Analysis of the Decision-Making Process of Judges in Setting the Sentence

Marcos Antonio Santos Machado[a]; Hélio Luiz Fonseca Moreira[b]; Amaurí Gouveia Júnior[c]; Janari da Silva Pedroso[d]

[a] Master in psychology. Nucleus of theory and research of behavior, Federal University of Pará, Belém, Brazil.
[b] PhD in Social Sciences, full professor. Institute of juridical science, Federal University of Pará, Belém, Brazil.
[c] PhD in psychology, full professor, psychologist. Nucleus of theory and research of behavior, Federal University of Pará, Belém, Brazil.
[d] PhD in psychology, full professor, psychologist. Graduate Program in Psychology, Federal University of Pará, Belém, Brazil.
*Corresponding author.

Abstract

The study investigated the decision of judges, referring to the dosimetry of the base-penalty, applied to crimes of robbery and theft. A total of 1063 sentences were used, handed down in 12 criminal courts in Brazil, between 2019 and 2020. Legal factors were parameterized and subjected to statistical analysis. The results indicate the use of automated systems in the decisions made by judges, with bias influence, affecting the legality and constitutionality of sentences.

Key words: Decision-making; Criminal law; Dosimetry of the penalties; Biases

INTRODUCTION

Understanding the information contained in the process is not enough to understand the decision-making of judges, as there will be limitations and foundations found in criminal rules. These norms typify models of abstract conduct, which stabilize generalized behavioral expectations, binding all recipients in order to regulate life in society and protect identifiable legal assets and socially relevant values (Machado Júnior, & Costa, 2019; Roxin, 2008). When someone performs the action described in the criminal law, the criminal investigation begins, which will enable the State to exercise the power to punish (Moreira and Pessoa, 2017). During the process that will be initiated, the rights of the defense and obedience to the criminal process must be guaranteed, which will result in a judicial sentence, which may condemn or acquit.

The sentences condemning crimes must contain, in addition to the conviction, the quantification of the penalty applied to the condemned person. Within the Brazilian normative system, the quantification of the penalty is deduced from the criminal legislation, which the judge must pronounce to define the quantum of the penalty, through the technique of calculating the penalty. It is important to consider that, in the Brazilian Constitution, there is an express provision that the penalties must be individualized (*Constituição da República Federativa do Brasil de 1988*, 1988), within the minimum and maximum values, according to the legal criteria (Bitencourt, 2020). Such individualization should encompass three distinct phases to be applied in sequence, as imposed by article 68 of the Brazilian Penal Code (BPC) (*Decreto Lei nº 2.848*, 1940). The first is the establishment of the base-penalty, a moment destined to verify the punishable facts and use the circumstances contained in article 59 of the BPC, which will result in the *quantum* of the base-penalty, in the two following phases, the penalty fixed in the first phase will be carried out, with its increase or decrease in accordance with the general and specific criteria provided for in the BPC (Bitencourt, 2020). The first phase is the most important for setting the penalty, as the other calculations are made with the values of the base-penalty.

Article 59 of the BPC determines that the judge must consider the following factors for calculating the

penalty: Culpability, criminal record, defendant's social behavior, a defendant's personality, motive of the crime, circumstances of the crime, consequences of crime and the behavior of the victim. Despite the existence of the constitutional duty to substantiate the judicial decision, the legislation does not prescribe how these parameters should be understood or defined, it is up to the court decision to explain how these criteria influenced a certain amount of the base-penalty (Cunha, 2019). The judicial discretion without defined limits existing in the decision of the penalty is not exclusive to Brazil, being celebrated in many countries as a humanitarian act with the aim of individualizing the sentence and promoting due legal process. In the 1970s, a discussion began that the dosimetry of the penalty would be susceptible to errors and biases of the judges, with dissent in understanding about the norms and great variations in the penalties (Kahneman, Sibony, Sunstein, 2021).

Despite being a legal instrument, the judicial decision, when applying a certain penalty, is written of several decision-making by the judge who uses the law only as a justification for the choice previously made. The other phases are strict and mandatory, which removes from the magistrate the high degree of choice in setting the sentence in the following phases (Cristino & Castro, 2007). Thus, the focus of the present study will be on the first moment of the individualization of the sentence, the establishment of the base-penalty, in the sentences issued by the twelve criminal courts of the city of Belém, of the Court of Justice of the State of Pará, Brazil.

