

ESSAY

CRIME AND (WITH A LAG) PUNISHMENT: THE IMPLICATIONS OF DISCOUNTING FOR EQUITABLE SENTENCING

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ABSTRACT:

Because criminals discount the future, the deterrence and retributive value of a given criminal sanction steadily decreases as the lag between crime and punishment lengthens. Discounting thus implies that the same nominal sentence will have disparate discounted values when imposed after different lags. Since lags between crime and punishment are both ubiquitous and widely-varying, pre-conviction delays constitute an important (and hitherto overlooked) source of sentencing disparities. Because the mitigation of sentencing disparities is an important aim of criminal law, this essay proposes maintaining constant discounted sentencing terms by adjusting individual sanctions to account for the lag between crime and punishment. These adjustments may be large since the lag between crime and punishment is often lengthy and criminals may discount the future rapidly. Applying similar reasoning, the essay also proposes that convicted pretrial detainees should receive “interest” in addition to credit for time served since their sentences begin earlier and have greater discounted values.

I. INTRODUCTION

The wheels of justice turn both slowly and erratically. Punishments for crimes are often imposed after long and widely-varying lags. Since criminals, like all individuals, discount the future,¹ the lag between crime and punishment has

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1. Discounting the future is defined as “[p]lacing a lower value on future receipts than on the present receipt of an equal sum.” JOHN BLACK, A DICTIONARY OF ECONOMICS 124 (1997). Discounting is also often conflated with “time preference,” defined as “[t]he tendency to prefer goods and services now to the same goods and services at a future date.” *Id.* at 468. People who discount the future tend to “prefer” to experience items with negative utility (such as punishments) in the future as opposed to the present.

“The present discounted value” of a dollars in n years when the discount rate is i is:

$$\frac{a}{(1+i)^n}$$

Id. at 362. For discussions of time discounting by criminals, as well as discounting more generally, see Charles W. Dean, Robert Brame & Alex R. Piquero, *Criminal Propensities, Discrete Groups of Offenders, and Persistence in*

wide-ranging implications for the goal of equitable sentencing, one of the fundamental goals of criminal law.

Discounting implies that a punishment at some time in the future has a smaller deterrent and retributive effect than the same punishment in the present. Discounting applies most simply to criminal sanctions in the form of fines. Because of the time value of money, a fine imposed today costs more in discounted terms than the same fine imposed in one year's time. For example, if a criminal can borrow at a 10 percent interest rate, then a fine of \$10 today is the same severity as a fine of $(1 + .1) * \$10 = \11 in one year's time. Thus, a fine of \$10 in one year's time is less severe than a fine of \$10 today.

Although it is less obvious, a similar principle applies to incarceration and other types of commitments of time.² Indeed, the existence of a positive interest rate directly implies that discounting does not simply apply to money because money can be exchanged for goods, services, or other items of consumption. When someone borrows money (or chooses to reduce their savings) to purchase an item in the present, that person is showing a preference for consumption now rather than even more consumption in the future. For example, if the interest rate is 10 percent, then every purchase exchanging money for consumption made today yields 10 percent less overall consumption than placing the money in the bank and withdrawing it to purchase consumption next year.³ This behavior only makes sense if individuals prefer present utility to future utility, all other things equal. If people did not prefer present consumption to future consumption, then they would save the vast proportion of their money because they could enjoy more consumption (in absolute terms) by deferring consumption and enjoying a positive rate of return on their savings. Indeed, if people did not discount future utility, then so many people would save so much money that the interest rate should be driven to zero in real terms. Because we live in a world with positive interest rates, economists conclude that people must discount the future.⁴ A recent psychological

Crime, 34 CRIMINOLOGY 547 (1996); Yair Listokin, *Future Oriented Gang Members? Gang Finances and the Theory of Present Oriented Criminals*, 64 AM. J. ECON. & SOC. 1073 (2005); Daniel Nagin & Raymond Paternoster, *Personal Capital and Social Control: The Deterrence Implications of a Theory of Individual Differences in Criminal Offending*, 32 CRIMINOLOGY 581 (1994); James Q. Wilson & Allan Abrahamse, *Does Crime Pay?*, 9 JUST. Q. 359 (1992). Note that the results described in this essay apply whether discounting is hyperbolic or exponential. See Christine Jolls, Cass R. Sunstein & Richard Thaler, *A Behavioral Approach to Law and Economics*, 50 STAN. L. REV. 1471, 1539-40 (1998) (discussing hyperbolic discounting).

