

Which Self Should the Law Target? An Analysis of Behavioral Biases in Criminal-Punishment Regimes

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Introduction

People are not as rational as Classical Law and Economics would suggest. People suffer from certain biases that affect their decision-making, but the design of the law—criminal law in particular—often overlooks these biases and treats people as if they were perfectly rational.

In particular, these rational biases affect the way people expect to experience an event,¹ actually experience the event,² and remember experiencing the event.³ In other words, our “forecasting selves” are different from our “experiencing selves,” which are different from our “remembering selves.” We tend to overestimate the duration and intensity of the effects that an event will have on our well-being when we anticipate the event happening.⁴ But in reality, when we experience such events, we quickly respond to both negative and positive life events and return to an equilibrium of well-being.⁵ And when we reflect back on the event, we place excessive weight on the most intense part of the experience and the end of the experience, so that our memory is an average of the peak and end.⁶

Legislators, in designing the criminal law, must choose which “self” the law is designed to target, and once that choice is made, legislators must consider the implications of that choice. They must account for the rational biases that lead to the different selves when they design legal systems. The criminal-justice system in particular requires special attention to the rational biases depending on the chosen goal of the penal system.

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1. Jeremy A. Blumenthal, *Law and the Emotions: The Problems of Affective Forecasting*, 80 IND. L.J. 155, 166–67 (2005); John Bronsteen et al., *Happiness and Punishment*, 76 U. CHI. L. REV. 1037, 1044 (2009).

2. See Bronsteen et al., *supra* note 1, at 1038.

3. Daniel Kahneman & Richard H. Thaler, *Anomalies: Utility Maximization and Experienced Utility*, 20 J. ECON. PERSP., Winter 2006, at 221, 227.

4. Blumenthal, *supra* note 1, at 166–67; Bronsteen et al., *supra* note 1, at 1038.

5. Bronsteen et al., *supra* note 1, at 1046–47.

6. Rick Swedloff, *The Trouble with Happiness*, 86 TEMP. L. REV. 763, 789 (2014).

There are several different and legitimate possibilities for the goal of the criminal-justice system, and this Note illuminates the optimal punishment regime for each of three different goals. Without attempting to answer which goal of punishment is normatively better or at which the law should be aimed, this Note merely shows how the rational biases that legislators must consider differ depending on what that goal is. It adds to the literature of hedonic responses to punishment by articulating the need to first decide the purpose of punishment and then elucidating the distinct biases that arise based on that purpose. It also provides guidance based on that decision.⁷

The Note proceeds as follows: Part I examines the goal of deterrence—setting punishments such that potential criminals choose not to engage in criminal activity because when they anticipate what the punishment would feel like (discounted by the likelihood of their apprehension and conviction⁸), the forecasted pain of the punishment outweighs the forecasted benefit of committing the crime. Part II identifies changes in the current penal system that would support a retributivist theory of punishment because of the hedonic adaptation that occurs during a prison sentence. Part III illuminates the aspects of the penal regime that might be detrimental to a goal of reducing recidivism because the remembered experience is excessively weighted towards the end of the experience and the peak. It also makes suggestions about the optimal regime for reducing recidivism. And Part IV analyzes the solutions provided for each of the regimes to highlight those solutions that would support more than one of the discussed theories of punishment.

I. The Forecasting Self: Goal of Deterrence

One purpose of criminal law and punishment that lawmakers and scholars have championed is deterrence of crime.⁹ This Part explains the effect of rational biases on deterrence and provides the optimal regime for deterring potential crimes. The idea behind the deterrence theory of criminal law is that punishments should be sufficiently large to prevent future occurrences of an offense.¹⁰ The punishment adds a cost to committing a crime such that it becomes an unattractive option to a potential criminal.¹¹ Punishments are designed to induce an individual to weigh the benefits he would receive from committing a crime with the costs of committing it and

7. For the sake of simplicity, this Note assumes that all punishments imposed are prison sentences that may vary in length. Monetary fines are another common form of criminal punishment. This Note largely ignores monetary fines as an option for criminal punishment, but for a discussion on hedonic adaptation to monetary fines, the curious reader may see generally Bronsteen et al., *supra* note 1.

8. See *infra* note 13 explaining this Note's meaning of "probability of detection."

9. John M. Darley, *On the Unlikely Prospect of Reducing Crime Rates by Increasing the Severity of Prison Sentences*, 13 J.L. & POL'Y 189, 189 (2005).

10. Kevin M. Carlsmith et al., *Why Do We Punish? Deterrence and Just Deserts as Motives for Punishments*, 83 J. PERSONALITY & SOC. PSYCHOL. 284, 285 (2002).

11. *Id.*

conclude that, because the costs outweigh the benefits, he will not commit it.¹² In a regime that perfectly deterred criminal conduct, punishments would never be imposed because the cost–benefit analysis would never result in the benefits of committing the crime outweighing the costs of committing it. Deterrence theory assumes that the potential criminal engages in this weighing of alternatives and, to some extent, that the individual is rational. Behavioral Law and Economics sheds additional light on the actual factors that a potential criminal considers and the extent to which he considers them.

In this Part, I will examine what an optimal punishment regime would consist of under the assumption that deterrence is the chief end of the criminal-justice system. This Part acknowledges the complexities that Behavioral Law and Economics adds and fashions a punishment regime bearing them in mind.

A. *Cost–Benefit Analysis*

Classical Law and Economics would say that a potential criminal multiplies the probability of getting caught by the disutility of the punishment that would be incurred, and compares that to the utility of committing an offense before deciding whether to engage in that activity.¹³ This is the beginning framework for criminal deterrence, but the equation becomes more complex when it accounts for the actual information (or lack thereof) that potential criminals either possess or access when deciding whether they will commit the act, as well as the biases that Behavioral Law and Economics illuminates.

The first problem with the classical cost–benefit analysis is that potential criminals do not consider all of the relevant information.¹⁴ Most criminals “either perceive no risk of apprehension or are incognizant of the likely punishments for their crimes.”¹⁵ So, in general, a sentence for a particular crime does not act as a strong deterrent (though some crimes, like embezzlement or other white-collar crimes, seem to imply a much more deliberative thought process).¹⁶ In fact, in some instances, an increase in the punishment can cause an increase in the commission of a particular crime.¹⁷

12. *Id.*

13. While this Note touches on the difficulty and necessity of forcing potential criminals to consider the “probability of detection,” it does not address the complicated process of determining what that probability of detection is. This Note generally uses the phrase (or a similar one) to refer to the probability of having the sanction imposed, rather than articulating the probability of detection, arrest, indictment, etc., for each stage until conviction.

