and non-custodial sanctions, and criminal justice priorities. Understanding these policy factors is crucial for interpreting and comparing prison and probation statistics across jurisdictions.

Challenges posed by criminal policy factors

One of the major challenges posed by criminal policy factors is the variation in sentencing practices across countries. Sentencing approaches differ widely, resulting in disparities in incarceration and probation rates. Some countries adopt more punitive measures, leading to higher incarceration rates, while others emphasise rehabilitation and community-based sanctions, resulting in higher probation rates (Smit, van Eijk, and Decae 2012). Moreover, in some countries, community-based sanctions are used not as alternatives to imprisonment but as supplementary measures, leading to 'net-widening' – an increase in the number of people under some form of criminal justice supervision (Aebi, Delgrande, and Marguet 2015).

A specific challenge stems from ‘tough on crime’ policies, which have been implemented globally in various forms. These policies typically involve harsher sentencing, mandatory minimum sentences and reduced judicial discretion, all of which can inflate incarceration rates (Newburn 2007). Conversely, countries that promote alternative sanctions like community service or electronic monitoring tend to have lower incarceration rates but higher probation rates. These policy-driven differences make it difficult to directly compare statistics between countries.

In fact, the overarching criminal justice philosophy of a country – whether focused on retribution, deterrence, rehabilitation, or restorative justice (Kuhn 2009) – profoundly influences its prison and probation statistics. Furthermore, countries with a similar philosophy can also show major differences. Regarding those that promote alternative sanctions, some may prefer home detention, others community service and others electronic monitoring. In fact, this criminal policy choice is often influenced by the budget allocated to the probation agencies.

Examples

A stark example of how criminal policy shapes sentencing is the difference between the United States and most continental Western and Central European countries. Countries with harsher sentencing policies, such as the United States, generally have higher incarceration rates compared to countries with more lenient policies or those that invest in social prevention measures like education and welfare programmes. The priority placed on crime prevention efforts and the funding allocated to them also impact official crime rates and, subsequently, incarceration rates (Tonry 2003; Mauer 2001). The United States has long emphasised punitive measures, with policies such as ‘three strikes’ laws leading to longer sentences and higher incarceration rates (Zhang, Maxwell, and Vaughn 2009). In contrast, countries such as Finland, Germany, the Netherlands, Norway and Switzerland focus on rehabilitation and reintegration, resulting in lower incarceration rates and increased use of probation.

The ‘war on drugs’ policies adopted by various countries also illustrate the influence of criminal policy on incarceration rates (Tonry 1994). In the United States and some Latin American countries, strict penalties for drug-related offences have contributed to high incarceration rates, particularly for non-violent offenders (Woods 2016). In contrast, the European drug policies vary widely. The Netherlands, for example, did not decriminalise cannabis use but since 1976 instructed prosecutors not to pursue individuals for the personal possession of small amounts of cannabis or for growing a limited number of plants (van Vliet 1990). This means that cannabis is still technically illegal, but the government has chosen to introduce a tolerance policy and not to enforce the laws against small-scale possession and consumption. Portugal, on the contrary, decriminalised the personal use and possession of all drugs in 2001 (Greenwald 2009). However, decriminalisation is not the same as legalisation. Drugs remain illegal in Portugal, but personal use and possession are treated as administrative offences instead of as criminal offences. Switzerland adopted a typical pragmatic approach and introduced in 1994 a four-pillar drug policy that focuses on prevention, treatment, harm reduction and law enforcement (Killias 2001). Harm reduction innovative policies included needle exchange programmes, supervised drug consumption room and a groundbreaking heroin prescription programme that led to a massive decrease in opioid-related deaths and in drug-related delinquency (Killias and Aebi 2000; Killias et al. 2002). This innovative and pragmatic approach was endorsed by 68% of the population in a national referendum that took place in 2008, thus transforming thus a policy into a law (FF 2009 499). In practice, these three examples of European drug policies had a major impact on drug-related crime and impacted the prison and

probation population of these countries, although at different levels, which are probably impossible to measure precisely.

The use of electronic monitoring as an alternative to incarceration is another example. Countries like Sweden and the Netherlands have widely adopted electronic monitoring to enforce probation and house arrest, significantly reducing their need for custodial sentences (Nellis 2021). This policy choice directly affects probation statistics and contributes to lower prison populations, demonstrating how specific criminal policies influence statistical outcomes.