2. The importance of discounting for evaluating actions with monetary and non-monetary effects is strongly defended in John J. Donohue III, *Why We Should Discount the Views of Those Who Discount Discounting*, 108 YALE L.J. 1901 (1999).

3. This example assumes no inflation.

4. See, e.g., ANGUS DEATON, UNDERSTANDING CONSUMPTION 5 (1992) (reflecting the common understanding that the discount factor equals the interest rate ($r = \delta$)). If the discount factor is zero (implying no discounting of future consumption), then equation 1.9 of Professor Deaton's analysis implies that the interest rate must be zero unless individual tastes change drastically from year to year or aggregate income is considerably higher in year one than in year two. Since both these conditions are generally untrue, the conclusion must be that the average individual's discount factor and the interest rate are similar. Thus, a positive interest rate implies time discounting.

study confirms that people discount future “expenditures” of time relative to current time commitments.⁵

Just as people prefer utility today to utility tomorrow, so too they prefer to defer something unpleasant to the future rather than incurring it in the present. Indeed, many items of consumption, such as washing machines, dishwashers, and housecleaning services, reduce disutility rather than provide utility directly. The fact that anyone would purchase \$10 of housecleaning services in the present rather than saving the money to purchase \$11 of housekeeping in the future implies that individuals prefer to defer something unpleasant to the future rather than incurring it in the present.

These arguments suggest that incarceration, a form of disutility, is subject to discounting. This notion is well accepted in the economic analysis of crime. Indeed, one introductory law and economics textbook asserts that not only do criminals discount incarceration, but that they “discount punishments [including incarceration] for . . . futurity more highly than other people.”⁶

Because of discounting, two otherwise equivalent sentences imposed at differing lags after the crime will have differential severities. A criminal sentenced to five years of prison whose punishment begins soon after committing a crime receives a stiffer penalty than a criminal who committed the same crime but was sentenced to five years in prison after two year’s delay.⁷ Although the two criminals will spend the same (“nominal”) amount of time in prison, the first criminal was incarcerated earlier. This implies that the first criminal received the sanction with the greater present discounted (or “real”) disutility.⁸ Throughout the essay, the term “nominal” will be used to describe the value of a sanction without accounting for discounting, while the term “real” will refer to the discounted value of a sanction at the time the crime was committed.⁹

5. Gal Zauberman & John G. Lynch Jr., *Resource Slack and Propensity to Discount Delayed Investments of Time Versus Money*, 134 J. EXPERIMENTAL PSYCHOL.: GEN. 23 (2005).

6. ROBERT COOTER & THOMAS ULEN, *LAW AND ECONOMICS* 465 (3d ed. 2000). Indeed, some criminologists view the “impatience” of criminals as one of the primary causes of crime. See, e.g., Wilson & Abrahamse, *supra* note 1, at 372 (concluding that one reason inmates were prone to crime is because of the immediacy of the rewards). Other books and articles that assume that criminals discount future punishment (including incarceration) include RICHARD A. POSNER, *ECONOMIC ANALYSIS OF LAW* 563-64 (4th ed. 1992); JAMES Q. WILSON & RICHARD J. HERRNSTEIN, *CRIME AND HUMAN NATURE* 49-56 (1985); John J. DiIulio, Jr., *Help Wanted: Economists, Crime and Public Policy*, 10 J. ECON. PERSP. 3, 16-17 (1996); Yair Listokin, *Efficient Time Bars? A New Rationale for the Existence of Statutes of Limitations in Criminal Law*, 31 J. LEGAL STUD. 99 (2002); A. Mitchell Polinsky & Steven Shavell, *On the Disutility and Discounting of Imprisonment and the Theory of Deterrence*, 28 J. LEGAL STUD. 1 (1999).

7. Such disparities are common between criminals who are held in pretrial detention as opposed to those who are able to make bail, or even between similar (non-detained) criminals who are sentenced in fast-moving versus slow-moving jurisdictions. POSNER, *supra* note 6, at 563-64.

8. Like the definition for “presented discounted value,” BLACK, *supra* note 1, at 362, present discounted disutility is defined as the present value of disutility received in the future.

9. Note that this usage of the terms “nominal” and “real” differs from the conventional meanings of the two terms. “Nominal” and “real” typically denote non-inflation-adjusted and inflation-adjusted amounts, respectively.