Despite the various types of existing crimes, the study focused on robbery and robbery crimes. This choice was made since they are two common crimes of broad social knowledge and that protect the same legal asset, the patrimony. The difference for the crime of robbery is in the core of the criminal type, given the presence in this crime of a serious threat, or violence against the person, or the reduction of the possibility of resistance of the victim. Another difference between the crimes is the minimum and maximum penalty ranges. In the case of simple theft, the convict may receive a sentence of between 2 and 4 years, while in the case of simple robbery the interval is from 4 to 10 years. Thus, the judge will define the condemnation within the range provided for the crime based on the factors of article 59 of the BPC (*Decreto Lei nº 2.848*, 1940) considered unfavorable or neutral, based on the information of the case.

METHOD

A total of 6173 convictions were collected for crimes of robbery and theft, handed down by the twelve criminal courts of the city of Belém, between 2019 and 2020. Duplicate processes were removed, with files published on a different date from the research clipping and those whose object was not the investigation of crimes of theft or robbery, resulting in 886 documents. However, dosimetries were included with more than one convicted defendant and who condemned the same defendant for more than one crime in the same document, totaling 1063 sentences that were analyzed, as shown in Figure 1. The analysis was performed using SPSS, with frequency of variables. For this, the penalties were converted into days, the judges' choices were parameterized, and then the increase in the base penalty was compared in relation to the minimum penalty provided for by law. A binary logistic regression was also performed, with the objective of investigating to what extent the increase in the base-penalty could be foreseen.
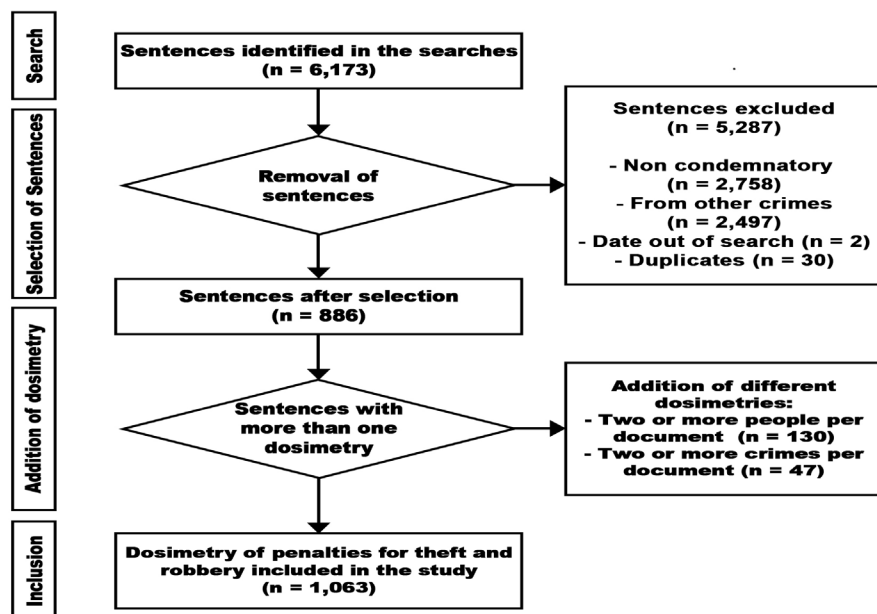

Figure 1
Sentence selection procedure

RESULTS

The sentences collected show that 92.5% of those sentenced for the crime of theft are men, against 96.3% for the crime of robbery, with gender being irrelevant for determining the base-penalty, given the p>0.05 in the chi-square test. From the data collected, 48.2% of the sentences for the crime of theft fixed the base-penalty at the legal minimum, and most of the sentences that increased the base-penalty, raised it between 25% and 50%. This occurred in view of the concentration of the increase in theft penalty being stipulated in 6 months, totaling 39 of the 132 cases (29.5%) of increase in the base-penalty, since the minimum penalty for this crime is 1 year. In Table 1, it is possible to verify that to increase the sentence between 25% and 50%, the judge understood that a negative factor was enough in 47 of the 59 occurrences. Another fact that should be highlighted, is that in 19 of the total theft convictions, there was an increase in the base-penalty without any negative factor to the detriment of the Defendant.