14. Darley, *supra* note 9, at 196.

15. *Id.*

16. *Id.* at 198.

17. David A. Anderson, *The Deterrence Hypothesis and Picking Pockets at the Pickpocket’s Hanging*, 4 AM. L. & ECON. REV. 295, 307 (2002) (noting that those who engage in criminal activity for thrill-seeking and rebellion could be incentivized to commit crimes when the punishment is raised in the same way that people who enjoy driving fast like faster cars). For the most part, I will

In one study, 76% of criminals lacked one of the two necessary pieces of information for making a rational response to punishments (i.e., the probability of being caught or the sanction if it is imposed).¹⁸ Moreover, “72% of violent offenders and 66% of all offenders reported that no [severity of] punishment . . . would have prevented them from committing their crimes.”¹⁹

But the perceived certainty of punishment seems to be a much stronger deterrent than the perceived severity of the punishment.²⁰ Deterrence serves as an effective crime-control strategy when “the probabilities of detection and apprehension [are] greater in the mind of the potential offender at the time he [feels] the impulse to commit the offense.”²¹ Most criminals “do not perceive a positive probability of being caught, regardless of their awareness of” the punishment that would be imposed if they were caught.²² If the possibility of being caught is made vivid, lessening the severity of the punishment for that offense should not increase the rate of that crime.²³ In one study, individuals with an arrest record had a lower perceived probability of being arrested than those without an arrest record, presumably because those with an arrest record had committed—and escaped—more crimes than those without an arrest record.²⁴ An increase in the actual rate of arresting and convicting criminal actors can result in an increase in potential criminals’ perceived certainties because they have more acquaintances who were arrested, convicted, or both.²⁵ People’s perceived probability of detection is correlated with knowing peers who have had experiences with arrest or with punishment avoidance.²⁶ Even with all the relevant information, potential criminals’ behavioral biases would distort their decisions.

assume that potential criminals do not engage in criminal activity *because* it is criminal, except to flag it here. Policymakers need to consider the fact that some thrill-seeking criminals might be undeterrable because it is the illegality and possibility of detection itself that leads them to engage in the crime. Undeterrable criminals frustrate the criminal-justice agenda because the sanctions will be imposed on them. See STEVEN SHAVELL, FOUNDATIONS OF ECONOMIC ANALYSIS OF LAW 492–514 (2004) for a discussion on the social costs of undeterrable individuals.

18. Anderson, *supra* note 17, at 304.

19. *Id.* at 305.

20. Robert Apel, *Sanctions, Perceptions, and Crime: Implications for Criminal Deterrence*, 29 J. QUANTITATIVE CRIMINOLOGY 67, 73 (2013).

21. Darley, *supra* note 9, at 207.

22. Anderson, *supra* note 17, at 306.

23. Darley, *supra* note 9, at 203–04. Said differently, reminding a potential criminal of the possibility of being caught will increase the perceived probability in his mind, so a less severe prison sentence will yield the same expected utility (or disutility).

24. Apel, *supra* note 20, at 80.

25. *Id.* at 81.

26. *Id.*

B. Overoptimism Biases

People suffer from overoptimism biases that cause them to unrealistically characterize and predict their situations. The two types of overoptimism biases addressed here are: the above-average effect and the self-serving bias.

1. *Above-Average Effect.*—People are overly optimistic about their future and tend to believe that, whatever the probability of a negative event is for the general public, the probability is lower for them.²⁷ This above-average effect, as it is often called, is magnified when a person believes that she has some control over whether the negative event occurs.²⁸

For example, “[s]pouses [can] accurately predict the probability that the average person will get divorced,” but believe their own probability of divorce is lower.²⁹ More than half of all people report that they have a 0% chance of ever divorcing, but most people predict that 50% of couples divorce.³⁰ A similar phenomenon has been found in the employment context.³¹ That is, most people think that they are above average, but not all of them can be.³² The above-average effect may translate into a potential criminal who knows the true probability of detection and conviction for a crime perceiving his probability as being lower. He may overestimate his own abilities to avoid detection and require either debiasing of his above-average effect or a higher actual probability of detection to raise his perceived probability to a level that ensures optimal deterrence.

The above-average effect is difficult to correct because, when presented with information about the true probabilities for average people, people will continue to assume that they are above average.³³ Debiasing strategies are therefore likely to be unsuccessful, although communicating a probability of detection for above-average individuals may help debias people who consider themselves above average.³⁴ This message, however, is a difficult one to communicate in the context of the criminal-justice system.

27. See generally Neil D. Weinstein, *Unrealistic Optimism About Future Life Events*, 39 J. PERSONALITY & SOC. PSYCHOL. 806 (1980) (concluding after conducting a study that people believe negative events are less likely to happen to them than others and positive events are more likely to happen to them than others).

28. Sean Hannon Williams, *Sticky Expectations: Responses to Persistent Over-Optimism in Marriage, Employment Contracts, and Credit Card Use*, 84 NOTRE DAME L. REV. 733, 737 (2009).

29. *Id.*

30. *Id.* at 755.

31. *Id.*

32. Colin Camerer & Dan Lovallo, *Overconfidence and Excess Entry: An Experimental Approach*, AM. ECON. REV., Mar. 1999, at 306.