Many theories of criminal punishment, including the retributive theory, consider equal justice under the law one of the fundamental aims of a just legal system.¹⁰ The Fourteenth Amendment to the United States Constitution has been interpreted to “require[] that in the administration of criminal justice no person be subjected to a greater or different punishment for an offense than that to which others of the same class are subjected.”¹¹ If these principles apply to real rather than nominal sanctions, then the sentencing disparities that result from the interaction between lags between crime and punishment and discounting are vexing. Indeed, one of the primary goals of the Federal Sentencing Guidelines is achieving “reasonable uniformity in sentencing by narrowing the wide disparity in sentences imposed for similar criminal offenses committed by similar offenders.”¹² And yet the very same sentencing guidelines include no mention of the lag between crime and punishment, allowing for disparate sentencing whenever similar criminals are punished after divergent lags.

The legal academy has implicitly noted that lags between crime and punishment may have negative consequences.¹³ As a result, the 1970s witnessed some emphasis on improving the speed of trials and sentencing, culminating in the passage of the Speedy Trial Act, which aimed to minimize the lags between crime and punishment.¹⁴ Judge Posner has noted that this statute was motivated by two seemingly conflicting goals.¹⁵ On the one hand, “delay in bringing a criminal defendant to trial is hard on the defendant by subjecting him to protracted uncertainty about his fate,” while on the other hand the delay was “hard on society by reducing the expected cost of punishment for anyone with a positive discount rate.”¹⁶ Posner further observed that these conflicting goals result in asymmetric treatment for disparate defendants. The delays were harmful for one class of defendant—those who were placed in pretrial detention—while pretrial delays

In this paper, by contrast, “nominal” and “real” will refer to non-discounting-adjusted and discounting-adjusted amounts, respectively.

10. See Morris Cohen, *Moral Aspects of Criminal Law*, in CRIME, LAW, AND SOCIETY 35 (Abraham Goldstein & Joseph Goldstein eds., 1971) (discussing morality as it applies to our definitions of crime); see also PHILLIP JOHNSON, CRIMINAL LAW: CASES MATERIALS AND TEXT 82-83 (5th ed. 1995) (describing a competing image of the criminal law as a system of rules applied evenly to individuals so that the consequences of conduct can be predicted with accuracy).

11. 21A AM. JUR. 2D *Criminal Law* § 943 (2006) [hereinafter AM. JUR. 2D *Criminal Law*].

12. UNITED STATES SENTENCING COMMISSION, GUIDELINES MANUAL § 1A3 (2000). All of the analysis made here applies with mandatory or advisory guidelines. See *United States v. Booker*, 543 U.S. 220, 265 (2005) (ruling that mandatory Federal sentencing guidelines were unconstitutional, but requiring judges to apply the guidelines in an advisory manner).

13. President’s Commission on Law Enforcement and Administration of Justice, *The Challenge of Crime in a Free Society*, in FRANKLIN E. ZIMRING & RICHARD S. FRASE, THE CRIMINAL JUSTICE SYSTEM 260 (1980). But see POSNER, *supra* note 6, at 563-64 (arguing that defendants who are imprisoned pretrial and receive sentences shorter than they normally would and shorter than their pretrial imprisonment actually benefit).

14. 18 U.S.C. §§ 3161-74 (2006).

15. See POSNER, *supra* note 6, at 563-64.

16. *Id.* at 563.

were beneficial to another class—those free on bail.¹⁷ Posner's insightful but brief analysis, however, does not go beyond this observation.

Other analyses of the lag between crime and punishment are similarly abbreviated. In these studies, the conclusion has generally been that the lags in the courts must be curtailed to minimize the impact of these lags on the corrections system.¹⁸ While this is a laudable goal, it can never fully eliminate lags between crime and punishment. To date, there has been almost no discussion of how to modify the procedures of criminal justice to address the inequities created by discounting and disparate lags between crime and punishment.

Because the mitigation of sentencing disparities is an important aim of criminal law, this essay proposes maintaining constant discounted sentencing terms by adjusting individual sanctions to account for the lag between crime and punishment. The longer the lag between crime and punishment, the stiffer the nominal sanction will be. Moreover, the size of the adjustment to both fines and prison sentences will depend upon criminals' discount rates. These adjustments are not punitive. Rather than penalizing the criminal for being punished after a long lag, time-varying sentencing serves to equalize sentencing by adjusting for the impacts of discounting. Under the proposal, there is no reason for the average sentence length to grow. Instead, criminals punished after short lags will receive smaller punishments than the status quo, while criminals punished after long lags will receive longer sentences than presently. The net effect on the average sentence should be near zero.

For fines, the revised sanctioning scheme would be analogous to the imposition of prejudgment interest on civil awards.¹⁹ The adjustment for prison sentences is more complex (and generally larger) because discounting occurs over the length of the prison sentence.²⁰ Thus, this essay progresses beyond the laudable but impossible goal of eliminating lags between crime and punishment. Instead, it proposes an answer to address this seemingly intractable problem.