Table 1
Distribution of negative factors in relation to the increase of the base-penalty

| Crime | n | Ratio of increase in base penalty | Amount of negative legal factors | | | | | | | | Total |
			0	1	2	3	4	5	6	7	(%)
Theft	255	Total	133	80	19	14	8	0	1	0	100,0%
	123	Not increased	114	7	1	1	0	0	0	0	48,2%
	132	Increased	19	73	18	13	8	0	1	0	51,8%
	24	Up 25%	4	18	2	0	0	0	0	0	9,4%
	59	Up 50%	7	47	3	1	1	0	0	0	23,1%
	10	Up 75%	0	6	4	0	0	0	0	0	3,9%
	19	Up 100%	6	0	6	2	4	0	1	0	7,5%
	20	Over 100%	2	2	3	10	3	0	0	0	7,8%
Robbery	808	Total	360	225	103	46	42	28	2	0	100,0%
	373	Not increased	339	13	4	9	4	4	0	0	46,2%
	435	Increased	21	212	99	37	38	24	2	2	53,8%
	299	Up 25%	16	189	37	18	23	13	1	2	37,0%
	103	Up 50%	4	21	55	10	8	5	0	0	12,7%
	27	Up 75%	1	2	6	5	6	6	1	0	3,3%
	5	Up 100%	0	0	1	3	1	0	0	0	0,6%
	1	Over 100%	0	0	0	1	0	0	0	0	0,1%

Table 2
Frequencies of increase in the base-penalty

| Unfavorable valuation | Frequency (n = 255) | Increased the base-penalty | | Frequency (n = 808) | Increased the base-penalty | |
| | | No | Yes | | No | Yes |
		Theft			Robbery	
Culpability	60	6,7%	93,3%	280	7,1%	92,9%
Criminal record	40	5,0%	95,0%	118	10,2%	89,8%
Social Behavior	11	0,0%	100,0%	24	8,3%	91,7%
Personality	4	0,0%	100,0%	6	0,0%	100,0%
Motive of the crime	19	10,5%	89,5%	109	16,5%	83,5%
Circumstances of the crime	44	9,1%	90,9%	232	7,8%	92,2%
Consequences of crime	20	0,0%	100,0%	128	10,2%	89,8%
Behavior of the victim	0	0,0%	0,0%	6	16,7%	83,3%

Table 3
Increase in the base-penalty and existence of negative factors per judge

Crime	Judge	n	Unfavorable factor		Base-penalty		Dif.
			Yes	No	Increased	Not increased	
Theft	2	46	32	14	31	15	-1
	3	9	5	4	5	4	0
	4	1	0	1	0	1	0
	5	2	1	1	0	2	-1
	6	15	4	11	5	10	1
	7	20	19	1	18	2	-1
	8	10	5	5	5	5	0
	10	17	3	14	6	11	3
	12	44	26	18	27	17	1
	13	12	6	6	9	3	3
	14	23	5	18	6	17	1
	15	2	0	2	0	2	0
	16	28	9	19	10	18	1
	17	23	5	18	7	16	2
	18	1	0	1	1	0	1
	20	2	2	0	2	0	0
	Total	255	122	133	132	123	
Robbery	1	3	3	0	3	0	0
	2	111	91	20	91	20	0
	3	26	20	6	20	6	0
	5	6	3	3	3	3	0
	6	39	7	32	6	33	-1
	7	110	107	3	87	23	-20
	8	62	28	34	33	29	5
	9	1	0	1	0	1	0
	10	45	24	21	25	20	1
	11	2	2	0	2	0	0
	12	98	63	35	62	36	-1
	13	29	19	10	24	5	5
	14	46	7	39	7	39	0
	15	86	28	58	28	58	0
	16	77	23	54	18	59	-5
	17	55	17	38	17	38	0
	18	2	2	0	1	1	-1
	19	1	1	0	1	0	0
	20	3	0	3	3	0	3
	21	5	2	3	3	2	1
	22	1	1	0	1	0	0
	Total	808	448	360	435	373	

Table 4
Binary logistic regression analysis (Forward – LR)