Minimisation strategies for criminal policy factors

Addressing the challenges posed by differing criminal policies requires contextualising prison and probation statistics within a country's broader criminal justice framework (Durnescu 2008, 200). Comparative analyses should account for the specific policies and practices influencing these statistics, rather than relying solely on raw data. Understanding whether a country prioritises punitive measures or rehabilitation provides critical context for interpreting incarceration and probation rates. However, determining a country's position on a spectrum from punitive-oriented to rehabilitation-oriented remains a complex task.

A potentially fruitful strategy is to conduct policy-oriented comparative research that examines the relationship between criminal policies and statistical outcomes (Nelken 2011; Harrendorf 2018). This approach can highlight how different policies influence prison and probation rates, offering insights into the effectiveness of various approaches to crime and punishment. Such research can also identify best practices and guide policymakers in developing more balanced and effective criminal justice policies. Monitoring trends in prison and probation populations and tracking legal changes are essential to this analysis, as captured by projects like SPACE (Council of Europe Annual Penal Statistics).

International organisations can play an important role in sharing knowledge and best practices regarding criminal policies. Through dialogue and collaboration, these organisations can help harmonise sentencing approaches and the use of custodial and non-custodial sanctions. For example, the Council of Europe provides a platform for member states to align their criminal policies, promoting greater consistency across Europe's criminal justice systems.

Standardising the reporting of criminal policy factors alongside prison and probation statistics can also enhance data comparability. Countries should be encouraged to report key aspects of their criminal policies – such as the prevalence of mandatory minimum sentences, the use of alternative sanctions and the overall focus of their criminal justice philosophy. This additional data would allow researchers and policymakers to better understand the context behind the statistics and make more informed comparisons.

Finally, adopting a nuanced approach to comparative research can help minimise the impact of criminal policy differences. Instead of comparing overall incarceration or probation rates, researchers can focus on specific offence categories or sanctions, allowing for more targeted comparisons that take differing criminal policies into account (e.g. Jehle 2012). This approach can help isolate the effects of policy choices and provide a clearer understanding of how different criminal justice systems operate.

Substantive factors

Substantive factors refer to the real levels of offending, which are influenced by social, economic, and cultural conditions that affect criminal behaviour and the functioning of criminal justice sys-

tems. These factors also influence the rates at which offences are reported to the authorities and subsequently recorded (Von Hofer 2000; Aebi 2010; Harrendorf 2018). Although external to the legal and policy frameworks, substantive factors play a crucial role in shaping the context in which prison and probation statistics are generated. Understanding these factors is essential for interpreting and comparing criminal justice data across countries.

Challenges posed by substantive factors

A key challenge posed by substantive factors is the variation in crime rates across societies. These rates are shaped by diverse social and economic conditions, such as poverty, unemployment, income inequality, urbanisation, social cohesion, as well as by environmental factors (Aebi and Linde 2010; Aebi, Linde, and Delgrande 2015). For example, countries with high levels of poverty and inequality may experience higher rates of property crime or drug-related offences, leading to elevated incarceration and probation rates. Conversely, countries with stronger social safety nets and lower inequality may experience lower crime rates, reducing the strain on their criminal justice systems.

Cultural factors play a significant role in shaping societal attitudes towards crime and punishment. From this perspective, the choice between custodial and non-custodial sanctions is often related to the legal traditions of a country. One might argue that cultural factors influence both criminal policy and legal factors; however, research suggests the relationship is bidirectional: legal changes and shifts in criminal policy can also influence public attitudes over time, reshaping cultural perceptions of crime and punishment, as can be seen in the examples below (Killias, Aebi, and Kuhn 2019).

Historical and geopolitical contexts also influence criminal justice systems. For instance, countries emerging from recent political upheaval or conflict may have elevated crime rates and different criminal justice priorities compared to stable, long-established democracies (e.g. Lafree and Tseloni 2006). These historical and political differences can lead to significant variations in prison and probation statistics, even between countries with similar legal and policy frameworks.