33. Williams, *supra* note 28, at 748.

34. See *id.* at 749 (“Disclosures can be partially successful at increasing risk awareness when people are given the likelihood of experiencing the event if they are a person with above-average protective traits When given such a ‘conditional base rate,’ many people concluded that they

2. *Self-Serving Bias*.—A related bias is known as the self-serving bias, by which people interpret ambiguous information in their favor.³⁵ In one study, subjects were randomly assigned the role of plaintiff or defendant, and each subject received identical information about a Texas tort case.³⁶ Subjects were asked to write down the award amount between \$0 and \$100,000 that they thought a neutral judge would give to the plaintiff.³⁷ They were also asked to write down what a fair out-of-court settlement amount would be before the subjects negotiated with each other to reach a settlement agreement.³⁸ At the end of the experiment, subjects were paid based on the settlement agreement with an exchange rate of \$1 for 10,000 settlement dollars.³⁹ If they could not settle, the defendant had to pay the plaintiff based on the amount the judge actually awarded in the real case (\$30,560), and each side had “legal fees” of \$250,000 for not settling.⁴⁰ The experiment showed a clear self-serving bias.⁴¹ Subjects assigned to the role of plaintiff averaged predictions of judge’s awards that were \$14,527 higher than subjects assigned the role of defendant and fair-settlement amounts \$17,709 higher.⁴² Subjects read identical material but reached different conclusions about neutral outcomes and fair outcomes based on the role they had been assigned.⁴³ They interpreted the ambiguous information in their favor, supporting the side they had randomly been assigned.⁴⁴

The experimenters then attempted to debias the subjects using several different treatments. In the first debiasing treatment, subjects were given a paragraph to read regarding the self-serving bias after they were assigned their roles and had read the case but before they made predictions.⁴⁵ Alerting the subjects to the self-serving bias had no effect on their expectations of the judge’s award or on their likelihood of settling, but it did affect their expectation of the other party’s estimate of the judge’s award.⁴⁶ Believing the other party would succumb to the self-serving bias, subjects believed their

were similar to the above-average person and adopted this estimate of their risk without altering it.”).

35. See *id.* at 750 (discussing examples of individuals interpreting information favorably for themselves).

36. Linda Babcock & George Loewenstein, *Explaining Bargaining Impasse: The Role of Self-Serving Biases*, J. ECON. PERSP., Winter 1997, at 109, 112.

37. *Id.*

38. *Id.*

39. *Id.*

40. *Id.*

41. *Id.* at 113.

42. *Id.*

43. *Id.* at 112–13.

44. See *id.* (discussing the self-serving bias observed in the experiment).

45. *Id.* at 115.

46. *Id.*

own likelihood of overcoming the self-serving bias to be above average.⁴⁷ Subjects who read about the self-serving bias and listed the weaknesses of their own case did, however, produce less-biased results.⁴⁸ This shows that there is potential to reduce the self-serving bias in people before they make a biased decision.

Overoptimism biases are important to consider when determining the optimal punishment for given crimes because potential criminals will assume that their probability of detection and conviction is lower than the average person's. They will interpret ambiguous information in their favor, magnifying their overoptimism. If lawmakers set punishments with the assumption that potential criminals will consider the actual probability of detection and conviction when calculating the cost of committing an act, the result will be underdeterrence. Potential criminals will discount the actual probability (or the perceived probability if they do not know the actual probability) of detection and conviction because of their overoptimism biases.

C. Present Preference and Hyperbolic Discounting

Another feature of decision-making that criminal law should account for is people's tendency to hyperbolically discount future rewards and punishments and some people's strong preference for the present. Many individuals are present-biased. They overweigh the present relative to the future.⁴⁹ This can lead to impulsive decisions that fail to consider future consequences. Present-preference people consistently choose the present over the future. And such individuals are difficult to deter. There is some evidence, however, that simple reminders can give people a long-term view.⁵⁰ For example, experiments using reminders to increase savings have caused subjects to overcome their preference for the present and increase their income saving.⁵¹

47. *Id.*

48. *Id.* at 115–16.

49. Keith Marzilli Ericson, *On the Interaction of Memory and Procrastination: Implications for Reminders, Deadlines, and Empirical Estimation*, 15 J. EUR. ECON. ASS'N 692, 693 (2017).

50. Gilly Koritzky & Eldad Yechiam, *On the Value of Nonremovable Reminders for Behavior Modification: An Application to Nail-Biting (Onychophagia)*, 35 BEHAV. MODIFICATION 511, 525 (2011) (concluding through an experiment that nonremovable reminders can reduce the present-biased impulse of nail biting).

51. Girum Abebe et al., *Changing Saving and Investment Behavior: The Impact of Financial Literacy Training and Reminders on Micro-Businesses*, 27 J. AFR. ECONOMIES 587, 589 (2018); Dean Karlan et al., *Getting to the Top of Mind: How Reminders Increase Saving*, 62 MGMT. SCI. 3393, 3400 (2016). *Contra* Oliver Himmler et al., *Soft Commitments, Reminders, and Academic Performance*, 11 AM. ECON. J. APPLIED ECON. 114, 129 (2019) (discussing how enrollment in a reminder program did produce a statistically significant increase in performance).

Hyperbolic discounting refers to a person's extreme impatience that declines over time.⁵² People display sharply declining discount rates—they show a strong aversion for near punishment, but this aversion declines over time.⁵³ People's present desires for the future conflict with their future desires for the future.⁵⁴ What they are willing to impose on their future selves is inconsistent with what their future selves will want when their future selves become their present selves. In one experiment, subjects were asked how much money it would take in the future (in three months, one year, and three years) for them to give up \$15 today.⁵⁵ The median responses were \$30, \$60, and \$100, respectively, showing that the implicit discount rates drop sharply as the length of time increases.⁵⁶ People experience “declining sensitivity as utils are moved further away.”⁵⁷ Hyperbolic discounting is sometimes thought of as a lack of self-control.⁵⁸ People engage in an activity in one moment of time that is inconsistent with their preferences both before and after engaging in that activity.⁵⁹ For example, before going into a restaurant, a person might decide he will not order dessert, but when the time for dessert comes, he orders it after all. After eating the dessert, he regrets having done it.⁶⁰ The saliency of the given activity changes over time.⁶¹

The steep discounting that individuals engage in tends to suggest that a person contemplating committing a crime will be biased towards his present preferences. She will not be future-minded and will discount the future aversion of the punishment she would receive if caught and convicted for his illegal action. There is some evidence, however, that simple reminders can give people a long-term view.⁶² For a criminal-justice regime to be effective, it must account for the steep and hyperbolic discounting of potential criminals who will discount the pain of the future punishment in comparison to the utility of the present action.

52. Karen E. Francis, Note, *Rollover*, *Rollover: A Behavioral Law and Economics Analysis of the Payday-Loan Industry*, 88 TEXAS L. REV. 611, 630 (2010).

