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Humane Criminal Deterrence Formula through Restorative Justice and Economic Analysis of Penal Law Approaches

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Abstract:

This paper proposes a theoretical idea of mathematical and economic value-based criminal deterrence formulation that ensures crime does not benefit the crime's perpetrator, while ensuring humane penal sentencing that is just for the victim(s), society, and the perpetrator. This proposed formulation of criminal deterrence could be what is needed in answering how to achieve the criminal/penal justice's purposes as no formulation has ever been presented elsewhere, while entrusting penal sentencing formulation entirely to the judges or the sentencing structure to the lawmakers is still highly problematic. This research uses a normative approach with a counter synthesis from the weaknesses discovered through economic analysis of penal law, especially in its sentencing, in current Indonesia Penal Code (/KUHP), Indonesia's newest 2023 Penal Code (KUHP 2023), and some examples from other nations, while doing it in a conceptual and eclectic approach based on Integrative Sentencing Purposes Theory by Muladi that integrates the retributive sentencing purpose, the rehabilitative sentencing purpose, and restorative justice theory as one system. This proposed humane criminal deterrence formulation ensures the punishment's weight must be greater than the crime's profit, as one of Bentham's sentencing rules requires while giving meaning, certainty, and economic reasonability for imprisonment. This formulation proposes the following standards: a. the penal sentence's economic value should at least be equal to the sum of its victim(s)' restitution and its fine sentence; b. the penal sentence must be in double or dual-track system through alternative penal sentencing treat mode with financial sentences or imprisonment format, and; c. imprisonment should be treated as forced labour equivalent to the economic value gained by any person working legally in the worst condition in that area and time, which ensuring the priority for the perpetrator to choose imprisonment as the last resort.

Keywords: Criminal Deterrence; Criminal Justice System Reform; Criminal Policy; Economic Analysis of Law; Restorative Justice.

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INTRODUCTION

Criminal Justice or Penal Law System has a very serious problem as a science, especially in its sentencing, sanction, or punishment. There is no consensus in criminal justice or penal sentencing, regarding defining, explaining, and even predicting the weight or the way to implement penal sentencing. This problem occurs in its implementation and the formulation of the sentencing guideline and sentencing structure[1]. This is found not only in Indonesia, from the current Penal Code, to the newest 2023 Penal Code[2], but in other nation's Criminal Justice Systems, such as in the Netherlands[3] and the United States of America (USA)[4]. These all show that there is a gap or empty norm in the fundamental and philosophical foundation of penal

[1] Saleh, G., & Gunawan, T. J. (2021), p. 1-2.
[2] Gunawan, T. J., & Sholehuddin, M. (2024). p. 404–418.
[3] Gunawan, T. J., Warka, M., Yudianto, O., & Setyorini, E. H. (2021), p. 158.
[4] Gunawan, T. J., & Sholehuddin, M. (2023), p. 1-16.

sentencing, sanction, or punishment. A problem that Herbert L. Packer also states occurs even in the highly developed legal system[5].

A simple test can assess the sentencing guidelines of any Criminal Justice System by disregarding its restorative justice approach. Choose a specific criminal code that stipulates a maximum imprisonment sentence. Then, identify the highest economic damages caused by a crime under this code, either in real-life scenarios or theoretically, to gauge the maximum potential benefit of committing the crime. Assume that the stolen or damaged property has never been recovered and that the perpetrator cannot reimburse the damages. If the punishment meted out is the maximum imprisonment allowed, consider if an individual working legally under the most severe conditions and facing the same length of potential imprisonment could earn an amount equivalent to the maximum possible benefit of the crime. This comparison often reveals that even the harshest penalties prescribed by the criminal code do not outweigh the benefits of committing the crime.

This scenario highlights a significant issue regarding the effectiveness of the Criminal Justice System (CJS) in deterring crime. It calls into question whether the system can fulfil its purpose if, after the criminal justice process, the perpetrator benefits financially from the crime in a shorter time than if they were working legally. This raises doubts about the system's ability to discourage individuals from reoffending. Furthermore, this situation might encourage others to commit similar crimes, seeing that it results in financial gain—the greater the crime's benefits, the more enticing it becomes. Consequently, this undermines both a. the specific[6], or particular deterrence[7] aimed at individual perpetrators and b. general deterrence intended to prevent crime within the broader community, rendering these aspect of the Criminal Justice System (CJS) ineffective.

Although combating crime according to social defence theory, a crime prevention theory proposed in a modern idea such as by Tom Gash[8] can work in reducing crime by setting a social system that reduces the opportunity of the perpetrator of a crime to reap the benefits of the crime or inflict fear as the social system is tuned to identify and capture the perpetrator as soon as possible; hence, reducing the opportunity for the perpetrator to take the benefit of the crime[9], but even the best-protected system can fail or can be too expensive. Thus, a complete social defence against crime should include effective criminal prevention and criminal deterrence initiatives.

The theory of crime prevention centres on deterring criminal activity by creating a social system or environment that enhances the fear of getting caught before any benefits from the crime can be realised[10]. Meanwhile, criminal deterrence should influence people's mindsets, emphasising that crime should ultimately yield no benefits. This concept of criminal deterrence is proposed as both an educational tool and a therapeutic intervention for criminal tendencies, imparting the simple yet powerful message that in a just society, crime never pays off compared to lawful employment. Furthermore, effective criminal deterrence is essential as it decreases the likelihood of people engaging in economic crimes, thereby underscoring the need for a robust and effective deterrence strategy within the criminal justice system.