Examples of substantive factors

An example of the impact of substantive factors can be found in the complex relationship between economic conditions and crime rates. In the mid-20th century, influenced by Rusche and Kirchheimer's work (1939/2019), many criminologists believed that economic recessions should lead to higher property crime rates, as individuals facing financial hardship would be more likely to engage in theft or burglary. This, in turn, was expected to lead to higher incarceration and probation rates (Box 1987; Braithwaite 1980). However, following the Great Recession of 2008, both the United States and Western Europe saw a decrease in prison population rates, challenging this traditional view of the economic-crime relationship (Tiago 2023). More broadly, it should be acknowledged that while crime rates and prison rates are not independent of each other, many other factors can moderate or mediate this relationship, complicating the task of singling out the impact of a specific substantive factor (Aebi, Linde, and Delgrande 2015; Lappi-Seppälä 2011; Pfaff 2017).

Cultural differences also manifest in the choice of non-custodial sanctions instead of custodial sanctions. Countries with a strong tradition of community-based justice often show higher rates of probation and alternative sanctions, while those with more punitive cultural attitudes rely more heavily on imprisonment (Robinson, McNeil, and Maruna 2012). Conversely, comparative

research indicates that objective severity—such as the length of sentences imposed in a country – correlates with subjective severity – the public’s perception of an appropriate punishment, as reflected in surveys (Kury and Ferdinand 1999). However, cultures are also in constant change. For instance, as shown in the previous section, the Swiss government’s groundbreaking drug policy introduced in 1994 eventually convinced nearly 70% of the population to support a law that formalised this approach (FF 2009 499).

Demographic factors are illustrated by the well-known age-crime curve, which shows that criminal behaviour typically peaks in late adolescence and early adulthood before declining with age (Farrington 1986; Moffitt 2010; Fox and Piquero 2003; Sweeten, Piquero, and Steinberg 2013). Countries with a larger proportion of young people, such as those in Africa and Latin America, are more likely to experience higher crime rates, particularly for offences associated with youth, such as vandalism, drug use, and violent crime (Fox and Piquero 2003; Nunley, Seals, and Zietz 2011). This demographic trend often results in higher prison and probation rates in countries with younger populations. Similarly, countries with high levels of urbanisation and population density may face different crime challenges than rural or less densely populated nations (e.g. Levchak 2016), affecting their criminal justice responses.

Historical and geopolitical contexts are also crucial. Many Eastern European countries that were part of the former Soviet Union inherited criminal justice systems characterised by high incarceration rates and a strong focus on state control and punishment (Flander and Ručman 2015). Despite reforms, this legacy continues to influence prison and probation statistics, often leading to higher incarceration rates compared to Western European nations. Furthermore, some countries may not have control over their whole territory. For example, Cyprus does not have control over the northern part of the island, and Moldova lacks control over the Transnistria region (Bebler 2015), complicating population estimates and criminal justice statistics. The war in Ukraine presents a similar challenge, with disruptions to data collection and reporting.

Minimisation strategies for substantive factors

To address the challenges posed by substantive factors, it is essential to contextualise prison and probation statistics within the broader social, economic and cultural environment of each country. Comparative analyses should consider the underlying conditions that influence crime rates and criminal justice practices, rather than treating the statistics in isolation. This approach allows researchers and policymakers to develop a more nuanced understanding of the data and avoid misleading comparisons.

One effective method for minimising the impact of substantive factors is the use of multivariate analysis. This approach allows researchers to control for various social, economic and demographic variables when comparing prison and probation statistics across countries. By accounting for factors such as poverty, unemployment and age distribution, multivariate analysis helps isolate the effects of legal and policy differences, providing a clearer picture of how different criminal justice systems operate.

Another strategy is to employ case studies and in-depth qualitative research to explore the specific social and cultural contexts that influence prison and probation statistics in different countries. Case studies provide valuable insights into the complex interplay between substantive factors and criminal justice practices, offering a more comprehensive understanding of the data.

International organisations can play a key role by promoting the collection and dissemination of data on substantive factors alongside prison and probation statistics. Encouraging countries to report on social, economic and demographic indicators can help create a more complete picture of

the conditions that influence criminal justice outcomes. This additional data can then be used to adjust and contextualise prison and probation statistics, making international comparisons more meaningful.

What is to be done about prison and probation statistics

In this section, we summarise and synthesise the strategies that we propose for researchers conducting comparative analysis based on prison and probation statistics, as well as the general strategies proposed for improving such statistics from a comparative perspective. The latter can be particularly useful for legislators and policymakers interested in fostering comparative research to develop evidence-based policies.