	Crime	Wald	df	Sig. Lower	Odd ratio Upper	95% C.I. for EXP(B)	
Theft	Culpability	39,219	1	<0,0001	38,410	12,262	120,317
	Criminal record	24,183	1	<0,0001	46,747	10,098	216,396
	Circumstances of the crime	26,167	1	<0,0001	21,985	6,728	71,841
	Constant	50,452	1	<0,0001	0,185		
Robbery	Culpability	153,814	1	<0,0001	54,072	28,781	101,587
	Criminal record	63,987	1	<0,0001	19,121	9,279	39,401
	Social Behavior	6,520	1	<0,001	9,611	1,692	54,586
	Motive of the crime	25,999	1	<0,0001	0,078	0,029	0,208
	Circumstances of the crime	108,970	1	<0,0001	28,296	15,106	53,003
	Consequences of crime	8,103	1	0,004	3,558	1,485	8,526
	Behavior of the victim	5,646	1	0,017	0,048	0,004	0,588
	Constant	156,099	1	<0,0001	0,154		

Note. C.I. Confidence Interval

While in the crime of robbery, 46.2% of convictions set the base-penalty at the legal minimum, with most increases concentrated in up to 25% and higher incidences of increases fixed in 1 year, which totaled 110 of the 435 cases of increase in base-penalty. However, it should be noted that the crime of robbery has a minimum penalty of 4 years, in most cases, excerpts in those qualified by the result, when serious injury or death occurs, where the minimum penalty varies between 7 to 20 years. To increase the penalty by up to 25%, it was enough to have a negative factor in 189 convictions, however, even if there were up to 7 negative criteria, 94 cases only increased the base penalty by up to 25%. There were 21 base-penalty set above the legal minimum without any unfavorable legal criteria for the defendant. In decisions, sometimes, judges valued certain criteria in a neutral way, but it did not mean that they fixed the penalty at the legal minimum, in the face of other factors that could be considered negative by the judge. According to Table 2, for the crime of theft, the social conduct, personality of the agent and consequences of the crime, when negative, indicate a high percentage of condemnation. As for the crime of theft, the Culpability has the highest number of negative valued, and of these, 92.9% increased the base penalty. Tables 2 and 3 demonstrate a problem in the analyzed dosimetries, in view of the existence of sentences that negatively value a certain criterion in at least one of the cases, but this criterion is not used to increase the base-penalty at the time of decision making, as well as fixing the sentence above the legal minimum, even without any negative valuation. It is observed in Table 3 that of the 21 judges who condemned the crime of theft, only nine were consistent between the choices of negative values of the criteria of article 59 of the BPC when setting the base penalty.

A binary logistic regression was performed using the Forward-LR, with the objective of investigating to what extent the increase in the base-penalty, could be adequately predicted by the factors established by BPC. The chosen method allowed an exploratory analysis, given the lack of any previous study on the factors (Field, 2017). Logistic regression tested six steps for theft crime, the last being statistically significant [$\chi^2 2=125,506$, p<0.001; Nagelkerke $R^2=0.675$], capable of adequately predicting 89.4% of the cases (with 93.5% of the cases correctly classified for when the base-penalty does not increase and 85.6% for when the base-penalty is increased). In the crime of robbery, nine steps were tested, with the last one having statistical significance [$\chi^2=381,180$, p<0.001; Nagelkerke $R^2=0.682$], with correct prediction in 90.7% of cases (92.0% correctly classified when the base-penalty does not increase and 89.7% of cases when the base-penalty is increased). Residues were treated, with no return of normalized residue above 2, nor returned values above 1 for Cook's distance (Field, 2017; Pituch Stevens, 2016) not requiring case exclusion.

DISCUSSION

Two Moments, Two Decisions, Two Measures

There are two decision-making moments for setting the base-penalty. The first moment is the collection of information in the process and the consequent assessment of the legal factors provided for in BPC, being considered unfavorable or neutral. The data made available in the legal proceedings are those that should be used as sources of information for this decision making. Such information may be of sufficient quantity and quality for a decision, or may not satisfy such requirements (Vargas & Lauwereyns, 2021; Spiegel, 2014). When the information is insufficient, the judge must consider it neutral, given the legal