Despite early research and literature presenting conflicting results about the effectiveness of criminal sanctions, several criticisms persist. These include the prison abolitionist movement, Alison Liebling's concerns that penal sanctions may cause more harm than good[11], and arguments from James V and Bennet that sentences fail to foster respect[12]. Additionally, the high rates of recidivism[13] observed in the USA[14], the

[5] Packer, H. L. (1968), p. 23.
[6] Walker, N. (1971), p. 3-4
[7] Asshiddiqie, J. (1996), p. 169-170.
[8] Gash, T. (2016), p. 265.
[9] ECOSOC. (2002), p. 3.
[10] See (n)
[11] Liebling, A. (2006), p. 422.
[12] Muladi & Arief, B. N. (2010), p. 54.
[13] NBCNEWS, *Unable To Get Jobs, Freed Inmates Return To Jail,* https://www.nbcnews.com/id/wbna35263313
[14] Benforado, A. (2016), p. 215.

notion of prisons as breeding grounds for future crimes[15], and the forced return to criminal activity [16] highlight significant challenges within the criminal justice system.

Those research papers and books, however, do not address the reasons why current CJS fails to achieve its purposes, nor do they triangulate the following three factors: 1. the benefit of the crime, which in a crime with a single perpetrator is the victim's losses; 2. the economic value of time for any common people who are working legally, and; 3. the perspective of the perpetrator. This triangulation technique or methodology[17] is part of the economic analysis of law from each party affected throughout the CJS or penal law system processes.

Early research highlights how injustices and the distress from unfair sentencing contribute to failures within the current Criminal Justice System (CJS). The lack of fairness, rationality, and certainty in sentencing, as critiqued by David Fogel's Justice Model[18], and the resultant misery experienced by individuals are seen as factors that promote criminal behaviour. This concept is supported by criminological theories from Willem Boger (1905)[19], Ferry's criminogenic environment theory (1884), Charles Goring (1910), and Robert K. Merton's *strain theory*[20]. These factors underscore the CJS's shortcomings and demonstrate the necessity of developing a criminal deterrence strategy that includes humane, just, rational, proportional, and economically sensible sentencing. Additionally, a focus on restorative efforts to repair the damage caused by crime, integrating elements of retributive justice, rehabilitative justice, and restorative justice, is essential for an effective CJS.

This paper proposes a multifaceted and eclectic approach to formulating criminal sanctions and humane criminal deterrence that addresses the issues discussed earlier. By integrating all contributing factors, this formula aims to deliver several key benefits: a) It ensures justice for the victim, society, and the perpetrator alike; b) It offers economic rationality in formulating and constructing solutions; c) It ensures sentencing and deterrence measures are humane; d) It establishes straightforward moral codes that society can easily understand, creating a Criminal Justice System (CJS) that communicates that crime does not pay or benefit the perpetrator in any way.

Meanwhile, this paper proposes a new thought that is precise enough to be seen as a two-way relationship towards the effects on victims and society (vice versa). When this system is used, it is expected that there will be no more biased sentencing. The humane approach focuses on the enforcement of penal law through penal sanctions. In this paper, it is proposed that the humane treatment of convicted criminals should be seen as a two-way relationship with the effects on both victims and society.

METHOD

This study used a normative research method that examines existing legal sources especially in penal sanction or sentencing and analysed them with an economic analysis of the law by Richard Posner which is modified by Romli into a microeconomic analysis of Penal Law before building a new concept that answers the aforementioned problems with an eclectic approach and theoretical and legal sources triangulation approach. This eclectic approach is a philosophical approach that collects the best values for deliberating conflicting views - as John Rawls' 'reflective equilibrium' approach is similar to the Indonesian Pancasila-based deliberation approach and ideology.

This research uses several theories, including John Rawls's theory of justice to find a minimum value reference that is fair for humanity, thus describing the humane treatment through minimum economic standards, Aristotle's corrective justice , retributive sentencing purpose theory in its most modern in just deserts theory by Sue Titus Reid, Bentham's utilitarian justice theory including the concept of

[15] Hairi, P. J. (2018), p. 199-216.
[16] Prasetyo, T. (2010), p. 125.
[17] Scribbr.com, *Triangulation in Research | Guide, Types, Examples*, https://www.scribbr.com/methodology/triangulation/
[18] Lib niu edu, Fogel's 'Justice Model': Stop trying to reform. Punish, But Treat All Alike, http://www.lib.niu.edu/1976/ii760214.html.
[19] Prakoso, A. (2013), p. 98.
[20] See (n), p. 103-104.

"commensurable"; all can be calculated with money, and rehabilitative sentencing purpose theory, and based on restorative justice theory that prioritises the recovery of losses to victims and society.
Due to the novelty of this writing, the author finds it difficult to find sources as specified by this journal. Research on "sentencing" is still very rare, therefore it is highly impossible for the author to use the sources as specified by this journal.

RESULTS AND DISCUSSION

As this journal's format limits it, this writing is structured to explain in brief: a. the historical background that drives this finding; b. the brief explanation about the current CJS's sentencing system that cannot achieve criminal deterrence; c. the theories that build this formula; d. the formulation and its benefits against prior concept, and; e. the conclusion that specifies the formula of criminal deterrence.

This proposed concept began with a quest to find the rationale behind the criminal sanction or penal sentence, such as the reason for punishing the perpetrator with one year imprisonment or the rationality behind sentencing policy of the maximum imprisonment treat for a specific crime code, the reason behind the sentencing model treats. As mentioned by Helbert Packer earlier, in regards to criminal sanction, despite being one of the three most important aspects in criminal justice, there is no formulation or even philosophical reasoning to explain even the most basic matter of penal sentence[21], such as the definition that will not conflict its purposes, the rationality in formulating weight of sentencing, the way the sentencing is implemented; such as the model of the sentencing, or the legal reasoning; or more into the detail formulation, in determining the sentencing weight for a specific case. These questions regarding theories are explained in the next sub-chapter.