Strategies for researchers conducting comparative analyses

Contextualising data

Researchers are encouraged to contextualise prison and probation statistics within the broader social, economic and cultural environment of each country. It is crucial to avoid interpreting data in isolation, as many underlying conditions can significantly affect crime rates and criminal justice responses.

Use of metadata

Incorporating metadata – information about how data was collected, categorised and interpreted – is essential for understanding differences in definitions, counting rules and recording practices across jurisdictions. Metadata helps researchers identify discrepancies and adjust comparisons accordingly.

Statistical adjustments

Researchers should use statistical adjustments to account for differences in data collection methods, such as variations in counting rules (e.g., the principal offence rule) or the inclusion of certain populations (e.g., juveniles or individuals in non-traditional detention).

Multivariate analysis

Employing multivariate analysis allows researchers to control for various factors that may influence crime rates and criminal justice outcomes. This method helps isolate the effects of legal and policy differences, offering a clearer comparison of criminal justice systems.

Case studies and qualitative research:

Case studies and in-depth qualitative research are recommended for exploring specific social and cultural contexts that influence criminal justice statistics. These approaches offer a more comprehensive understanding of the complexities behind the data.

Strategies for improving the collection of prison and probation statistics

Standardisation efforts

International efforts like the International Classification of Crime for Statistical Purposes (ICCS) and the European Sourcebook of Crime and Criminal Justice Statistics (ESB) provide frameworks for standardising legal definitions, classifications and statistical practices across countries. These initiatives aim to reduce discrepancies in how offences and sanctions are categorised and reported, improving data comparability.

Metadata collection

The Council of Europe Annual Penal Statistics (SPACE) initiative has emphasised the importance of metadata collection since 2002. Metadata, which describes statistical counting rules and methods, has expanded over time to provide detailed descriptions of how prison and probation statistics are collected. This data is essential for making meaningful international comparisons.

Transparency and collaboration

Transparency in reporting is crucial for minimising statistical challenges. Countries should provide detailed explanations of how data was collected, including definitions and adjustments. Additionally, fostering collaboration among national statistical agencies through workshops and conferences encourages the development of consistent methodologies and the exchange of best practices.

Harmonising reporting on criminal policy

Countries should be encouraged to report on criminal policy factors (e.g., mandatory minimum sentences, the use of alternative sanctions) alongside prison and probation statistics. This would allow researchers to better understand the context behind the numbers and make more informed comparisons.

Nuanced comparative research

Rather than focusing on overall incarceration or probation rates, researchers can adopt a nuanced approach by comparing different and specific aspects of the prison and probation systems. This allows for more targeted comparisons, which account for variations in criminal policies and the broader justice framework of each country.

Conclusion

The comparative analysis of prison and probation statistics is a complex but essential endeavour in the field of criminology and penology (Tonry 2015). By providing insights into the functioning of criminal justice systems across different countries, such analyses contribute to a deeper understanding of global trends in crime and punishment. However, as this chapter has highlighted, the process of making these comparisons is fraught with methodological challenges.

Four key factors – legal, statistical, criminal policy and substantive – pose significant obstacles to the comparability of prison and probation statistics (Aebi 2010; Harrendorf 2018). Legal factors, such as differences in offense definitions and sanction classifications, can lead to inconsistencies in how data is collected and reported. Statistical factors, including variations in data collection

methods and counting rules, further complicate efforts to harmonise criminal justice data. Criminal policy factors, such as the diverse approaches to sentencing and the use of non-custodial measures, can skew comparisons between countries with different criminal justice philosophies. Finally, substantive factors, including social, economic and cultural influences, shape the broader context within which criminal justice systems operate, adding another layer of complexity to international comparisons.

Despite these challenges, there are practical strategies that can be employed to enhance the comparability of prison and probation statistics. Standardising legal definitions and classifications, harmonising data collection methods, and contextualising data within the broader social and economic environment are critical steps toward achieving more reliable and meaningful comparisons (Killias 1995; Aebi et al. 2021). Transparency in data reporting, fostering international collaboration, and committing to continuous improvement and adaptation of methodologies are also essential for overcoming the obstacles posed by these four factors.

For researchers conducting comparative analyses, several key recommendations emerge. First, it is crucial to incorporate metadata in all aspects of data collection and interpretation, providing context around definitions, methods, and the socio-legal environment. Researchers should also employ multivariate analysis to control for social, economic, and demographic variables that may distort comparisons. Furthermore, the use of qualitative research and case studies can help explore the nuances of specific justice systems, offering valuable insights into the interplay between criminal policies and societal factors. Researchers are also encouraged to engage with international organisations and contribute to efforts aimed at harmonising definitions and improving data collection methods, while always maintaining transparency in reporting any limitations or differences in methodologies.