Even if the time-varying sentencing scheme proposed here is not adopted, the inequities created by the interaction of discounting with lags between crime and punishment cannot be ignored. For example, pretrial detention credit procedures cannot be properly understood without considering the impacts of discounting. Under current law, pretrial detainees (in jail) often receive credit for time served.²¹

17. *Id.*

18. See President's Commission on Law Enforcement and Administration of Justice, *supra* note 13. But see Posner, *supra* note 6, for his counterargument that there are benefits to long pretrial detention, especially if a guilty offender is later acquitted.

19. Prejudgment interest is defined as "interest which is awarded in the judgment but which is calculated to begin accruing at some time before judgment is entered." DAN DOBBS, *LAW OF REMEDIES: DAMAGES, EQUITY, RESTITUTION* 335 (2d ed. 1993). For discussions of prejudgment interest in civil law, see Michael Knoll, *Primer on Prejudgment Interest*, 75 TEX. L. REV. 293 (1996), and the references therein.

20. See Polinsky & Shavell, *supra* note 6, at 1-4.

21. See AM. JUR. 2D *Criminal Law*, *supra* note 11, §§ 833-835.

In other words, the length of the sentence received by a pretrial detainee at trial is reduced by the amount of time that the detainee has already spent in jail. Discounting, however, implies that credit for time served is inadequate. Pretrial detainees serve their sentences earlier. As a result, the discounted value of their sentence is higher than the identical sentence imposed on someone at trial. Therefore, they should be awarded “interest” on time served in addition to receiving credit for nominal time served. This policy would insure that the real value of the sentence imposed on convicted criminals is independent of their pretrial detention status, which is often the result of financial status.²² Moreover, this proposal highlights how discounting and lags between crime and punishment must be considered even if society chooses not to accept a fully time-varying sentencing policy as suggested in this essay.

The essay is organized as follows. Section II discusses the causes of lags between crime and punishment, the interaction of disparate lags with discounting of the future by criminals to create sentencing inequities, and the importance of equitable sentencing. Section III introduces the time-varying sentencing proposal to mitigate the disparities identified in Section II. Section IV considers the policy implications of the time-varying sentencing proposal developed in Section III. Section IV also examines current pretrial detention procedures through the lens of discounting and proposes that pretrial detainees receive interest in addition to credit for time served. Section V concludes.

II. LAGS BETWEEN CRIME AND PUNISHMENT

A. *The Causes of the Lag Between Crime and Punishment*

Sanctions for crimes are not imposed instantaneously. A lag between crime and punishment is inevitable for three primary reasons. This section discusses each type of lag in turn and then highlights the potential implications of these lags when combined with discounting.

First, a lag occurs between the commission of a crime and the apprehension of the supposed perpetrator. The perpetrators of many crimes are not apprehended immediately. It often takes time for the investigating authority to determine who should be apprehended for committing a certain crime. Indeed, for some crimes, such as fraud, it may take time before anyone is even aware that a crime has been committed. This type of lag will be termed the “arrest lag.” Note that the arrest lag is not meant to account for deliberate flight or evasion of arrest, which are better treated as separate crimes.²³ Rather, the arrest lag arises because the criminal

22. *See id.* (suggesting that inability to make bail is frequently the result of financial status).

23. See Ian Wiener, *Running Rampant: The Imposition of Sanctions and the Use of Force Against Fleeing Criminal Suspects*, 80 GEO. L.J. 2175, 2183-84 (1992) for a discussion of the optimal law enforcement response to flight by criminals. Flight by criminals reduces the probability of apprehension in addition to increasing the lag between crime and punishment, a complication not discussed in this article.

justice system moves slowly, even when there is no flight.

Second, the most important (and wide-varying) sources of pre-sentencing delays are the lags between arrest, conviction, and sentencing. Trials typically require extensive preparation. Moreover, court systems are often overloaded, causing many trials to move slowly. Lags are also common between conviction and sentencing. Table 1 in the appendix presents some evidence of the length and variance of delays between arrest and sentencing compiled by the National Center for State Courts. As Table 1 reveals, the median delay between arrest and disposition of a criminal case (for the entire sample of 17 jurisdictions) is 126 days.²⁴ In some slow-moving jurisdictions, the median delay is over 300 days, and, in all jurisdictions, an average of 12 percent of all criminal cases are not disposed of within one year, suggesting that wide disparities in delays between arrest and sentencing are commonplace both within and between jurisdictions.²⁵ Finally, there are also considerable delays between conviction and sentencing. These lags have been recognized as an important issue in many judicial opinions, which recognize the importance of a “speedy trial.”²⁶