Previous research and writing since 2015 have revealed that Indonesia's current Penal Code (KUHP), its previous draft versions from 2013 and 2019, and the latest 2023 KUHP all exhibit potential issues in their sentencing structures and guidelines. A significant concern identified is the issue of undercriminalisation in sentencing. In this context, even the maximum penalties prescribed by any criminal code fall short of counterbalancing the potential benefits a perpetrator might gain from their crime. This study builds upon and localizes the findings of Gary Becker, who highlighted similar shortcomings within the U.S. Criminal Justice System (CJS), particularly its inability to prevent perpetrators from benefiting from their crimes[22].

This ongoing personal research has yielded significant contributions, including a thesis and a book titled "Konsep Pemidanaan Bebasis Nilai Kerugian Ekonomi" (The Economic Loss Value-based Sentencing Concept)[23], its Revised Edition[24], and several journal papers. At the suggestion of my mentors, I initially formulated a criminal sanction formula based on the principle that crime should not pay for the perpetrator. However, given the constraints of a thesis-level study, several issues remained unresolved. These include conflicts within the norms governing how penal sentences are defined and applied, apparent contradictions in the fundamental theories of sentencing purposes, and historical reasons behind the irrationality of codifying sentencing threats.

Further research at the dissertation level was conducted to answer and explain the concept of penal sentence redefinition in alignment with the purposes of CJS and the problems mentioned. The research was conducted in two phases and ended with the writing of two books entitled "Keseimbangan Nilai Pidana Penjara Dan Pidana Denda - Perspektif Penologi Melalui Pendekatan Analisis Ekonomi"[25] (Equivalence between Imprisonment and Fine Sentence – A Penology Perspective through Economic Analysis).

This book and the accompanying international journal article introduce a dual-track sentencing system. They present a method for determining a specific fine corresponding to a particular imprisonment

[21] Packer, H. L. .See (n), p. 24.
[22] Becker, G. S. (1968), p. 169 –217.
[23] Gunawan, T. J. (2015). *Konsep Pemidanaan Berbasis Nilai Kerugian Ekonomi,* the tittle is translated as Economic Loss Value Based Sentencing Concept, p. i
[24] Gunawan, T. J. (2018). *Konsep Pemidanaan Berbasis Nilai Kerugian Ekonomi– Edisi Revisi*, p.i
[25] Gunawan, T. J. (2022). *Keseimbangan Nilai Pidana Penjara Dan Pidana Denda - Perspektif Penologi Melalui Pendekatan Analisis Ekonomi*, p.i

sentence, tailored to a specific time and place. This approach allows for an alternative model where a fine can replace imprisonment. The key is to ensure that the fine holds equivalent punitive weight to the imprisonment it replaces, maintaining justice relative to the specific conditions of the time and place. This formula calculates a specific fine sentence (Y fines) as the equal and alternative to a specific penal sentence or sanction (X Imprisonment length, and vice versa) with a mathematical notation: (Y Fines ≈ X Imprisonment ⇒ X Imprisonment ≈ Y Fines), in such the need of reference value that applied to a specific location and specific time that ensure Y Fines divided by X Imprisonment will always have the same value applied to everyone and every case in that specific location and that specific year[26]. This can be described in a mathematical equation Y1 Fine Sentence / X1 Imprisonment = Reference Value = Other Fine Sentence Y2 / Other Imprisonment X2 in the same time range and place.

This formulation equates a specific length of imprisonment with an economic value that mirrors the earnings of someone working legally under the toughest conditions at that time and place. Essentially, one month of imprisonment should correspond to the regional minimum wage (RMW), the amount a person in the worst-paid job would earn in a month. This concept extends to economic crimes where damages and *mens rea* (the severity of intent) are quantifiable, enabling the development of a formula to determine appropriate imprisonment lengths. The proposed sentencing formula stipulates that the duration of imprisonment should numerically equal the amount of damages the perpetrator cannot compensate for. This principle is articulated mathematically, ensuring that the punishment correlates directly with the economic impact of the crime[27].

For this specific writing, the topic is focused on defining a formulation of criminal deterrence, whereas previous writing emphasised the formulation of penal sentencing more. As the formulation of criminal deterrence and its problems are similar, this paper explains the formulation of criminal deterrence through the formulation of sentencing and penal sentencing definition reformulation. It shows, theories integration into the formulation through existing norms to achieve the goals of criminal purposes theories.

Given the complexity of the issue, it is challenging to provide a detailed explanation within the confines of a single journal article. Therefore, this brief historical background is offered as a concise overview of previously accepted and peer-reviewed research findings in criminal sanctions and penal sentences. This summary aims to facilitate understanding and acceptance of the concepts and formulations of criminal deterrence discussed below.

1. The Current Sentencing System

The test described in the second paragraph of the Introduction was applied to Indonesia's current Penal Code (KUHP) and the newest Penal Code (KUHP 2023). It failed dramatically because the sentencing system could not adequately match the potential damages or economic losses caused by crimes. With continuous economic growth, the potential economic losses from even minor street crimes or common economic offences have significantly increased. For a quick reference, a luxury car such as the Ferrari 812 Superfast, ranked as the second cheapest, is valued at around 4.54 billion rupiah[28] (Rp4,540,000,000 or roughly US$280,250 with a 2024 conversion rate) ordinary Jakarta people working legally and paid in minimum wage in 2024 will need 74 years ten months and 27 days to achieve this amount[29](Rp5,067,381 / month).

Some exposed problems in KUHP are mostly due to the separation of the weight of victim's compensation into tort law or civil law suit. So currently, the loss occurring to the crime victim is treated as a debt. At the same time, according to Article 19 Paragraph (2) of Law No. 39 Year 1999 concerning Basic Human Rights, no person can be sentenced to imprisonment due to one's inability to pay. Therefore, the weight of

[26] Gunawan, T.J. (2023), p.326

[27] Gunawan, T. J. (2023). *Pemidanaan Berbasis Keadilan Restoratif Yang Berdaya Jera Dan Responsif*. Kencana, Jakarta. Translated title as Deterrence and Responsive Restorative Justice Based Sentencing.