Moving forward, the international community should continue to prioritise the standardisation and harmonisation of criminal justice statistics. This will not only improve the quality of comparative research but also support the development of more effective and equitable criminal justice policies worldwide. By addressing the challenges discussed in this chapter, researchers and policymakers can ensure that prison and probation statistics serve as a powerful tool for understanding and improving the global landscape of criminal justice.

In conclusion, while the road to fully comparable prison and probation statistics is long and complex, the benefits of such efforts are clear. Enhanced comparability will lead to a more accurate understanding of global trends, more informed policy decisions, and ultimately, a more just and effective criminal justice system across the world. By continuing to refine our methodologies and collaborate across borders, we can move closer to achieving these goals.

References

- Aebi, Marcelo F. (2003). *Council of Europe Annual Penal Statistics. SPACE I: 2002 Survey on Prison Populations*. Strasbourg: Council of Europe.
- Aebi, Marcelo F. (2008). Measuring the Influence of Statistical Counting Rules on Cross-National Differences in Recorded Crime, in Aromaa K. and Markku H. (eds.), *Crime and Criminal Justice Systems in Europe and North America 1995–2004*, pp. 196–214. HEUNI: Helsinki, Finland.
- Aebi, Marcelo F. (2009). Methodological Issues in International Comparisons of Recorded Crime: The Role of Statistical Counting Rules, in Laetizia L. Sabbadini, Maria G. Muratore, and Giovanna Tagliacozzo (eds.), *Towards a Safer Society: The Knowledge Contribution of Statistical Information*, pp. 343–368. ISTAT: Rome, Italy.
- Aebi, Marcelo F. (2010). Methodological Issues in the Comparison of Police-Recorded Crime Rates, in Shoham S.G., Knepper P., and Kett M.(eds.), *International Handbook of Criminology*, pp. 211–227. Routledge: New York.