53. Christine Jolls et al., *A Behavioral Approach to Law and Economics*, 50 STAN. L. REV. 1471, 1539 (1998).

54. *Id.*

55. Richard Thaler, *Some Empirical Evidence on Dynamic Inconsistency*, 8 ECON. LETTERS 201, 203 (1981).

56. *Id.* at 204.

57. Xavier Gabaix & David Laibson, *Myopia and Discounting 2* (Nat'l Bureau of Econ. Research, Working Paper No. 23254, 2017).

58. Dan Ariely & Klaus Wertenbroch, *Procrastination, Deadlines, and Performance: Self-Control by Precommitment*, 13 PSYCHOL. SCI. 219, 219 (2002).

59. *Id.*

60. *Id.*

61. *Id.*

62. Koritzky & Yechiam, *supra* note 50, at 525.

D. *Affective Forecasting Bias*

People overestimate the pain that a prison sentence will cause them.⁶³ Most people are good at predicting the valence of their emotional reaction to an event and which specific emotions they will feel.⁶⁴ But they suffer from impact and duration biases, causing them to overestimate the intensity and duration of their hedonic experiences.⁶⁵ For both positive and negative events, people predict they will feel more strongly than they do, and they predict the feeling will last longer than it does.⁶⁶ This is due, in part, to people's oversimplifying their construal of what future events will look like.⁶⁷ People forget that about their hedonic adaptation to positive and negative events and do not factor their adaptation into their forecast.⁶⁸ People have a tendency to exaggerate the importance of any aspect of life when focusing attention on it—winning the lottery has significant immediate effects, but the significant effects wear off as the winner continues with day-to-day life.⁶⁹ Generally, when people construe the future, they focus at a higher level on the more abstract parts and forget the details.⁷⁰ Thus one's imagination of what it would be like to win the lottery or to become severely injured is extremified, when in reality, both the lottery winner and the severely injured person wake up every morning and brush their teeth. But people's forecasts of the future are anchored to their present context.⁷¹ For example, imagine a grocery shopper who is shopping for meals for the week on a day when he skipped lunch. She will likely buy more food than she needs (and more food than she would if she had not skipped lunch) because her forecast of dinners later in the week is distorted by her current hunger.⁷²

While it is true that a potential criminal will typically overestimate the amount of pain his fine or prison sentence will cause, he, along with policymakers, will often underestimate the collateral consequences of his

63. See Blumenthal, *supra* note 1, at 166–67. The same forecasting error that causes a potential criminal to overestimate the pain of the punishment may also cause him to overestimate the utility he would gain from committing the criminal act. Because losses loom larger than gains, see Daniel Kahneman et al., *Anomalies: The Endowment Effect, Loss Aversion, and Status Quo Bias*, 5 J. ECON. PERSP., Winter 1991, at 193, 199, this Note focuses on the overestimation of the pain of the punishment.

64. Blumenthal, *supra* note 1, at 166–67.

65. *Id.*; Bronsteen et al., *supra* note 1, at 1038. Part of the reason that people suffer from a forecasting bias is that they do not anticipate their adaptation to a particular event. See *infra* subpart II(A) and Bronsteen et al., *supra* note 1, at 1062.

66. Cass R. Sunstein, *Illusory Losses*, 37 J. LEG. STUD. S157, S157 (2008); Thomas S. Ulen, *Law and Subjective Well-Being*, 82 U. CHI. L. REV. 1753, 1765 (2015) (book review).

67. Blumenthal, *supra* note 1, at 167.

68. See *infra* subpart III(A) for a discussion on adaptation.

69. Kahneman & Thaler, *supra* note 3, at 230.

70. Nira Liberman & Yaacov Trope, *The Psychology of Transcending the Here and Now*, 322 SCI. 1201, 1204 (2008).

71. Kahneman & Thaler, *supra* note 3, at 223.

72. *Id.* at 222.

conviction.⁷³ The impact of a punishment does not end when a prisoner is released because a convicted felon feels long-term effects—legal, social, and economic—of his imprisonment.⁷⁴ The collateral consequences of unemployment, broken marriages, continuing health problems, and more, are often not factored into a potential criminal's analysis of the cost of carrying out the offense.⁷⁵ If potential criminals do not consider the collateral consequences, maybe it is better that policymakers do not consider them either. In a deterrence regime, the ignored collateral consequences are irrelevant unless policymakers depend on those consequences as an additional form of deterrence. Because people imagine the negative event of punishment to be more painful than it actually will be, imprisonment may enable deterrence at a lower cost.⁷⁶ A potential criminal will forecast the criminal sentence with his duration and impact biases, overestimating the intensity and duration of the pain and neglecting to account for his adaptation.⁷⁷

E. Optimal Regime

The empirical evidence on potential criminals' cost-benefit analyses and the various biases that people suffer from provide insight into what the optimal regime for deterrence should be. In the optimal regime, potential criminals would perceive a high probability of detection, as increasing the perceived risk is more salient than increasing the sanction.⁷⁸ Increasing the actual probability of detection can result in an increase in perceived certainties of potential criminals because they have more acquaintances who were arrested.⁷⁹ Increasing the perceived risk is also more important than increasing the sanction because, when people think of the sanction, they already imagine it to be more negative and more painful than it will actually be due to their forecasting bias.⁸⁰ When potential criminals think there is a risk of detection and punishment, they are less likely to act, but they often need to be reminded of the possibility of detection.⁸¹ The perceived risk could be increased by an increased enforcement of lower-level crimes and by making police more visible.⁸² Simply having police cars visible can decrease crime because it reminds the potential criminal actor of the possibility of

73. Bronsteen et al., *supra* note 1, at 1062.

74. *Id.*

75. *See id.* at 1063–64 (arguing that prisoners discount the future consequences of their crimes).

76. *Id.* at 1055.

77. *Id.* at 1058.

78. Darley, *supra* note 9, at 207.

79. Apel, *supra* note 20, at 81.

80. Bronsteen et al., *supra* note 1, at 1058–59.

81. Darley, *supra* note 9, at 203.

82. *Id.*

being caught,⁸³ but otherwise, most criminals do not perceive a positive probability of being caught, regardless of their awareness of the punishment if they were.⁸⁴ Such reminders could increase potential criminals' perceived probability and help them to overcome their present preferences to think more long-term.