If the supposed criminal is not released before the trial (for example, if the criminal cannot furnish bail), then the arrest, conviction, and sentencing delays do not postpone punishment.²⁷ While this reduces the impact of delays on the deterrent value of sanctions, it is not a desirable solution. Pretrial confinement involves the confinement of an individual who is presumed innocent and tends to discriminate against poor defendants.²⁸ In addition, the sporadic application of pretrial detention generates disparities in sentencing lags between criminals who can and cannot furnish bail. As a result, the length and variance of pretrial delays is problematic regardless of pretrial detention policies.²⁹

A third source of delay results from the fact that, even if a criminal could be arrested and sentenced instantaneously, many types of punishment would still lag behind the crime. Prison sentences, for example, are, by definition, imposed over a

24. Data for Table 1 was obtained from *Measuring the Pace of Felony Litigation*, in EXAMINING THE WORK OF STATE COURTS, 1998: A NATIONAL PERSPECTIVE FROM THE COURT STATISTICS PROJECT 106 (Brian Ostrom & Neal Kauder eds., 1999) [hereinafter Ostrom & Kauder].

25. *Id.*

26. In *Barker v. Wingo*, 407 U.S. 514 (1972), the Supreme Court identified three important purposes for speedy trials: “(i) to prevent oppressive pretrial incarceration; (ii) to minimize anxiety and concern of the accused; (iii) to limit the possibility that the defense will be impaired.” *Id.* at 532 (footnote omitted). This essay does not contradict these arguments in favor of a speedy trial. Instead, it notes how sentencing guidelines should be adjusted to account for the inevitable lags. See also ARTHUR CAMPBELL, *THE LAW OF SENTENCING* § 9:9, at 267 (1991) (discussing a “constitutional right to speedy sentencing”). A speedy trial is also seen as in the defendant’s interest because it helps limit the probability of errors.

27. See President’s Commission on Law Enforcement and Administration of Justice, *supra* note 13 (discussing the problems of pretrial detentions).

28. See *id.*

29. See POSNER, *supra* note 6, at 563-64, for a lucid discussion of these issues, as well as an argument in favor of pretrial detention.

long period. The disutility from prison is therefore not instantaneous, but occurs over the period of the sentence. In an earlier paper, Polinsky and Shavell consider the consequences of discounting with respect to this type of lag.³⁰ They find many important implications for optimal deterrence if the response of criminals to varying sentence lengths is not directly proportional to the change in the sentence length. They do not consider lags between crime and punishment that occur before the punishment begins, however, which have critical implications for equitable sentencing.

B. Discounting Makes Sentences Imposed After a Lag Less Severe

If criminals did not discount the future, these lags would be of no consequence. (Hereinafter, lags between crime and punishment will refer to pre-sentencing lags unless otherwise noted.) A fine or prison sentence imposed after many years would achieve the same effect as the same sanction imposed instantaneously. Since criminals are believed to discount the future (as are all other people),³¹ however, the length of the pre-sentencing lag is significant. With respect to fines, the relationship between discounting and punishment severity is straightforward. The time value of money implies that the later a monetary fine is imposed, the less the true cost of the fine.

Although the connection between discounting and lags in prison sentences is less straightforward, prison sentences imposed after a delay are also less severe than a sentence of the same length imposed immediately. One of the principal costs of incarceration is the loss of earnings—someone incarcerated must relinquish work. When incarceration is imposed earlier, the loss of income occurs earlier. Because the income can earn interest, the earlier sentence causes a greater loss of income.

An example is illustrative. Suppose that two criminals (A and B) are both sentenced to one year in prison for identical crimes. Criminal A's sentence is imposed immediately, while Criminal B's sentence is imposed one year in the future. For simplicity, suppose further that the only disadvantage of prison is that the individual must forego earnings of \$10,000 per year (net of living expenses) and that each criminal can earn interest at a rate of 10 percent per year.³² Criminal A spends year one in prison and works in year two. At the end of year two, Criminal A has \$10,000. Criminal B, by contrast, works in year one and spends year two in prison. Unlike Criminal A, Criminal B can work in year one and earn interest on the money earned while incarcerated. At the end of year two, Criminal B will have $\$10,000 \times (1 + .1) = \$11,000$. Thus, at the end of year two, Criminal B

30. Polinsky & Shavell, *supra* note 6.

31. See COOTER & ULEN, *supra* note 6, at 465 (concluding that criminals discount punishments more than non-criminals).

32. The assumption that the disutility of prison only stems from lost earnings is not an essential one. So long as there is some disutility from prison that is discounted, the principle behind this example still applies.

is ahead of Criminal A. They have both spent one year in prison, but Criminal B has more money than Criminal A, implying that Criminal A's prison sentence was more severe.