- Aebi, Marcelo F., Caneppele, S., Harrendorf, S., Hashimoto, Y.Z., Jehle, J.-M., Khan, T.S., Kühn, O., et al. (2021). *European Sourcebook of Crime and Criminal Justice Statistics – 2021: Sixth Edition*. Universitätsverlag Göttingen. <https://doi.org/10.17875/gup2021-1787>.
- Aebi, Marcelo F. and Cocco, E. (2024). *Prisons and Prisoners in Europe 2023: Key Findings of the SPACE I Survey*, Strasbourg: Council of Europe.
- Aebi, Marcelo F., Delgrande, N. and Marguet, Y. (2010). *SPACE II – 2009 – Council of Europe Annual Penal Statistics: Persons under the Supervision of Probation Agencies*. Strasbourg: Council of Europe.
- Aebi, Marcelo F., Delgrande, N. and Marguet, Y. (2015). Have Community Sanctions and Measures Widened the Net of the European Criminal Justice Systems?. *Punishment & Society*, 17(5): 575–597. <https://doi.org/10.1177/1462474515615694>.
- Aebi, Marcelo F. and Kuhn, A. (2000). Influences on the Prisoner Rate: Number of Entries into Prison, Length of Sentences and Crime Rate, *European Journal on Criminal Policy and Research*, 8(1): 65–75. <https://doi.org/10.1023/A:1008753330678>.
- Aebi, Marcelo F. and Linde, A. (2010). Is There a Crime Drop in Western Europe?, *European Journal on Criminal Policy and Research*, 16(4): 251–277. <https://doi.org/10.1007/s10610-010-9130-y>.
- Aebi, Marcelo F., Linde, A. and Delgrande, N. (2015). Is There a Relationship Between Imprisonment and Crime in Western Europe?, *European Journal on Criminal Policy and Research*, 21(3): 425–446. <https://doi.org/10.1007/s10610-015-9274-x>.
- Aebi, Marcelo F. and Molnar, L. (2024). *SPACE II – 2023 – Council of Europe Annual Penal Statistics: Persons under the Supervision of Probation Agencies*, Strasbourg: Council of Europe.
- Aebi, Marcelo F., Molnar, L. and Cocco, E. (2024). *Probation and Prisons in Europe, 2023: Key Findings of the SPACE Reports*, Series UNILCRIM 2024/4. Strasbourg and Lausanne.
- Aebi, Marcelo F. and Tiago, M.M. (2020a). *Prisons and Prisoners in Europe in Pandemic Times: An Evaluation of the Medium-Term Impact of the COVID-19 on Prison Populations*, Strasbourg: Council of Europe.
- Aebi, Marcelo F. and Tiago, M.M. (2020b). *Prisons and Prisoners in Europe in Pandemic Times: An Evaluation of the Short-Term Impact of the COVID-19 on Prison Populations*, Strasbourg: Council of Europe.
- Bebler, Anton, (ed.) (2015). *'Frozen Conflicts' in Europe*. Verlag Barbara Budrich: Berlin, Germany. <https://doi.org/10.3224/84740133>.
- Box, Steven. (1987). *Recession, crime and punishment*, Palgrave Macmillan: London (UK).
- Braithwaite, John. (1980). The Political Economy of Punishment, In Wheelwright E.L. and Buckley K. (eds.), *Essays in the Political Economy of Australian Capitalism: Volume 4*, Australia & New Zealand Book Company, pp. 192–208. .
- Delmas-Marty, Mireille. (1992). *Les grands systèmes de politique criminelle*. PUF: Paris, France.
- Durnescu, Ioan. (2008). An Exploration of the Purposes and Outcomes of Probation in European Jurisdictions, *Probation Journal*, 55(3): 273–281. <https://doi.org/10.1177/0264550508092814>.
- Durnescu, Ioan. (2013). The Future of Probation in Europe: Common in the Middle and Diverse at the Edge. *Probation Journal*. 60(3): 316–24. <https://doi.org/10.1177/0264550513493821>.
- Farrington, David P. (1986). Age and Crime, *Crime and Justice*, 7(January): 189–250. <https://doi.org/10.1086/449114>.
- Flander, Benjamin, and Ručman, Aleš B. (2015). Lost in Transition: Criminal Justice Reforms and the Crises of Legitimacy in Central and Eastern Europe, In Meško G. and Tankebe J. (eds.), *Trust and Legitimacy in Criminal Justice: European Perspectives*, pp. 111–133. Springer International Publishing: New York: https://doi.org/10.1007/978-3-319-09813-5_6.
- Fox, James Alan and Piquero, Alex R. (2003). Deadly Demographics: Population Characteristics and Forecasting Homicide Trends, *Crime & Delinquency*, 49(3): 339–59. <https://doi.org/10.1177/0011128703049003001>.
- Gartner, Richard. (2016). What Metadata Is and Why It Matters, In Gartner R. (ed.), *Metadata: Shaping Knowledge from Antiquity to the Semantic Web*, pp. 1–13. Springer International Publishing: New York. https://doi.org/10.1007/978-3-319-40893-4_1.
- Greenwald, Glenn. (2009). Drug Decriminalization in Portugal: Lessons for Creating Fair and Successful Drug Policies, SSRN Scholarly Paper. Rochester, NY. <https://doi.org/10.2139/ssrn.1464837>.
- Harrendorf, Stefan. (2012). Offence Definitions in the European Sourcebook of Crime and Criminal Justice Statistics and Their Influence on Data Quality and Comparability, *European Journal on Criminal Policy and Research*, 18(1): 23–53. <https://doi.org/10.1007/s10610-011-9161-z>.