[28] Otoflikm, *17 Harga Mobil Ferrari Termurah dan Termahal 2020*, https://www.otoflik.com/harga-mobil-ferrari-termurah-termahal/

[29] Gubernur DKI Jakarta, Keputusan Gubernur Nomor 818 Tahun 2023 tentang Upah Minimum Provinsi Tahun 2024.

sentencing currently lays heavily on and is limited by the maximum threat of the weight of guilt or *mens rea* provisioned in each code of crime article. Whereas according to the International Crimes Tribunal "crime victim has [a] right to be adequately compensated, rehabilitated and repaired".[30]

For example, the current maximum penalty for theft under Article 362 of the Indonesian Criminal Code (KUHP) is only five years of imprisonment. In Jakarta, with a regional minimum wage (RMW) of Rp5,067,381 in 2024, the total amount an inmate could potentially earn over five years is Rp304,042,860, assuming no inflation or wage increases. However, in a place like Sragen Regency, where the 2024 minimum wage is Rp2,049,000, five years of work would only amount to Rp122,940,000. These figures are significantly lower than the economic loss caused by theft in the examples provided. This discrepancy demonstrates that even the maximum penalty does not adequately compensate for the economic loss, ultimately benefiting the perpetrator.

The KUHP 2023, set to be implemented starting in 2026, would significantly alter sentencing guidelines if applied today. Excluding additional penalties such as those fulfilling local traditional obligations, the maximum possible prison sentence under KUHP 2023 could be twice that of the current KUHP. Specifically, Article 476 of KUHP 2023, alongside Article 66 Paragraph (1) letter d, and Articles 81 to 83, which detail the conversion of unpaid fines into other types of penal sentences including imprisonment, establish a potential maximum imprisonment for theft at up to 10 years—5 years for not paying the fine and an additional five years for failing to compensate the victim[31]. This sentencing structure under KUHP 2023, however, still demonstrates an inability to deliver justice, as the maximum punishment calculated using Jakarta's regional minimum wage (RMW) would only amount to Rp608,085,720.

Inconsistencies in assigning economic value to imprisonment terms highlight a lack of economic rationality in the penal code, as there is no economic reference value correlating economic worth to specified imprisonment provisions. For instance, the KUHP lacks a clear sentencing structure, and the KUHP 2023 introduces an irrational sentencing framework. In this framework, minor crimes with a maximum of two years imprisonment and more serious crimes with up to four years can fall under the same fine category III, with a maximum fine of Rp50,000,000. Additionally, the fines set for specific imprisonment terms appear irrationally low, such as a five-year imprisonment term accompanied by a Rp900,000 fine in Article 362 of KUHP or a one-year term equating to a Rp10,000,000 fine in the 2023 KUHP—amounts that are less than two months' minimum wage in Jakarta for 2024.

These issues are not unique to Indonesia's Penal Code; they are also prevalent in the criminal justice systems of other countries, including the Netherlands and the USA. The KUHP 2023 attempts to develop a nationalistic Penal Code System with several advantages. It includes a well-defined sentencing structure and integrates victim compensation restoration into the criminal justice process, enhancing the sentencing impact. Additionally, it incorporates the obligation to fulfil local traditional obligations, such as when local wisdom calls for a stricter sentence, moving towards a more restorative justice approach that compels the perpetrator to compensate for the damages and other related responsibilities.

Indonesia's Penal Codes have drawn heavily from the Dutch Penal Code, reflecting a shared historical foundation and similar provisions. Like Indonesia's KUHP, the Dutch Penal Code, particularly the 2012 version known as Wetboek van Strafrecht (WvS 2012)[32] exhibits similar shortcomings in balancing imprisonment with corresponding fines. Additionally, the WvS 2012, much like the current Indonesian KUHP, does not account for victim compensation in determining the weight of imprisonment sentences. Consequently, the severity of penalties under the WvS 2012 relies primarily on the *mens rea* component prescribed for each crime, leading to sentencing limitations that mirror those in the current Indonesian KUHP.

[30] Huda, T. (2020), p. 22.
[31] Gunawan, T. J. & Sholehuddin, M. (2024), p. 404-418.
[32] EJTN.eu. *Criminal Code.* European Judicial Training Network (EJTN), https://www.ejtn.eu/PageFiles/6533/2014%20seminars/Omsenie/ WetboekvanStrafrecht_ENG_PV.pdf.

The sentencing system under the Wetboek van Strafrecht (WvS) 2012 is questionable in its effectiveness as a criminal deterrent. For instance, Section 310 of the WvS 2012 specifies the punishment for theft as "a term of imprisonment not exceeding four years or a fine of the fourth category." According to Section 23 point 4, the maximum fine in this category is €19,500. Given that the Netherlands' 2012 monthly minimum wage was €1,446.5[33], the total economic value of four-year imprisonment, calculated using the 2012 rates, amounts to €69,432. When converted at the 2024 Rupiah exchange rate, this sum is approximately Rp1,204,407,743. This illustrates that the potential economic impact of the penalty does not align with the damages or loss values previously mentioned.

The United States Sentencing Guidelines (USSG), from the 2018 to the most recent 2023 version, exhibit significant deficiencies, particularly in cases of basic economic offences where the economic losses are substantial. These guidelines often prescribe maximum criminal penalties that fall short of the actual economic damages incurred by the crimes. For example, according to the Specific Offence Characteristics table under USSG §2B1.1.(b), which includes various theft and fraud offences, a loss exceeding $550,000,000 for a first-time offender results in a base offence level of 6, escalating to a total offence level of 36 after a 30-level increase (the base offence + increase in level = 6 +30 = 36). Concurrently, the Fines for Individual Defendants provision under USSG §5E1.2.(c).(3) correlates an offence level of 36 with a maximum fine of only $400,000. Moreover, the corresponding Sentencing Table in USSG §5A suggests that, even for an offender with the highest Criminal History Category VI, the maximum imprisonment does not exceed 405 months. This discrepancy highlights a systemic issue where the penalties imposed are disproportionately low compared to the financial impact of the offences.