Lost earnings are not the only cost of prison, of course. Loss of freedom, bad food, and unpleasant company are other costs that affect prisoners. Economists believe that unpleasant aspects of life such as these are also discounted.³³ Ask people if they would like to lose their freedom in one week or two weeks and most will choose two weeks. Ditto for visiting one's carping in-laws; it is better to have to wait two weeks than one. The same principle applies to the unpleasant aspects of prison. Most prisoners, when asked, would probably prefer to delay this unpleasantness as much as possible. As a result, a sentence imposed earlier in time is more severe. A prisoner, given a choice between the same sentence earlier in time, as opposed to later in time, would prefer the sentence imposed later.

An objection to the assertion that criminals discount future incarceration runs as follows: "Sentences imposed after longer lags are actually more severe. Not only does the criminal have to spend time in prison, but the criminal must also experience the stigma and uncertainty of having a potential prison sentence hanging over his/her head." This line of reasoning fails for several reasons. First, it is belied by experience. Most people, for example, prefer to delay the occurrence of unpleasant situations, in spite of the fact that delaying ensures that the unpleasantness hangs over their heads.³⁴ A similar argument applies to putting off prison sentences. In addition, criminals are unlikely to be severely troubled by the uncertainty of a prison sentence. If uncertainty and potential stigma were so troubling, then criminals could have avoided this uncertainty by avoiding crime. The very fact that they committed the crime suggests that they put a relatively low weight on stigma and uncertainty. Finally, if sentences imposed after lags were truly more severe, then defendants who are highly likely to be convicted would not seek bail. They would prefer to "get their sentence over with" rather than wait until the end of trial. The unlikelihood of this scenario suggests that, despite the uncertainty and fear for those facing trial, these costs do not outweigh the erosion of the real disutility of a sentence that occurs through discounting. Indeed, Judge Posner asserts that lengthy pretrial delays benefit those free on bail,³⁵ suggesting that the uncertainty cost of pretrial delays does not equal the effects of discounting.

Another critique of the assertion that criminals discount future incarceration

33. Behavioral economics literature has noted that time discounting is not linear. For example, the discount rate between today and tomorrow may be different than the discount rate between tomorrow and the day after tomorrow. This phenomenon is called "hyperbolic discounting." Behavioral economists, however, have not suggested that future consumption is not discounted in any form. *See, e.g.,* David Laibson, *Golden Eggs and Hyperbolic Discounting*, 112 Q.J. ECON. 443 (1997) (developing the notion of hyperbolic discounting but retaining the assumption that all future consumption is discounted).

34. *See* Shavell & Polinsky, *supra* note 6, at 1 (arguing that the prospect of years in prison far down the road are heavily discounted, in spite of the fact that they hang over the heads of prisoners).

35. POSNER, *supra* note 6, at 563.

distinguishes between the criminal's view of punishment *ex ante* (when the crime is committed but before any sentence or punishment) and the criminal's view of punishment *ex post* (after the punishment has been imposed). While individuals may well prefer to delay punishment *ex ante*, some might argue that delayed punishment creates the same disutility *ex post* as instantaneous punishment, implying that, from the *ex post* perspective, the lag between crime and punishment does not change sentence severity.

The *ex post* perspective, however, does not equate two sentences imposed after differing lags, as the following example illustrates.³⁶ Suppose that two criminals (A and B) commit a crime on the same day and both forego \$1,000 in wages while serving one year prison sentences. (If the criminals are unable to earn wages, then the monetary values can be used as proxies for the utility of remaining free.) The prevailing interest rate is 10 percent. Criminal A serves immediately while Criminal B's sentence is delayed for one year. Compare the two criminals from the *ex post* perspective after two years (when both have completed their sentences). Criminal A has \$1,000; Criminal B has \$1,100. Because Criminal B earned \$1,000 earlier and was able to earn interest, she is better off after both sentences are completed. Thus, even from the *ex post* perspective (after both sentences have been served), two sentences imposed after varying lags have different impacts. The *ex post* perspective is a flawed one, however, because it ignores the fact that the disutility occurs earlier when the sentence is imposed instantaneously than when it is imposed after a long delay. The only way to equate two sentences imposed at different times is to explicitly deny the existence of discounting.