Because many potential criminals will still interpret the perceived probability of detection subject to their above-average and self-serving biases, increasing police presence may be insufficient to adequately increase the perceived probability. An optimal regime will over-increase the perceived probability (by increasing the actual probability, the perceived probability, or both) to account for the discounting that overoptimism bias will create or will confront the bias more directly. Publicizing the idea that expert criminals are caught and downplaying the extent to which criminals go undetected may reduce the above-average effect's discounting of the probability of detection.⁸⁵

The forecasting errors which lead potential criminals to ignore the fact that they will adapt to prison life and overestimate the pain of the punishment may enable deterrence at a lower utilitarian cost.⁸⁶ They will compare prison to their current situation and focus on the significant immediate effects that a conviction would work into their lives, but they will not imagine adapting to prison life. An optimal regime can take advantage of this forecasting error by using prison sentence lengths that will provoke more expected disutility than actual disutility. Long sentences will seem much worse than shorter ones—and much worse than the actual experience—so legislators may achieve deterrence at a lower cost.⁸⁷

II. Experiencing Self: Goal of Retributivism

This Note does not argue in favor of a retributivist criminal-justice system.⁸⁸ This Part does, however, illuminate the optimal punishment regime if inflicting pain proportional to the baseness of one's criminal act was the sole goal of criminal punishments. The object of retribution is to restore the moral equilibrium that the offender's action has disturbed.⁸⁹ Crime X, which is twice as immoral as crime Y, deserves a punishment that is twice as painful as crime Y. And Classical Law and Economics would assume that a prison sentence that is twice as long is also twice as painful. Hedonic adaptation makes clear that a ten-year prison sentence is less than twice as painful as a

83. *Id.*

84. See Anderson, *supra* note 17, at 306.

85. See Williams, *supra* note 28, at 749.

86. Bronsteen et al., *supra* note 1, at 1055.

87. *Id.*

88. For such an argument, see Robert A. Pugsley, *Retributivism: A Just Basis for Criminal Sentences*, 7 HOFSTRA L. REV. 379 (1979).

89. *Id.* at 400.

five-year prison sentence, and lawmakers must consider hedonic adaptation of prisoners when making punishments with retributive goals.⁹⁰

A. *Hedonic Adaptation*

Due to hedonic adaptation, people do not experience pain in the way that they—or that policymakers—expect them to. Most policymakers assume that the pain of prison is linear and doubling a prison sentence doubles the pain.⁹¹ Hedonic adaptation makes it harder to impose the sanction level that is deserved by the criminal.⁹² Simply increasing the prison sentence or adjusting the size of a fine does not meaningfully adjust the unhappiness that is experienced by the criminal.⁹³ The early period of incarceration is particularly stressful, but with more time served inmates develop strategies of coping—hence, two years in prison are not twice as painful as one.⁹⁴ Most life events, positive or negative, have little lasting effect on well-being because an individual adapts to the change rather rapidly.⁹⁵

The well-being of people who have suffered disabilities provides insight into the psychological immune system that allows people to adapt to negative life changes. Courts award damages for physical injuries with the assumption that disability necessarily limits the ability to enjoy life.⁹⁶ But people with disabilities actually do not tend to lose much enjoyment after an initial transition period.⁹⁷ Hedonic immune systems detect and neutralize negative events through mechanisms such as distraction, rationalization, illusion, and others.⁹⁸ In an analysis of several studies, it was the degree of family involvement, work opportunities, mobility, and social integration rather than the individual's impairment that had the largest effect on quality of life.⁹⁹ Generally, disabilities do not sharply and inherently limit people's well-being.¹⁰⁰ In fact, many people with disabilities “would refuse, if offered, a risk-free surgery that would completely cure their disabilities, because they ‘fear that they would no longer be the same person.’”¹⁰¹ Again, people prove to be poor predictors of their happiness—or unhappiness—from an event, so

90. Bronsteen et al., *supra* note 1, at 1059.

91. *Id.*

92. *Id.* at 1039.

93. *See id.* (discussing the interplay between hedonic adaptation and the effects of punishments).

94. *See id.* at 1048 (referencing studies discussing the diminishing impacts of prison sentences over time).

95. *Id.* at 1040.

96. Samuel R. Bagenstos & Margo Schlanger, *Hedonic Damages, Hedonic Adaptation, and Disability*, 60 VAND. L. REV. 745, 760 (2007).

97. *Id.*

98. *Id.* at 762.

99. *Id.* at 766–67.

100. *Id.* at 767.

101. *Id.* at 769.

the relative happiness of those who have suffered a disability should be unsurprising.¹⁰²

Similarly, prison inmates' hedonic immune systems respond to their imprisonment to fight off the pain and restore an equilibrium of happiness.¹⁰³ Recently incarcerated individuals exhibit higher levels of anxiety, depression, and psychosomatic illnesses than longer serving inmates.¹⁰⁴ With more time served, inmates develop strategies for coping with prison life.¹⁰⁵ This means that:

[T]he convicted criminal's felt experience of punishment will likely diminish in severity over time: both the prisoner and the recipient of a fine will be happier one year after the punishment is imposed than one day after, even if the prisoner remains behind bars and irrespective of whether the fined criminal has recovered any of the lost funds.¹⁰⁶

Prisoners adapt to their situations, and longer prison sentences lead to more adaptation.

B. *Collateral Consequences*

While the pain of imprisonment is felt less harshly than expected because imprisonment lends itself to adaptation, the harm of spending any period of time in prison at all may be more harmful than expected because the collateral consequences associated with post-prison life are ignored and not as adaptable.¹⁰⁷ Former inmates have “a much higher likelihood . . . of reporting health problems associated with stress and communicable diseases.”¹⁰⁸ They have more chronic headaches, sleep issues, dizziness, and heart problems.¹⁰⁹ They have a harder time finding stable jobs, and they experience lower wages and slower wage growth.¹¹⁰ The severity of these problems are uncorrelated with sentence length,¹¹¹ and these consequences in particular have been found to be resistant to adaptation.¹¹² A retributivist theory of punishment should account for the expected negative collateral consequences of imprisonment.¹¹³

102. *See id.* at 770 (noting that evidence shows that people tend to poorly predict their own future happiness because they “overestimate the enduring impact that future events will have on [their] emotional reactions”).