Under the guidelines, even if losses exceed $550,000,001, judges are constrained to imposing a maximum fine of $400,000 or a sentence of up to 405 months in prison. Considering the U.S. minimum wage in 2024, which is $1,160 per month or $7.5 per hour[34], a 405-month sentence would allow a legally employed person earning minimum wage to accumulate approximately $469,800. This scenario underscores the limitations of the guidelines, as they fail to adequately address losses exceeding $550,000,000. For instance, even if the losses were ten times greater, amounting to $5,500,000,010, the sentencing guidelines still restrict the punishment to the same maximum penalties—$400,000 or 405 months. This illustrates how the USSG falls short of providing effective criminal deterrence for major economic offences.

2. Theories Behind the Humane Criminal Deterrence Formulation

To achieve criminal deterrence, it is argued that two main factors must be achieved, namely: a) the weight of overall penal sentencing that must ensure crime does not pay to the perpetrator – or must ensure the weight of sentencing must be greater than the benefit of the crime, and; b) how the penal sentencing is humanely applied to ensure justice for the perpetrator as well. This approach is argued to be the way to ensure justice for both sides of the conflicting parties in CJS, namely the victim(s), society and the perpetrator side.

The demand to create a just system for the victim, the society, and the perpetrator is based on restorative justice theory (RJ), especially in its most modern definition and aim, while excluding the commonly accepted methodology that emphasised mediation or conferencing between the victim and the perpetrator. The modern RJ used here is the RJ post-2012 especially by Marilyn Armour. It views crime as “a broken relationship between three actors: the offender, the victim, and the community” … and RJ is present to amend it[35]. Thus, excluding RJ’s mostly common approach as a separate system to the exiting CJS, the above expression shows the definition of RJ is to amend or restore justice between the victim, the society, and the perpetrator of the crime, which is also needed to describe the weight of overall penal sentencing.

[33] Take-profit.org, *Netherlands Wages: Minimum And Average*, https://take-profit.org/en/statistics/minimum-wages/netherlands/

[34] Take-profit.org, *United States Wages: Minimum And Average*, https://take-profit.org/en/statistics/wages/united-states/

[35] Armour, M. (2012), p 25–65.

Another key element of RJ is its focus on mending the disrupted balance between parties without resorting to punitive measures. RJ emphasises a reparative approach, encouraging offenders to compensate victims and the community through financial restitution or services of equivalent economic value. Thus, RJ's core principle can be encapsulated mathematically: the offender must compensate for the victim's and society's combined financial losses, either through direct payment or economically comparable services.

This formulation is also found in other theories, such as Jeremy Bentham's formulation of criminal sanction. Bentham's theory is argued as the foundation in the existence of criminal justice or penal law system and science, but somehow, even the most modern CJS / penal law system shows only partial implementation, which will be clarified below. Bentham expressed that in any crime there are two main factors or variables, namely the primary mischief, which is the victim's (/s') mischief, damages, or losses, and; the secondary mischief: which is the society's – or in his words: the community's - mischief, damages, or losses as the projection of the perpetrator's guilt[36].

Bentham's view also align with Aristotle's view of commensurable[37], in which mischief is measured in economic value or represented with money[38]. This formulation implies that the weight of sentencing must be convertible into money. The weight of sentencing from the victim's perspective does not only equate to the benefit of the crime gained through victim losses but must also relate to the victim's losses. Thus, in non-basic economic offences where the crime's benefit is not easily measurable, another field of science namely victimology, can be used to determine the amount of money required to restore the crime victim as much as possible to function as a normal being prior to becoming the crime victim.

Another important Bentham sentencing rule is to ensure the weight of sentencing must be heavier to "outweigh" the profit of a criminal offence[39]. It is argued that Bentham sees the secondary mischief or the *mens rea* weight as an additional variable to ensure the weight of criminal sentencing is more than the profit gained through crime, assuming most economic crime done by a single offender the profit of the crime is equal to the victim's losses; assuming a crime is illegal transfer of rights or goods from victim to the offender.

The Bentham theories in the sentencing formulation and the sentencing purpose theory, namely relative or rehabilitative sentencing purpose theory, are essential to separate and provide a benchmark for CJS or Penal law. This theory is among the first to explain the additional sentencing weight and legal liabilities that distinguish it from civil or tort law. It emphasises the need for criminal deterrence, which requires increasing the sentencing weight to a point where it significantly reduces the motivation to commit the crime. This formulation can be formulated in a district equation or formulation enough to be analysed with an economic analysis of law, and can produce a mathematical formulation ensuring the criminal deterrent.

Bentham's sentencing framework ensures criminal deterrence by stipulating that the benefits of crime must always be less than the punitive consequences, upholding the maxim that "crime does not pay." His approach also highlights the historical lack of differentiation between criminal and civil liabilities, where previously, no distinction was made between criminal liability and tort or civil liabilities. Modern legal systems typically separate criminal justice from tort law, treating victim compensation as a civil matter and focusing solely on the offender's intent (*mens rea*) in criminal proceedings. However, with changes such as the abolition of slavery, the establishment of bankruptcy laws, and the recognition of human rights—including the principle that no one can be detained for inability to pay debts—the criminal justice system's effectiveness in deterring crime has diminished. This is because it now relies solely on the *mens rea*, which was meant to augment the primary factor of compensating the victim's losses, not replace it. This series of studies highlights that the current framework fails to integrate these elements effectively, undermining its deterrent capability.

[36] Bentham, J. See (n) p. 96.
[37] Aristotle. See (n), p. 125.
[38] See (n) p. 102
[39] See (n) p. 96.