Criminals are also commonly believed to have exceptionally high discount rates.³⁷ As two scholars summarize the conventional wisdom, criminals "discount punishments for . . . futurity more highly than other people."³⁸ If criminals truly are "radically present-oriented,"³⁹ then the delays described above assume heightened significance. Note, moreover, that the analyses of criminal discounting referenced here discuss discounting with respect to incarceration and not with respect to fines.⁴⁰ Economists and criminologists thus believe that criminals discount incarceration.

36. While the example presented here considers lost earnings, it applies to utility and disutility as well. To say that it does not is to explicitly deny the impact of discounting on non-monetary goods. This viewpoint was vehemently criticized in Donohue, *supra* note 2, at 1904-06.

37. See WILSON & HERRNSTEIN, *supra* note 6, at 49-56; DiIulio, *supra* note 6, at 17; Wilson & Abrahamse, *supra* note 1, at 360. Note that criminals (as well as other individuals) may discount the future hyperbolically, rather than exponentially. In this case, the appropriate discount rate between two different future events may be lower than the one between the present and the future. See Jolls, Sunstein & Thaler, *supra* note 1, at 1540-41. *But see* Listokin, *supra* note 1 (arguing that empirical data from criminal gangs contradicts the assertion that criminals have particularly high discount rates).

38. COOTER & ULEN, *supra* note 6, at 465.

39. DiIulio, *supra* note 6, at 16-17.

40. See, e.g., Nagin & Paternoster, *supra* note 1 (evaluating discounting using social costs and benefits as opposed to monetary costs and benefits).

In total, the arguments advanced here help explain the scholarly view that criminals will discount incarceration and not just fines. The longer the delay before a punishment, the more the punishment will be discounted. As a result, differing lags between crime and punishment, such as those highlighted in Table 1, may cause seemingly identical sentences to have differential severities. Taken together, wide disparities in sentencing lags and high criminal discount rates create an important and hitherto overlooked source of sentencing disparities.

C. *The Importance of Equitable Sentencing*

According to many theories of punishment, society should attempt to minimize inequities such as the ones identified above. For example, the retributive theory states that a criminal's moral culpability justifies punishment.⁴¹ Because two criminals who commit the same crime are equally morally culpable, they should receive the same punishment. The deterrence theory of punishment, by contrast, is more concerned with apportioning punishment in proportion to deterrent value than in apportioning punishment in proportion to culpability. Nevertheless, inequitable sentencing is still problematic from the deterrence perspective. Sentencing discrepancies for identical crimes undermine respect for the criminal justice system.⁴² In turn, this loss of respect and confidence may lead more individuals to commit crimes. As a result, deterrence theorists may recommend equitable sentencing as a means of reducing crime.⁴³

Whatever theory one uses to justify the goal of equitable sentencing, it is clear that equitable sentencing is an important aim of criminal law. One of the primary purposes of the *Sentencing Reform Act of 1984*,⁴⁴ which established the Federal Sentencing Guidelines, was to achieve "reasonable uniformity in sentencing by narrowing the wide disparity in sentences imposed for similar criminal offenses committed by similar offenders."⁴⁵ The United States Sentencing Commission refused to attribute the desire for uniformity (as well as other goals of the sentencing reform act) to one particular criminal theory, instead finding that "in most sentencing decisions the application of either philosophy [retribution or deterrence] will produce the same or similar results."⁴⁶ This paper takes a similarly

41. SANFORD H. KADISH & STEPHEN J. SCHULHOFER, *CRIMINAL LAW AND ITS PROCESSES* 107 (7th ed. 2001) (quoting Michael S. Moore, *The Moral Worth of Retribution*, in *RESPONSIBILITY, CHARACTER AND EMOTION* 179 (F. Schoeman ed., 1987)).

42. KADISH & SCHULHOFER, *supra* note 41, at 151.

43. *Excerpts from Principles for the Sentencing Systems: A Background Report*, 18 FED. SENT'G REP. 207 (2006) (stating that sentencing systems aim to deter and that unequal sentences undermine confidence in the judicial system).

44. 18 U.S.C. § 3553 (2000), *invalidated by* United States v. Booker, 543 U.S. 220 (2005).

45. GUIDELINES MANUAL, *supra* note 12, at §1A3, at 2.

46. *Id.* at 4.

agnostic approach towards adopting a particular theory of criminal punishment.⁴⁷ Whichever theory of punishment applies, equitable sentencing is an important aim. Thus, the neglect of frequently large sentencing disparities that arise because of discounting and lags between crime and punishment is puzzling. The next section presents a proposal for reducing these disparities.