- Harrendorf, Stefan. (2018). Prospects, Problems, and Pitfalls in Comparative Analyses of Criminal Justice Data, *Crime and Justice*, 47 (January): 159–207. <https://doi.org/10.1086/696042>.
- Jehle, Jörg-Martin. (2012). Attrition and Conviction Rates of Sexual Offences in Europe: Definitions and Criminal Justice Responses, *European Journal on Criminal Policy and Research*, 18(1): 145–61. <https://doi.org/10.1007/s10610-011-9163-x>.
- Killias, Martin. (1995). The European Sourcebook of Crime and Criminal Justice Statistics, *European Journal on Criminal Policy and Research*, 3: 108.
- Killias, Martin. (2001). Switzerland's Drug Policy as an Alternative to the American War on Drugs?, In Gerber J. and Jensen E.L. (eds), *Drug War American Style*, pp. 241–260. Routledge: New York.
- Killias, Martin and Aebi, M.F. (2000). The Impact of Heroin Prescription on Heroin Markets in Switzerland, *Crime Prevention Studies*, 11: 83–99.
- Killias, Martin, Aebi, M.F. and Kuhn, A. (2019). *Précis de criminologie (4e éd.)*, Killias, Martin; Aebi, Marcelo F; Kuhn, André (2012), *Précis de criminologie (3e éd.)*, Bern: Stämpfli. <https://www.zora.uzh.ch/id/eprint/61255/>.
- Killias, Martin, Aebi, M., Ribeaud, D. and Rabasa, J. (2002). Rapport Final Sur Les Effets de La Prescription de Stupéfiants Sur La Délinquance Des Toxicomanes, Institut de police scientifique et de criminologie de l'Université de Lausanne.
- Kuhn, André. (2009). Peut-on Se Passer de La Peine Pénale? Un Abolitionnisme à La Hauteur Des Défis Contemporains, *Revue de Théologie et de Philosophie*, 141(2): 179–192.
- Kury, Helmut, and Ferdinand, T. (1999). Public Opinion and Punitivity, *International Journal of Law and Psychiatry*, 22(3): 373–392. [https://doi.org/10.1016/S0160-2527\(99\)00016-3](https://doi.org/10.1016/S0160-2527(99)00016-3).
- Lafree, Gary and Tseloni, A. 2006. Democracy and Crime: A Multilevel Analysis of Homicide Trends in Forty-Four Countries, 1950-2000, *The ANNALS of the American Academy of Political and Social Science*, 605(1): 25–49. <https://doi.org/10.1177/0002716206287169>.
- Lappi-Seppälä, Tapio. (2011). Explaining Imprisonment in Europe, *European journal of Criminology*, 8(4): 303–328. <https://doi.org/10.1177/1477370811411459>
- Levchak, Philip J. (2016). The Relationship between Urbanisation and Cross-National Homicide Rates: Robustness across Multiple Estimation Methods, *International Journal of Comparative and Applied Criminal Justice*, 40(3): 225–43. <https://doi.org/10.1080/01924036.2016.1153492>.
- Lewis, Chris. (2012). Crime and Justice Statistics Collected by International Agencies, *European Journal on Criminal Policy and Research*, 18 (1): 5–21. <https://doi.org/10.1007/s10610-011-9164-9>.
- Linde, Antonia and Aebi, Marcelo F. (2020). La Criminologie Comparée à l'heure de La Société Numérique : Les Théories Traditionnelles Peuvent-Elles Expliquer Les Tendances de La Cyber-Délinquance ?, *Revue Internationale de Criminologie et de Police Technique et Scientifique*, 73(4): 387–414.
- Linde, Antonia and Aebi, Marcelo F. (2021). ¿Realmente theft quiere decir hurto? y otras equivalencias dudosas entre las definiciones legales y criminológicas de las infracciones: Consecuencias para el estudio de la delincuencia, *Revista Española de Investigación Criminológica: REIC*, 19(Extra 2): 3.
- Mauer, Marc. (2001). The Causes and Consequences of Prison Growth in the United States, *Punishment & Society*, 3(1): 9–20. <https://doi.org/10.1177/14624740122228212>.
- Meško, Gorazd. (2023). Comparative Criminology and Comparative Criminal Justice in Contemporary Crime and Social Control Research – A Brief Overview, *European Journal of Crime Criminal Law and Criminal Justice*, 31(2): 117–129. <https://doi.org/10.1163/15718174-31020001>.
- Moffitt, Terrie E. (2010). Adolescence-Limited and Life-Course-Persistent Antisocial Behavior: A Developmental Taxonomy, *Psychological Review*, 100(4): 674–701. <https://doi.org/10.1037/0033-295X.100.4.674>.
- Nelken, David. (2011). Why Compare Criminal Justice, in Bosworth M. and Carolyn Hoyle C. (eds.), *What Is Criminology*, Oxford University Press, pp. 394–405.
- Nellis, Mike. (2021, April 26). Electronic Monitoring around the World, *Oxford Research Encyclopedia of Criminology and Criminal Justice*, <https://doi.org/10.1093/acrefore/9780190264079.013.642>.
- Newburn, Tim. (2007). 'Tough on Crime': Penal Policy in England and Wales, *Crime and Justice*, 36(January): 425–470. <https://doi.org/10.1086/592810>.
- Nunley, John M., Alan Seals, R. and Zietz, J. (2011). Demographic Change, Macroeconomic Conditions, and the Murder Rate: The Case of the United States, 1934–2006, *The Journal of Socio-Economics*, 40(6): 942–948. <https://doi.org/10.1016/j.socec.2011.08.006>.
- Paoli, Letizia, Adriaenssen, A., Greenfield, V.A. and Conickx, M. (2017). Exploring Definitions of Serious Crime in EU Policy Documents and Academic Publications: A Content Analysis and Policy Implications,