In most criminal justice systems (CJS) that have been analysed, there is a clear division between compensating for the victim's losses, which falls under tort or civil liability and assessing the offender's intent or *mens rea*, which is considered under criminal liability. This dichotomy reflects a partial adoption of the principles first articulated by Bentham in 1780. The modern CJS represents a modest evolution from older legal theories, incorporating minimal changes. Historically, laws prescribed fixed sentences for specific crimes (for example, four years imprisonment for theft). However, Bentham's theories on relative sentencing or rehabilitative purposes have led to the adoption of indefinite sentencing in the continental or civil legal systems. This approach introduces a maximum limit (e.g., a maximum of 4 years for theft), transitioning from fixed sentences to a sentencing range that judges must determine based on the specifics of each case. This is against what Bentham has asked in his formulation. The, current modern CJS only weighs the *mens rea* – the additional (++) - instead of the whole weight that must be more than the weight of the victim's losses with the additional *mens rea* weight (X ++), which raises the first indication in questioning the current CJS / penal law in achieving criminal deterrence.

In this proposed sentencing formulation that incorporates criminal deterrence here, Bentham's formulation is raised and formulated, and Bentham's criminal sanction is also in line or, better yet, produces the same equation, as the RJ's aim. This criminal deterrence formulation is a mathematical formulation that equates the weight of criminal sanction/sentencing to the sum of the victim's losses and the society/community's losses in the weight of guilt or *mens rea.*

This formulation seems to follow the path of the retributive sentencing purpose theory, the drive to assign a criminal liability in accordance with the weight of the crime. Bentham's theories in sentencing formulation and sentencing purpose theory were never aimed to challenge or punish according to a certain formulation. Bentham's criminal prevention[40], which in modern terms has shifted to become criminal deterrence- while criminal prevention is absorbed into social defence theory[41]- relies on following the formula, but challenge the irrational and inhumane criminal sanction that has no base and no benefits to the society rather than imposing harsh and inhumane legal provisions of that era.

In fact, without implementing the retributive sentencing purpose theory, the rehabilitative sentencing purpose theory will never be able to achieve its goal. Without ensuring the achievement of the formula that sentencing must outweight the benefit of the crime, it is questionable that any person will be rehabilitated to avoid doing the same crime. This condition can be explained in the rational choice theory by Gary S. Becker[42] and the economic analysis of law. If sentencing formulation criminal deterrence formulation is not met, the benefit of the crime will always be benefiting the perpetrator. Hence, it is questionable whether the sentencing can drive the perpetrator away if it is beneficial. If working in legal conditions is always in a non-beneficial condition compared to committing a crime and paying it by serving the criminal sentence, the person driven by pure economic rationality in theory, will mostly choose to commit a crime that gives better benefit.

Therefore, the criminal deterrent formulation must ensure that crime does not pay to the perpetrator, which must be formulated as equal to the sum of the victim's losses and society's losses, as well as the weight of guilt and its impact on society. This formulation is urgently needed as a formula that sends a simple message of a clear, transparent, measurable, and just "reward and punishment" system applicable to everyone in the system. The second factor which the penal sentencing must be applied to achieve its purposes indicates the need of a humane criminal deterrent; it indicates the need to apply humanely to ensure justice for the perpetrator as well.

Following the precursor of the most modern retributive sentencing purpose theory, the just deserts by Sue Titus Reid[43], the justice model by David Fogel can be translated as the need to treat the inmate in a just

[40] See (n) p. 96:
[41] Ancel, M. (1965). *Social Defense - A Modem Approach To Criminal Problems*. Translated by Wilson, J., from French book titled: *LA NOTRVELLE DEFENSE SOCIALE* (1954). Routledge & Kegan Paul, London.
[42] Becker, G. S. (1968), p. 169 –217.
[43] Reid, S. T. (2011). *Crime and Criminology*. Oxford University Press, Oxford.

condition[44]. David Fogel, following the inquiry regarding a prison riot in 1975 in Illinois, exposed the injustice in criminal sanctions, such as sentencing disparity, sentencing elasticity, and/or parole disparity, which contributed to the failure of the entire prison institution to achieve its goals especially in its effort to reform the inmate, as the solution. David Fogel proposed a model that emphasised treating all alike, which can be translated as the need for a sentencing formulation that applies to all equally.

This idea then influenced Sue Titus Reid, who coined the just deserts theory, requiring the proportionality of criminal sanction in regard to the weight or the seriousness of a crime[45]. This view is also supported by previous theories or concepts in retributive sentencing purpose theories such as by Nigel Walker[46], and a way back to Cesare Bonesa Marquis Beccaria, commonly called Cesare Beccaria[47]. The theory, in essence, requires a proper proportion between crimes and punishments. These theories attempt to limit judicial discretion and abolish parole boards, and in more modern theories, accept the commensurable measurement of sentencing and crime weight, or crime seriousness[48]. Although each of these retributive theories failed to produce a formulation to describe the precise end or a specific formulation to achieve the mentioned ruling above, up to the most modern retributive sentencing purpose, theories seem to support the need for a sentencing formulation that is first pointed out by Bentham's rehabilitative sentencing purpose.

To ensure justice for perpetrators, treating inmates humanely is crucial. According to John Rawls' theory of justice, there is a need to limit the degree of acceptable treatment to benefit the least advantaged and to elevate their living conditions to a certain standard. This principle and the principle of just savings[49], emphasise the importance of humane treatment for everyone in the system. Humane treatment is integral to a just system, as a safeguard to ensure that the minimum treatment standards are met[50]. Humane treatment in Rawls's Justice theory is the minimum standard guaranteed by the system, which any rational person will choose as the maximin rule.