103. Bronsteen et al., *supra* note 1, at 1046–47.

104. *Id.* at 1047.

105. *Id.*

106. *Id.* at 1058.

107. *Id.* at 1049.

108. *Id.* at 1050.

109. *Id.*

110. *Id.* at 1051.

111. *Id.* at 1050.

112. *Id.* at 1052.

113. John Bronsteen et al., *Retribution and the Experience of Punishment*, 98 CALIF. L. REV. 1463, 1482 (2010).

C. *Optimal Regime*

An optimal punishment regime following a retributivist theory of punishment is concerned with the proportionality of the punishment to the crime.¹¹⁴ Hedonic adaptation to punishment affects the ability of the penal system to impose proportional sentences.¹¹⁵ It challenges the linear assumption of the pain of imprisonment because it proves that inmates serving longer prison sentences are not necessarily less happy than those serving shorter prison sentences.¹¹⁶ And if the goal of the punishment regime is to punish more culpable criminals more harshly than less culpable ones, there is a flaw in the design of the system. In addition, the collateral consequences that former inmates suffer from are relatively equal across sentence length, showing that the collateral consequences are not easily tailored to be proportional to the specific crime that was committed.

Thus, in order for punishments to be truly proportional to the crimes, the optimal regime would hinder prisoners' adaptation to prison life. The punishment would be sufficiently changing and unpredictable, such that adaptation—and a return to one's equilibrium well-being—would not occur. This could include periodically moving prisoners between different prisons, changing the routine, or other ways that prevent adaptation to prison life. Increasing prison sentences does not increase the punishment felt by the prisoner in the way traditionally expected, so policymakers seeking to increase punishments for more harmful and heinous crimes should design punishments that seek to prevent adaptation. Obviously, policymakers are—and should be—limited by the Constitution to punishments that do not reach the level of “cruel and unusual.”¹¹⁷ Most of the literature today focuses on *why* hedonic adaptation should (or should not) be considered by policymakers, and little has been written in the way of *how* hedonic adaptation should affect the punishments that policymakers design.¹¹⁸ While

114. Bronsteen et al., *supra* note 1, at 1069 (2009) (“A cornerstone of retributivism is thus that the state may impose suffering only on those who deserve it (criminal offenders) and only in an amount that they deserve (proportional to the severity of their wrongdoing.)”); Pugsley, *supra* note 88, at 398–400 (“The principle of retribution ‘stems from a view that because man is responsible for his actions and for the behavior he chooses, he should receive punishment for his wrongdoing proportionate to that which he has inflicted upon society.’”); cf. Dan Markel & Chad Flanders, *Bentham on Stilts: The Bare Relevance of Subjectivity to Retributive Justice*, 98 CALIF. REV. 907, 911 (2010) (“[R]etributive punishment is not about matching pain for pain but rather serves as an attempt to communicate to the offender society’s condemnation by means of a deprivation of an objective good such as liberty . . .”).

115. Bronsteen et al., *supra* note 113, at 1465; Bronsteen et al., *supra* note 1, at 1038 (“Adjusting the . . . length of a prison sentence does not adjust, to the degree expected or in a linear fashion, the amount of unhappiness that is ultimately experienced by the offender.”).

116. Bronsteen et al., *supra* note 1, at 1058.

117. U.S. CONST. amend. VIII.

118. For a responsive discussion of the role of hedonic adaptation in retributive-justice theory and the debate over whether retributive justice should be concerned with the subjective experience of criminals, see generally Bronsteen et al., *supra* note 1; Bronsteen et al., *supra* note 113; Markel

more research should be conducted on specific ways to prevent adaptation to prison life, it is sufficient at this point to state that adaptation should be prevented to ensure that punishments actually are proportional to the crimes. By hindering hedonic adaptation, a longer sentence actually would constitute a harsher punishment, as policymakers intend.

Additionally, policymakers must consider the collateral consequences of any length of incarceration. Such consequences, which are resistant to adaptation, are not easily tailored to the crime they seek to punish.¹¹⁹ Policymakers could seek to mitigate the collateral consequences of imprisonment or could choose to reserve imprisonment for crimes that are harmful enough to warrant such consequences. Either way, the collateral consequences should be factored into the total punishment of a sentence so that the punishment is proportional to the severity and reprehensibility of the crime.¹²⁰

III. Remembering Self: Goal of Recidivism Reduction

This part explains the effect of rational biases on remembered experience and the relationship with recidivism. The criminal-justice system could also target remembered experience such that recidivism is reduced when a criminal reflects on his previous criminal punishment before committing a future crime. Policymakers must consider that a remembered punishment differs both from expected punishment and from experienced punishment. Rather than subtracting the negative parts of an experience from the positive to produce a net memory of the experience, people tend to put excessive weight on the end of an experience.¹²¹ Here's an example:

You go on a vacation to a lovely Caribbean island. The temperatures are delightful; the meals are sumptuous and delicious; the people whom you meet are kind and interesting; the sea is warm and inviting; and the shopping is exciting, inexpensive, and charming. You buy lots of presents for your family and friends. But on your way home, the airline loses the luggage containing your gifts. What is your memory of that trip? In theory, you ought to remember and count as positive each moment of each day on the island. Presumably these positive moments will add up considerably. Against those positive memories, you must then subtract the displeasure of losing all the gifts that you bought. The net pleasure will probably be strongly positive so that you will recall the trip as a happy one. However, Kahneman suggested that

& Flanders, *supra* note 114; Dan Markel et al., *Beyond Experience: Getting Retributive Justice Right*, 99 CALIF. L. REV. 605 (2011).

119. See Bronsteen et al., *supra* note 1, at 1052 (“The hedonic effects of imprisonment—chronic and deteriorating illness, unemployment, and the loss of family and social ties—are all significant, and all have been found to be particularly resistant to adaptation.”).

120. Bronsteen et al., *supra* note 113, at 1482.

121. Ulen, *supra* note 66, at 1765.

we tend to ignore how long an event lasts (“duration neglect”) and to instead put excessive weight on what happened at the end of the experience (“peak-end averaging”), so that the missing presents loom very large in your remembrance of the event. As a result, you might be inclined to remember the trip as just OK.¹²²

The end of an experience disproportionately affects the memory of the whole experience.