- European Journal on Criminal Policy and Research*, 23(3): 269–285. <https://doi.org/10.1007/s10610-016-9333-y>.
- Pfaff, John F. (2017). *Locked In: The True Causes of Mass Incarceration—and How to Achieve Real Reform*. Basic Books: New York.
- Robinson, Gwen, McNeil, F. and Maruna, S. (2012). Punishment in Society: The Improbable Persistence of Probation and Other Community Sanctions and Measures, In Simon J. and Sparks R. (eds.), *The SAGE Handbook of Punishment and Society*, pp. 321–340. SAGE: New York.
- Rusche, Georg and Kirchheimer, Otto (1939). *Punishment and Social Structure*. Columbia University Press: New York. . <https://doi.org/10.7312/rusc92484>.
- Smit, Paul, van Eijk, A. and Decae, R. (2012). Trends in the Reaction on Crime in Criminal Justice Systems in Europe in 1990–2007: A Comparison of Four European Regions, *European Journal on Criminal Policy and Research*, 18(1): 55–82. <https://doi.org/10.1007/s10610-011-9156-9>.
- Sweeten, Gary, Piquero A.R. and Steinberg L. (2013). Age and the Explanation of Crime, Revisited *Journal of Youth and Adolescence*, 42(6): 921–38. <https://doi.org/10.1007/s10964-013-9926-4>.
- Tarde, Gabriel. (1886). *La Criminalité Comparée*. Paris, France: Félix Alcan.
- Tham, Henrik. (2012). The Influence of the Drug Issue on Criminal Policy *Journal of Scandinavian Studies in Criminology and Crime Prevention*, 13(suppl 1): 12–30. <https://doi.org/10.1080/14043858.2012.739677>.
- Tiago, Mélanie. (2023). Criminalité, Économie et Emprisonnement : Le Poids de La Criminalité et de l'économie Dans l'explication Des Variations Des Populations Pénitentiaires En France et En Belgique Du XIXe Au XXIe Siècle Université de Lausanne. https://serval.unil.ch/resource/serval:BIB_D7DDF2701168.P001/REF.
- Tonry, Michael. (1994). Race and the War on Drugs: Toward a Rational Drug Policy *University of Chicago Legal Forum*, 1(4): 25–82. <http://chicagounbound.uchicago.edu/uclf/vol1994/iss1/4>.
- Tonry, Michael. (2003). Reducing the Prison Population. In Tonry M. (ed). *Confronting Crime*, pp. 211–213. Willan Publishing: New York.
- Tonry, Michael. (2015). Is Cross-National and Comparative Research on the Criminal Justice System Useful?, *European Journal of Criminology*, 12(4): 505–516. <https://doi.org/10.1177/1477370815581699>.
- Tonry, Michael and Farrington, D.P. (2005). Punishment and Crime across Space and Time. *Crime and Justice*, 33(January): 1–39. <https://doi.org/10.1086/655361>.
- Vliet, Henk Jan van. (1990). The Uneasy Decriminalization: A Perspective on Dutch Drug Policy, *Hofstra Law Review*, 18: 717–50.
- Von Hofer, Hanns. (2000). Crime Statistics as Constructs: The Case of Swedish Rape Statistics, *European Journal on Criminal Policy and Research*, 8(1): 77–89. <https://doi.org/10.1023/A:1008713631586>.
- Woods, Cindy S. (2016). Addressing Prison Overcrowding in Latin America: A Comparative Analysis of the Necessary Precursors to Reform, *ILSA Journal of International and Comparative Law*, 22(3): 533–562.
- Zhang, Yan, Maxwell C.D. and Vaughn, M.S. (2009). The Impact of State Sentencing Policies on the U.S. Prison Population, *Journal of Criminal Justice*, 37(2): 190–199. <https://doi.org/10.1016/j.jcrimjus.2009.02.012>.