principle that when in doubt, it must be decided in favor of the defendant (Bitencourt, 2020). The second moment occurs when the judge sets the base-penalty, interpreting how he evaluated the legal factors and sentencing the penalty that will serve as a parameter for the other phases of the calculation. However, the differences between what was decided in the valuation of legal factors and the non-correct use of this valuation for the computation of the base-penalty demonstrates the use of automated thinking and prone to heuristics (Kahneman, Sibony, and Sunstein, 2021; Vargas & Lauwereyns, 2021; Kahneman, 2013; Dieterich, Endrass, & Kathmann, 2016; Levine, 2019). The results indicate that, in the second moment, the judge sticks to the information that is first interpreted, using them as vectors to interpret the other information (Asch, 1946), or fails to process the positions taken in the first step in order to meet a desirability and confirmation bias by predicting the outcome that can best satisfy the degree of utility aggregated to each decision when weighing costs and benefits (Kahneman, Sibony, and Sunstein, 2021; Helene, A. F., & Xavier, 2003; Tversky, 1972; Tversky, 1972; Tversky & Kahneman, 1981; Spiegel, 2014; Wang, Feng, & Bornstein, 2021).

First Impression Formation Bias

The eight factors established by the BPC, which should guide the establishment of the base-penalty, have a certain order in the legal text, which is obeyed by investigated judges. The order does not seem to be relevant to the setting of the base-penalty, but the adjectives related to the first factors can influence the interpretation of the others, similar to the halo effect, which occurs when the evaluation of a single attribute affects the global evaluation of the others (Gabrieli, Lim, & Esposito, 2021). During the sentence reasoning process, the organization of factors provides a process of creating the impression of the defendant by the judge. This impression is formed quickly, even when there is little evidence, making the interpretation of other information to confirm the initial impressions formulated (Asch, 1946).

Faced with the formation of an impression, the agent's culpability and antecedents gain importance as they are the first factors to be considered by the judge, tying pejorative or neutral concepts to the defendant. Table 2 shows that culpability was the most chosen as unfavorable among all the factors, in both crimes. While in the linear regression, culpability was the most significant factor to orientate the increase in the base-penalty in the crime of robbery, while for theft it was the second most relevant factor, after the criminal record of the defendant. When analyzing information and building an impression about a fact or about someone, the first data interpreted influence the way he will treat the others, in order to maintain coherence, the judge is affected by a confirmation bias (Kahneman, Sibony, Sunstein, 2021). This bias is reinforced by legal beliefs and the general impression obtained based on

the first factors, influencing the evaluation of the other factors, resulting in a false representation of reality (Nisbett & Wilson, 1977; Kahneman, 2013; Schwenk, 1984).

Similarities and differences of sentences in theft and robbery crimes

The analyzed crimes protect the same legal asset, the patrimony, however, the differences are significant, mainly regarding the way these crimes are interpreted by the judges. In both crimes, the order of legal factors that serve as a guide for judges to calculate the base-penalty affects the impression created by the judge. The agent's personality is another factor that stands out, and when considered unfavorable by the judge, it always leads to an increase in the base-penalty. The judges, in the crime of robbery, concentrated the increase of the base-penalty in 1 year above the legal minimum (25.29%), while in the crime of theft the concentration occurred with an increase of 6 months (29.55%). The minimum penalties for the crimes of robbery and simple theft are 4 and 2 years, respectively. Thus, it appears that judges tend to increase the base penalty by 25% of the minimum penalty provided.

The results of Table 1 revealed that judges do not increase the base-penalty progressively, the more negative factors the convict has, the greater the increase. It is enough to have one or two unfavorable factors to concentrate an increase of up to 50% of the minimum penalty provided for the crime, and to have 4 of the 8 factors considered unfavorable to the defendant for convictions that raise more than 100% the minimum legal penalty. The error of increasing the base-penalty when there are no unfavorable factors for the convict occurs for both crimes, in theft in 19 of the 133 sentences without unfavorable factors and in theft in 21 of the 360, since, when all factors are neutral to the defendant the base-penalty must be set at the legal minimum (Bitencourt, 2020). Consequently, the judges also erred in the opposite way, they did not increase the base-penalty when they consider one or more factors to be unfavorable to the defendant. The factors serve as modulators, and each unfavorable factor should increase the base-penalty by one-eighth of the value between the legal minimum and maximum (Bitencourt, 2020).