To prevent criminals who have already experienced punishment for a prior crime from committing a future crime, legislators must consider the rational biases that affect the remembered experience. People do not factor adaptation into their forecasts for future events; they do not learn.¹²³ The remembering self is different from the experiencing self, and the law can make one self worse off while making the other better off.¹²⁴ The remembering self is the one who makes decisions—even the future is thought of in terms of anticipated memories.¹²⁵ Legislators concerned with deterring recidivism must consider the implications of the criminal sentences on the remembering self and recidivism generally.

A. *Peak-End Rule*

People’s memory of an experience is subject to rational biases that distort the memory. For a perfectly rational actor, the length of an experience would not affect the memory of such experience. But in reality, extending a period of pain can improve its remembered utility if the peak period of pain is unchanged and the new end is less aversive than the original.¹²⁶ The peak-end rule suggests that the remembered experience is a simple average of the quality of the experience at its most extreme moment and at its end.¹²⁷ Because people put excessive weight on the end of an experience, the remembered experience can be manipulated by changing the end. The peak-end rule would suggest that a remembered experience of pain is excessively weighted toward the most intense (peak) moment and the most recent (end) moment of the experience.¹²⁸ A potential repeat offender will focus on the peak aversive experience (probably the first few days in prison) and the end of his punishment.¹²⁹

122. *Id.* at 1765–66.

123. Bronsteen et al., *supra* note 1, at 1061.

124. Daniel Kahneman, *The Riddle of Experience vs. Memory*, TED (Feb. 10, 2010), http://www.ted.com/talks/daniel_kahneman_the_riddle_of_experience_vs_memory [<https://perma.cc/G5YC-XJC2>].

125. *Id.*

126. Kahneman & Thaler, *supra* note 3, at 228.

127. *Id.* at 227.

128. Swedloff, *supra* note 6, at 789.

129. *Id.* at 798–99.

The peak–end rule combined with hedonic adaptation has dangerous implications for the effectiveness of the criminal-justice system at decreasing recidivism.¹³⁰ Hedonic adaptation ensures that the end of a prison sentence—especially a long prison sentence—is relatively mild. But the end of the experience is one of the most weighted points for the memory of the experience.¹³¹ Longer sentences may be remembered as less aversive than shorter ones, and the criminals for whom the law seeks to impose harsher punishments may come away from the experience with a less painful memory than if they had received a shorter sentence.¹³² Increased prison sentences, while they may have a positive effect on initial deterrence, could have a negative effect on recidivism because of peak–end rule and adaptation.¹³³

The manipulability of a remembered painful experience by exploiting the peak–end rule has been demonstrated in numerous experiments. For example, in one such experiment, participants underwent three trials in which their hand was immersed in painfully cold water until the experimenter told them to remove it.¹³⁴ In the first trial—the Short trial—the hand was immersed in 14-degree Celsius water for sixty seconds.¹³⁵ In the next trial—the Long trial—the hand was immersed in 14-degree Celsius water for sixty seconds, and over an additional thirty seconds, the temperature was gradually raised to 15-degrees Celsius.¹³⁶ The mean of reported pain was less in the Long trial. Participants could choose between the Long trial and the Short trial for their third trial.¹³⁷ Twenty-two of the thirty-two participants chose the Long trial, which exposed them to thirty seconds more of pain.¹³⁸ This experiment (and others like it) shows that the pain of the remembered experience may be manipulated by extending the duration of the experience and marginally decreasing the pain during that extension.

Aspects of the penal system other than longer sentence length may have additional counterproductive effects on remembered experience and recidivism. For example, releasing prisoners subject to parole supervision might, like the cold-water experiment, extend the duration of the painful experience while also making it less painfully remembered. It is at best unclear what effect imposing release on parole has on remembered utility and recidivism. If former prisoners consider their time on parole as part of the punishment and parole is less aversive to the former prisoner than prison—both seemingly reasonable assumptions—then parole itself improves the

130. Darley, *supra* note 9, at 202.

131. *Id.*

132. *Id.*

133. *Id.*

134. Kahneman & Thaler, *supra* note 3, at 228.

135. *Id.*

136. *Id.*

137. *Id.*

138. *Id.*

remembered utility of punishment and has an adverse effect on recidivism. With 80% of state prisoners released to parole supervision,¹³⁹ any effect of parole on the remembered utility of the sentence could have significant effects on recidivism.

B. *Optimal Regime*

The optimal regime for a penal system aimed at reducing recidivism should take account of the peak–end rule in manipulating sentences such that the average of the peak and the end is sufficient to deter potential re-offenders from committing crimes. Shorter sentences may be more effective at deterring potential re-offenders because adaptation has had less time to take effect.¹⁴⁰ By ensuring that the peak of the punishment and the end are sufficiently intense, policymakers do not need to be concerned if the punishment does not produce much disutility throughout the rest of the sentence.

The current penal regime, which includes parole and long sentences that allow for adaptation, is counterproductive to the goal of magnifying the peak and end to encourage deterrence of recidivism. By the end of the sentence, the worst part of a prisoner’s punishment has passed, and his memory of the punishment may be insufficient to deter him from committing a future crime.¹⁴¹ The optimal regime for reducing recidivism would likely not include releasing prisoners on parole because this would improve the remembered utility of the punishment experience.

On the other hand, policymakers often omit the collateral consequences of imprisonment from their analysis of a proper punishment. It is unclear without additional research whether a former inmate would include the collateral consequences in his perception of his punishment, and if so, how that would affect the peak and end of his punishment—whether it increases the disutility of the end of punishment, making the remembered punishment worse, or whether it is not perceived by the offender as a part of the punishment at all. It is sufficient at this juncture to argue that collateral consequences of imprisonment should be included in lawmakers’ analysis of the punishments they impose.¹⁴²

IV. Commonalities in Optimal Regimes

The solutions provided across the different regimes are not all mutually exclusive—there is some overlap between the solutions provided under different punishment theories. This Part explores those solutions that could

139. Timothy Hughes & Doris James Wilson, *Reentry Trends in the U.S.*, BUREAU OF JUST. STAT., <https://www.bjs.gov/content/reentry/reentry.cfm> [<https://perma.cc/52BW-TQSV>].