The definition of humane varies. In the Oxford dictionary, it has two (2) meanings, namely: 1) "having or showing compassion and benevolence; for example: inflicting the minimum pain; 2) … a branch of learning … intended to have a civilising effect on people". Cambridge Dictionary defines it as a behaviour that is "kind, especially towards people or animals that are suffering". According to Merriam-Webster, it is a behaviour marked by compassion, sympathy, or consideration, or "characterised by or tending to broad humanistic culture".

For this reason, it is argued that the humane treatment is trying to mimic how God or the universe, according to some beliefs, threatens each person with the Karmic law or reap and sow law. God is almighty, just and merciful, but to make a human, God gives choices to choose for the people. God, gives every person chances to raise oneself as long as the person is alive – to learn, improve, and be good. God also enables the good deeds to pay for the bad deeds. As such, punishment can be amended with enough good deeds. Lastly, God justly punishes any person to ensure balance ruled out by the Karmic law. Thus, some formulations are argued regarding humane formulation: 1) the treatment that is aimed to maximise the dignity and civilised treatment of any person; 2) any ill-treatment or punishment, any revocation of personal right must be clearly defined and rationally explained – or in other words to minimise the pain inflicted as a reciprocal action of the perpetrator's prior act; 3) preserving the right to choose and the right to improve.

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[44] Rutkowski, C.P, See (n).
[45] ***Loc. Cit.***
[46] Walker, N. (1969). *Sentencing in a Rational Society*. Allen Lane, Indiana.
[47] Bonesa, C. (1819). *An Essay on Crime and Punishments*, a translation from French: *Die Deliti E Delle Pene*. Milan. 1764. Translated by Nicklin, P.H. and Walker, A.
[48] Sloan III, J. & Miller, J. (1990). Just Deserts, The Severity Of Punishment And Judicial Sentencing Decisions. *Criminal Justice Policy Review*. 4. 19-38.
[49] Rawls, J., *A Theory of Justice*, See (n)**.** p. 266.
[50] See (n), p. 133.

Hence, it is argued that a humane criminal deterrence is founded by a humane criminal sanction that should not rely on pain, misery, suffering, or damnation but on the effort to restore justice. This means that the criminal sanction aims to fulfil the reward and punishment rules set in the criminal justice codes, where each deprivation of human rights and its degree or weight must be thoroughly explained.

The humane criminal deterrence, therefore, emphasised the need for rational formulation in determining each type of sanction and the formulation of weight for each unit length. As such, the sentencing formulation that can determine why a specific length of imprisonment is imposed is the most important to answer. It also needs to explain rationally the reduction of the sanction in the parole system or others to ensure fairness: the parole system must be set in a rational formulation that works for everyone in the system. There should also be minimum standards for threatening inmates, ensuring that implementing criminal sanctions inflicts the least suffering. This means avoiding conditions that cause fear, starvation, extreme humidity, dryness, or other imminent dangers, except in capital punishment cases. Inmates should not be exposed to extreme weather conditions, whether too cold or too hot.

The minimum standard of treatment for inmates requires assigning an economic value to each specific length of imprisonment. This means that the mandated work for inmates should be equivalent to legal labour, and their earnings should be used to reduce their prison sentence. This approach shifts the focus from inflicting suffering and misery to fostering a productive mindset, encouraging inmates to be as productive as possible to compensate for the damages caused by their crimes.

Humane criminal deterrence and sanctions should provide options for perpetrators to choose how to restore the damages or losses they have caused. This is why restorative justice approaches, such as penal mediation or alternative dispute resolution, can yield positive results. Similarly, offering alternatives to traditional criminal sanctions, such as fines instead of imprisonment or combining different sanctions, can produce favourable outcomes.

The availability of options for criminal sanctions has existed since ancient times in early criminal justice systems, as mentioned by Eva Achjani Zulfa[51]. The option to avoid imprisonment by paying the fine sentence and the obligation to pay the victim's compensation existed before the theory of two-way sentencing, dual-track sentencing or Zweisprachigkeit (in German) which was first coined by Carl Stooss in 1893 for the Swiss Penal Code[52].

In Indonesia, the dual-track sentencing theory was expanded and incorporated into a new framework known as the Integrative Sentencing Purpose Theory by Muladi[53], integrating retributive justice, rehabilitative justice, and restorative justice into one cohesive system based on Indonesia's national foundational norm, Pancasila. M. Sholehuddin refers to this enhanced dual-track sentencing system as the 'double track' sentencing system[54].

This formulation is also based on the double-track sentencing system. The maxims or rules described based on double track sentencing system require: a) the original imprisonment weight to be equal to its actional alternative sanction a.k.a. the fine sentence; b) the criminal sentencing weight to be equal to the crime's damages, and; c) the requirement in the implementation of the two-track or double track of sentencing type as a cumulation to be equal to the original criminal sanction weight - thus, in the implementation where the fine sentence is not fully paid. Furthermore, the addition between the fine sentence and imprisonment of the unpaid fine's economic value should be equal damages[55]. This ruling, however, does not explicitly include the sentencing weight of the victim's losses.

[51] Restorative Center, *Restorative Justice Di Indonesia (Peluang dan Tantangan Penerapannya)*, http://evacentre.blogspot.com/p/restorative-justice-di-indonesia.html?view=classic
[52] Fragoso, H. C. (1968), p. 37.
[53] Muladi. (1985), p. 49-51.
[54] Sholehuddin, M. (2007), p. 19.
[55] See (n) p. 239

This formulation also addresses the conflicting norms between the sentencing purpose theory and the criminal sanction definition as a punishment by putting into pain, suffering, misery, defamation or other bad conditions or pressures. In Criminology, being put into pain, suffering, misery, defamation, or other bad conditions or pressures is a criminogenic factor that drives a person to commit a crime in the first place. Willem Bonger supports this view with criminal etymology[56], Ferry with the environmental theory, Charles Goring[57], and Robert K. Merton with its strain theory. Thus, putting inmates in bad conditions mentioned above is in direct conflict with rehabilitative sentencing purpose theory since it hinders the perpetrator's moral education, or even ensures imprisonment as the school of future crime.