However, for the crime of theft, Culpability when unfavorable increases the chance of the person receiving a base-penalty higher than the legal minimum. This difference is due to the nature of the base sentence decision, which is not a purely predictive judgment, but an evaluative judgment, as well as judges in wine competitions, given the great inconsistency existing between the judges (Kahneman, Sibony, and Sunstein, 2021; Bodington, 2020), equating the verdict with the seriousness of the crime. This type of judgment will depend on the values and preferences of the person

making it and the moment may influence, however, they will not seek unrestricted disagreement, and will tend to approach their peers in assessing the seriousness of crimes. This assessment is influenced by histories, environments, memories, individual and collective beliefs and social concepts anchored in the judges' subjective (Kahneman, Sibony, and Sunstein, 2021). In other words, for the judges analyzed, Culpability in the crime of robbery is more serious and deserves a more negative assessment than for the crime of theft.

Inverse Calculation and the Preferred Solution

The results of the frequency of sentences for the crime of robbery indicate that there is a mode in the definitive penalty handed down among the judges studied, especially Judge 7, with a preference for sentencing in 5 years and 4 months. The number of errors by Judge 7 corroborates the existence of a preferred definitive sentence, as he chooses the base-penalty disregarding how he valued the legal factors that guide the setting of the sentence. The errors made by Judge 7 indicate that the information used to assess legal factors can be reinterpreted to meet the judge's wishes. (Tversky, 1972; Schwenk, 1984; Laroche & Nioche, 2015). It also, indicates that judges seek to repeat their previous experiences in setting the sentence through the repetition of sentences (Hirshleifer, et al, 2019; Greene, et al, 2020).

The results also suggest the existence of prejudgment, when System 1 determines a conclusion quickly and intuitively, failing to analyze the information and using System 2 only to elaborate arguments that defend the idea or preconceived penalty value (Kahneman, 2013), using the law as a justification for the previous choice, demanding more functions to justify the choice than the decision making itself. Although the existing information can be interpreted according to the influence of memories, personal experiences and previous judgments, they can also be affected by misperceptions of legal concepts, directing behavior and the way information is interpreted (Greene, et al, 2020; Bronstein, et al, 2019), corroborating the finding that judicial decisions are not essentially predictive but evaluative decisions (Kahneman, Sibony, and Sunstein, 2021).

Decision Fatigue and Error, Two Sides of a Coin

The analysis of Table 3 makes it possible to verify whether the number of decisions published in the period by a given judge is affected by mass activity and whether the quality of decisions declines with the increase in the number of sentences handed down. The average number of decisions per judge for the crime of theft was 14.07 sentences in a two-year period. Only three of the sixteen judges who decided the crime of theft and handed down up to 14 sentences had a difference between not evaluating any legal factor and not increasing the base sentence, these being judges 5, 13 and 18. Of these, judges 5 and 18 only pronounced sentences as substitute judges, that is,

they were responsible for their courts and the criminal courts analyzed. Sometimes the substitute responds for courts in different municipalities or for more than two courts. Regarding judges who sentenced above average, all decided, in at least one sentence, differently from the one defended in the assessment of legal factors. As for the crime of robbery, the average for the 2-year period was 38.47 sentences. The judges who sentenced up to 38 sentences in the period and who had disagreement as to the number of sentences without an unfavorable assessment of legal factors and did not increase the base-penalty were judges 13, 18, 20 and 21. Of these, judges 18, 20 and 21 only acted as substitute judges. Regarding the ten judges who decided more than 38 sentences, only 4 did not decide differently from the assessments performed, judges 2, 14, 15 and 17, all the others had at least one sentence where the setting of the base-penalty did not reflect the valuation of legal factors.

It should be noted the volume of sentences handed down by judge 7. This judge was the one who most set the base-penalty differently from what he defended in his speech on the valuation of factors, there may be the possibility of fatigue and the use of a less analytical system for decision making, being more susceptible to biases and errors (Kahneman, Sibony, and Sunstein, 2021; Stewart, et al, 2012; Danziger, Levav & Avnaim-Pesso, 2011; Hirshleifer, et al, 2019). Having more decisions in the process of fixation the base-penalty will not necessarily indicate that the sentences will have better quality, on the contrary, the degree of uncertainty and the amount of decision-making necessary to determinate the sentence allow for an exhaustion of the decision-maker and demand more time from the judges, that accumulate work, creating a big snowball. Judicial decisions should present consistency in decision-making within the sentence to protect the individualization of the sentence, a fundamental principle of the democratic state of law, not only of Brazil, but also those that support the individualization of punishment as a principle inherent to the human being (Kahneman, Sibony, and Sunstein, 2021; Greene, et al, 2020).