140. Darley, *supra* note 9, at 202; Swedloff, *supra* note 6, at 801.

141. *See* Darley, *supra* note 9, at 202; Swedloff, *supra* note 6, at 801.

142. Bronsteen et al., *supra* note 1, at 1062–68.

support more than one theory of punishment. If policymakers choose to maximize all of the goals of punishment, they could implement those solutions that have dual or triple purposes.

Reducing the length of prison sentences can support more than one theory of punishment. Shorter sentences reduce the amount of adaptation that takes place and make a punishment more proportional to the crime.¹⁴³ Shorter sentences also increase the remembered disutility of the experience precisely because they involve less adaptation.¹⁴⁴ While reducing the length of sentences promotes retributivism and recidivism reduction, it may also be compatible with deterrence. Because prison sentences are imagined worse than they are felt, deterrence may be achieved with shorter sentences.¹⁴⁵ Preventing adaptation more generally (by, for example, periodically moving prisoners around to different prisons) also supports the goals of retributivism and recidivism reduction insofar as it increases the pain of the peak or the end.

Eliminating parole as a feature of the criminal-justice system could benefit multiple punishment regimes.¹⁴⁶ Parole reduces the peak–end average to improve the remembered utility of the criminal punishment. Its elimination as a possibility would also likely increase deterrence if potential offenders considered that they would have no opportunity for release on parole. At worst, it has no effect on the retributivism goal, and at best it helps the goal of retributivism because it increases the pain of the punishment.

The recommendation that imprisonment be imposed as a punishment less often (because of the collateral consequences that are not easily tailored to the crime) positively affects only the retributivism regime. It probably negatively affects the goal of deterrence because potential offenders will know that imprisonment is not imposed for certain crimes, and they may be more likely to engage in them. The recommendation to increase the perceived probability of detection similarly positively affects only the deterrence regime, but it does nothing to diminish the effectiveness of the other regimes.¹⁴⁷

Based on the preceding analysis, legislators could implement a regime that sought to effectuate the purposes of multiple theories of criminal justice, rather than choosing between them.

143. Darley, *supra* note 9, at 202; Swedloff, *supra* note 6, at 801.

144. Darley, *supra* note 9, at 202.

145. Bronsteen et al., *supra* note 1, at 1058.

146. This proposition makes (I believe reasonable) assumptions about the treatment of parole by criminal offenders. Assuming that parole is factored into the offender's perception of his punishment and that the last day of parole supervision is less painful than the last day in prison, this proposition holds true.

147. This is true at least insofar as the perceived probability of detection bears no relationship to the actual probability of detection. If increasing the perceived probability of detection also increases the actual probability, then imposing sentences on more offenders does benefit the other two regimes as well.

Conclusion

This Note has shown that people are not as rational as Classical Law and Economics would suggest. They suffer from rational biases that affect their decision-making, and the criminal law needs to account for these biases. In order to have an effective criminal-justice system, policymakers must engage with the way people actually behave.

These rational biases affect the way people expect to experience an event,¹⁴⁸ actually experience the event,¹⁴⁹ and remember experiencing the event.¹⁵⁰ People overestimate the duration and intensity of the effects that an event will have on their well-being when they anticipate it happening.¹⁵¹ While they can accurately predict the direction of an emotion, they miscalculate how long it will last and how strong it will be.¹⁵² People have a psychological immune system that responds to changes in their well-being equilibrium.¹⁵³ And when people remember an experience, their memory is an average of the peak and end.¹⁵⁴

Lawmakers must choose which self the law is designed to target: the forecasting self, the experiencing self, or the remembering self. The punishments imposed will differ depending on which self the law targets. If the law is meant to target the forecasting self in order to deter potential criminals from committing crimes, it can take advantage of the fact that people will anticipate the punishment to feel worse than they will actually experience it.¹⁵⁵ It can achieve the same level of deterrence with shorter sentences because people will not anticipate their adaptation to prison life when they imagine it.¹⁵⁶ Increasing the perceived probability of detection through reminders will also help increase deterrence.¹⁵⁷ But lawmakers will need to account for and respond to the overoptimism biases that decrease the deterrence effect on potential criminals.

If, on the other hand, the purpose of the criminal law is to punish wrongdoers and inflict pain that is proportional to their crimes, then the current system is insufficient.¹⁵⁸ The long prison sentences that are currently imposed, while they may support deterrence, allow for inmates to adapt to prison life and return to an equilibrium of well-being that is often overlooked

148. Blumenthal, *supra* note 1, at 166–67; Bronsteen et al., *supra* note 1, at 1044.

149. *See* Bronsteen et al., *supra* note 1, at 1038.

150. Kahneman & Thaler, *supra* note 3, at 227.

151. Blumenthal, *supra* note 1, at 166–67; Bronsteen et al., *supra* note 1, at 1038.

152. Blumenthal, *supra* note 1, at 166–67; Bronsteen et al., *supra* note 1, at 1038.

153. Bronsteen et al., *supra* note 1, at 1046–47.

154. Swedloff, *supra* note 6, at 789.

155. *See supra* Part II.

156. Bronsteen et al., *supra* note 1, at 1058.

157. Darley, *supra* note 9, at 203.

158. *See supra* Part III.

by policymakers.¹⁵⁹ A punishment system that hinders adaptation will help achieve retribution.

And if the goal of the criminal law is to reduce crime by repeat offenders, then the current system again is insufficient.¹⁶⁰ The adaptation that impairs retribution similarly decreases the pain remembered from the punishment experience because the end of the punishment is relatively mild.¹⁶¹ To manipulate the memory of the punishment such that offenders are deterred from repeating their criminal activity, the peak and the end of the punishment should be maximized for the worst crimes. Shorter length sentences and the elimination of parole can help with this goal.¹⁶²

Lawmakers should consider what the goal of the criminal law is before determining the punishment regime. Once that decision is made, they can more effectively tailor the criminal sentences to that goal by keeping in mind the rational biases that will affect people's behavior.

159. Bronsteen et al., *supra* note 1, at 1062.

160. *See supra* Part IV.

161. Darley, *supra* note 9, at 202.

162. *See id.* (hypothesizing that alternative sentencing methods could promote deterrence more effectively than simply increasing sentencing terms).