By readdressing the definition of criminal sanction with a rational and just definition and formulation, this formulation shifts the meaning of criminal sanction into a definition to restore the damages of the crime. This shift of meaning aligns with, Viktor E. Frankl's theory stating, "suffering ceases to be suffering at the moment it finds a meaning"[58]. This formulation gives a rational and measurable meaning to the criminal sanction's suffering and shifts toward a meaning to provide justice and its effort to restore the condition to that prior to the crime; thus, it is argued that this effort eliminates the conflicting norms between the new definition and its rehabilitative sentencing purpose theory.

3. The Humane Criminal Deterrence Formula and Its Benefits

Regarding theories of the humane criminal deterrence mentioned above, the following are the formulations for a humane criminal deterrence: a) the total economic value of criminal sanction should be equal to the sum of losses of the victim and the community losses as the weight of guilt. Thus, using the available type of criminal sanction in KUHP 2023, the economic value of criminal sentencing should be the sum of the victim's compensation obligation and its fine sentence; b) the criminal sanction must be provisioned in an alternative mode tread which makes the imprisonment; or the suffering base penal sanction, the least favorable while providing other criminal sanction options -especially the actional criminal sanctions such as fine sentence and victim's compensation - to replace it with equal value weight; c) the formulation of the imprisonment economic value as the alternative to the unpaid sum of criminal sanction should be equal to the sum of criminal sanction (the sum of victim's compensation and the fine sentence) reduced by the paid restitution (paid victim's compensation and/or fine sentence); d) The formulation essence to enforce crime does not pay to the perpetrator as in a form of alternation or combination of criminal sanction types, and its each economic value must be equal to the victim's compensation, which should be at the minimum representing the profit of the crime, added with the weight of guild represented by the value of fine sentence, and; e) The formulation must ensure that inmates receive equal treatment, with economic value per unit of time equivalent to that of legally working individuals in the worst conditions. This means that the length of imprisonment should be adjusted so that the economic value generated by inmates matches that of others working under the same harsh conditions in the specific place and time.

This formulation in achieving humane criminal deterrence also shows the characteristics of criminal deterrence or criminal sanction's application formulation: a) it must ensure a just system for both conflicting parties in CJS – namely the victim and society on one side and the perpetrator on the other; b) it must ensure the minimum pain inflicted based on a reciprocal approach which every punishment that inflicts taking any rights and how much or how long it is imposed must be rationally explained as an equally negative response to the damage the perpetrator has caused; c) Ensuring a clear and rational criminal sanction formulation is essential. This formulation should be explained as a restorative effort to address the damages caused by the crime rather than as a vague and irrational infliction of misery and suffering; d) sanction options equally valued should be provided: i) there are options to enforce the rule "crime does not pay to the perpetrator" without inflicting physical pain or misery; ii) options should always be open in any

[56] Bonger, W. (1916). *Criminality and Economic Conditions*. Little Brown and Company, Boston.
[57] Prakoso, A. (2013), p. 103-104.
[58] Frankl, V. E. (2006). *Man's Search for Meaning*. Beacon Press, ISBN 978-0807014264.

stages of criminal justice proceeding even in prison to reduce the imprisonment sentence with equal sanction or fulfillments of duty.

The humane part of this formulation emphasises: a) the just treatment to the perpetrator, b) options that should be given even in a prison environment to reduce imprisonment with reduction weight of equally valued criminal sanction's other type that substitutes it, and c) a humane and civilised treatment which minimises pain or suffering as a reciprocal response. Thus, every renunciation of the perpetrator's right must have a rational explanation and weight formulation. This combined formulation of criminal deterrence and humanised application offers numerous benefits compared to the existing criminal justice system (CJS): 1) It is the first to provide an applicable criminal deterrence formulation. 2) The deterrent formulation ensures justice for the victim, society, and the perpetrator. 3) It enables the education of the perpetrator through a simple rule of reward and punishment, ensuring that crime does not pay while maintaining humane and just treatment. 4) The formulation shifts the focus of criminal sanctions, especially imprisonment, from inflicting pain and misery to a meaningful and less dreadful punishment, resembling a forced work contract to compensate for the damages caused by the crime. 5) It ensures that imprisonment is used as a last resort (*ultimum remedium*) by providing options to partially or completely replace imprisonment with other equally valuable criminal sanctions. 6) The formulation promotes financial restitution to compensate for the damages caused by the crime[59]. which is more productive and cost-effective than the current CJS and; 7) It encourages the education of inmates to be more productive, enabling them to work and pay for the damages caused by the crime. By the end of their imprisonment, inmates will be better prepared to find employment, addressing one of the weaknesses of the current system, where inmates struggle to secure jobs after their release.

CONCLUSION

This proposed humane criminal deterrence formulation shows evidence that criminal deterrence can be formulated in mathematical equations and using economic variables to formulate a just and humane deterrent formulation. The formulation ensures that the punishment or criminal sanction weight must be greater than the crime's profit, as required by one of Bentham's sentencing rules. This formulation gives meaning, certainty, and economic reasonability for imprisonment. This humane criminal deterrence formulation proposes the following standards: a. imprisonment should be treated as forced labour equivalent to the economic value gained by a person working legally in the worst condition in that area and time – represented by an economic variable namely regional minimum wage, ensuring the priority for the perpetrator to choose imprisonment as a last resort, and; b. in terms of implementation of criminal sanctions, imprisonment must be done in a just and humane way, which should: 1) avoid the meaning less inflicting pain or misery; 2) shift toward a meaningful, just, and reciprocal sanction and formulation, and; 3) provide options to avoid or reduce imprisonment in equally valued benefits or good deeds.

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