CONCLUSION

It has been shown that the penalty tends not to be individualized and, in some cases, it is fixed to "dovetail" a generic penalty to the defendant, which violates an expectation of fixing a homogeneous and individualized penalty. The fixing of the penalty becomes a lottery, depending on the judge who will arbitrate, including whether he is the holder of the court, if he is tired or if he has prejudices. Instead of protecting the individualization of the sentence, the legal omissions, and the various possibilities of interpretation by the judges generate an arbitrary and unconstitutional cruelty, which must be addressed through the reform of legal provisions, as well

as including more objective and clear concepts in the text of the law, reducing the degree of uncertainty and the number of decisions to be taken.

REFERENCES

Machado Júnior, E. A. de S., & Costa, D. C. A. da. (2019). A racionalidade da Dogmática-Penal e sua função como estrutura normativa garantidora de liberdades: Uma abordagem sistêmica do Direito Penal. *Sequência: Estudos Jurídicos e Políticos*, *41*(82), 221-241. https://doi.org/10.5007/2177-7055.2019v41n82p221

Roxin, C. (2008). *Estudos de direito penal* (L. Greco, Trad.; 2° ed). Renovar.

Moreira, H. L. F., & Pessoa, F. C. da C. (2017). As regiões de valoração ontojurídica e os mapas conceituais como recursos de ensino e aprendizagem no direito penal. *Novos Estudos Jurídicos*, *22*(1), 99. https://doi.org/10.14210/nej.v22n1.p99-129

Constituição da República Federativa do Brasil de 1988 (1988) (testimony of Brazil). http://www.planalto.gov.br/ccivil_03/constituicao/constituicao.htm

Bitencourt, C. R. (2020). *Tratado de direito penal: Parte geral* (26° ed, Vol. 1). Saraiva Jur.

Decreto Lei n° 2.848 (1940) (testimony of Brazil). http://www.planalto.gov.br/ccivil_03/decreto-lei/del2848compilado.htm

Cunha, R. S. (2019). *Manual de direito penal: Parte geral* (7° ed). Juspodivm.

Kahneman, D., Sibony, O., & Sunstein, C. R. (2021). *Noise: A flaw in human judgment*. William Collins.

Cristino, F. D. R., & Castro, J. V. D. (2007). Análise da personalidade do agente como circunstância judicial de individualização da pena no direito penal contemporâneo. *Revista Eletrônica do Curso de Direito da UFSM*, *2*(3). https://doi.org/10.5902/198136946805

Field, A. (2017). *Discovering statistics using IBM SPSS statistics* (5° ed). SAGE Publications.

Pituch, K. A., & Stevens, J. (2016). *Applied multivariate statistics for the social sciences: Analyses with SAS and IBM's SPSS* (6° ed). Routledge/Taylor & Francis Group.

D'Aviz, M. A. S., & Medina, J. M. G. (2022). O dever de fundamentação analítica no Processo Civil e as pontes com a teoria da argumentação jurídica. *Research, Society and Development*, *11*(1), e4011124385. https://doi.org/10.33448/rsd-v11i1.24385

Lousada, M., & Valentim, M. L. P. (2011). Modelos de tomada de decisão e sua relação com a informação orgânica. *Perspectivas em Ciência da Informação*, *16*(1), 147-164. https://doi.org/10.1590/S1413-99362011000100009

Spiegel, T. (2014). An Overview of Cognition Roles in Decision-Making. Em J. Wang, *Encyclopedia of Business Analytics and Optimization* (p. 74-84). IGI Global. https://doi.org/10.4018/978-1-4666-5202-6

Wang, S., Feng, S. F., & Bornstein, A. M. (2021). Mixing memory and desire: How memory reactivation supports deliberative decision making. *WIREs Cognitive Science*. https://doi.org/10.1002/wcs.1581

Hirshleifer, D., Levi, Y., Lourie, B., & Teoh, S. H. (2019). Decision fatigue and heuristic analyst forecasts. *Journal of Financial Economics*, *133*(1), 83-98. https://doi.org/10.1016/j.jfineco.2019.01.005

Tversky, A., & Kahneman, D. (1981). The framing of decisions and the psychology of choice. *Science*, *211*(4481), 453-458. https://doi.org/10.1126/science.7455683

Vargas, D. V., & Lauwereyns, J. (2021). Setting the space for deliberation in decision-making. *Cognitive Neurodynamics*, *15*(5), 743-755. https://doi.org/10.1007/s11571-021-09681-2

Dieterich, R., Endrass, T., & Kathmann, N. (2016). Uncertainty is associated with increased selective attention and sustained stimulus processing. *Cognitive, Affective, & Behavioral Neuroscience*, *16*(3), 447-456. https://doi.org/10.3758/s13415-016-0405-8

Kahneman, D. (2013). *Thinking, fast and slow* (1° ed). Farrar, Straus and Giroux.

Levine, D. S. (2019). One or two minds? Neural network modeling of decision making by the unified self. *Neural Networks*, *120*, 74-85. https://doi.org/10.1016/j.neunet.2019.08.008

Asch, S. E. (1946). Forming impressions of personality. *The Journal of Abnormal and Social Psychology*, *41*(3), 258-290. https://doi.org/10.1037/h0055756

Helene, A. F., & Xavier, G. F. (2003). A construção da atenção a partir da memória. *Revista Brasileira de Psiquiatria*, *25*(2), 12-20. https://doi.org/10.1590/S1516-44462003000600004

Tversky, A. (1972). Elimination by aspects: A theory of choice. *Psychological Review*, *79*(4), 281-299. https://doi.org/10.1037/h0032955

Tversky, A. (1972). Choice by elimination. *Journal of Mathematical Psychology*, *9*(4), 341-367. https://doi.org/10.1016/0022-2496(72)90011-9

Gabrieli, G., Lim, Y. Y., & Esposito, G. (2021). Influences of social distancing and attachment styles on the strength of the halo effect. *PLOS ONE*, *16*(8), e0256364. https://doi.org/10.1371/journal.pone.0256364

Nisbett, R. E., & Wilson, T. D. (1977). The halo effect: Evidence for unconscious alteration of judgments. *Journal of Personality and Social Psychology*, *35*(4), 250-256. https://doi.org/10.1037/0022-3514.35.4.250

Schwenk, C. R. (1984). Cognitive simplification processes in strategic decision-making. *Strategic Management Journal*, *5*(2), 111-128. https://doi.org/10.1002/smj.4250050203

Bodington, J. (2020). Rate the raters: A note on wine judge consistency. *Journal of Wine Economics*, *15*(4), 363-369. https://doi.org/10.1017/jwe.2020.30

Laroche, H., & Nioche, J.-P. (2015). L'approche cognitive de la stratégie d'entreprise. *Revue Française de Gestion*, *41*(253), 97-120. https://doi.org/10.3166/RFG.160.81-108

Greene, T., Shmueli, G., Fell, J., Lin, C.-F., Shope, M. L., & Liu, H.-W. (2020). *The hidden inconsistencies introduced by predictive algorithms in judicial decision making*. https://doi.org/10.48550/ARXIV.2012.00289

Bronstein, M. V., Pennycook, G., Bear, A., Rand, D. G., & Cannon, T. D. (2019). Belief in fake news is associated with delusionality, dogmatism, religious fundamentalism, and reduced analytic thinking. *Journal of Applied Research in Memory and Cognition*, *8*(1), 108-117. https://doi.org/10.1016/j.jarmac.2018.09.005

Danziger, S., Levav, J., & Avnaim-Pesso, L. (2011). Extraneous factors in judicial decisions. *Proceedings of the National Academy of Sciences*, *108*(17), 6889-6892. https://doi.org/10.1073/pnas.1018033108

Stewart, A. F., Ferriero, D. M., Josephson, S. A., Lowenstein, D. H., Messing, R. O., Oksenberg, J. R., Johnston, S. C., & Hauser, S. L. (2012). Fighting decision fatigue. *Annals of Neurology*, *71*(1), A5-A15. https://doi.org/10.1002/ana.23531

END NOTES

Limitations

The limitations of the study involve the use of documents, which makes it impossible to verify the judges' environmental and personal factors, even using a large database. Future studies may offer more subsidies for the formulation of a situational flowchart, software or the use of artificial intelligence that can help decision making, as well as making it possible to verify other criteria that influence judicial decisions through interviews, environmental verification, and experiments with judges.