III. TIME LAGS AND UNIFORM SENTENCING

A. *Fines that Differ Over Time*

1. *"Precollection" Interest for Fines*

Section II demonstrated that identical fines imposed at different times have different real costs. To reduce the disparities caused by the varying lags between the crime and the imposition of the fine, this Section proposes that fines be adjusted to account for the lag between crime and punishment.

A time-varying schedule of fines should operate as follows. Because fines must vary with time to keep the real value of punishment constant, society should choose a base fine to be imposed when the lag between crime and punishment is negligible and "ratchet up" the fine as the lag between the crime and collection of the fine (the "precollection" lag)⁴⁸ increases to keep the discounted value of the fine constant.

Society may determine the base-fine level in any way it chooses. If society wishes to attain the goal of optimal deterrence as well as the goal of equitable sentencing, then the optimal base fine will have a value such that the expected discounted value of the fine at the time the crime is committed (the present discounted value of the fine multiplied by the probability of sanction) is equal to the harm caused by the crime.⁴⁹ The present discounted value of the fine should be maintained by charging interest on the base fine at a rate equal to the average criminal discount rate. In this fashion, equitable sentencing can be achieved along with other goals of punishment, such as optimal deterrence.

A criminal punished quickly for a fine would receive the smallest nominal penalty. The fine would increase as the lag between crime and punishment rose. The fine for a crime punished after two years should be approximately 16 percent larger than the fine for the same crime punished after six months if the discount

47. Most studies in the law and economics of criminal law, by contrast, adopt the deterrence perspective. For a textbook treatment of the economic theory of crime and punishment, see COOTER & ULEN, *supra* note 6, at 432-54.

48. The term "precollection" interest is used to emphasize that interest should be charged on all time between the crime and the actual collection of the fine. Thus, precollection interest may encompass both prejudgment and postjudgment interest.

49. Alternatively, the appropriate base line fine may be chosen according to any other rationale (or combination of rationales) for sanctions.

rate is 15 percent.⁵⁰ After less than six years, the precollection interest on the fine would be larger than the nominal fine itself. This adjustment scheme imposes fines that are considerably more equitable than the present system of fixed nominal fines, which effectively (and incorrectly) implies that criminals have a discount rate of zero.

Charging interest on court judgments is not unprecedented. Administrative agencies like the IRS commonly charge interest on civil fines for unpaid taxes.⁵¹ In addition, the Federal Court System imposes postjudgment interest on criminal fines.⁵² Thus, the courts already commonly charge interest on criminal fines. The period subject to interest, however, begins after judgment, rather than from the moment of the crime, as proposed here.

Time-graduated payments (“prejudgment interest”) are also ubiquitous in civil law.⁵³ Defendants commonly pay interest on civil judgments from the time the claim arose. The payment of prejudgment interest in civil cases does not penalize the defendant. Instead, it simply ensures that the tortfeasor is not “unjustly enriched” by a delay.⁵⁴ Analogously, charging precollection interest on fines for all criminal actions would not serve to heighten the punishment on criminals punished after a long lag, but rather would serve to equilibrate all fines to account for discounting.

A specific example is illustrative. Suppose that the precollection interest rate imposed by the Federal system is 12 percent (a conservative estimate given the supposed discount rates of criminals). The 2002 United States Sentencing Guidelines call for a maximum fine of \$5,000 for an offense level six points or below.⁵⁵ An example of a crime in this category would be larceny of goods worth under \$5,000.⁵⁶ Assuming that the maximum fine is meant to apply when there is no lag between crime and punishment, a one year lag between the crime and the collection of the fine should lead to a maximum fine not of \$5,000 but rather of \$5,600.⁵⁷

Adjusting fines for the effects of discounting does not imply that the average discounted fine must become larger. Indeed, if society decides that the average discounted fine currently imposed is the appropriate one, then it can maintain this average fine while also gaining the benefit of equitable sentencing by reducing the

50. If the fine is X , then $X(1 + .15)^5 / X(1 + .15)^{1.5} < .87$. The 16 percent figure comes by calculating the percentage increase. See BLACK, *supra* note 1, at 362 (defining present discounted value with the equation used here).

51. See I.R.C. § 6651 (West 2006).

52. See, e.g., 18 U.S.C. § 3612(f) (2000).

53. See, e.g., Knoll, *supra* note 19.

54. *Id.* at 296.

55. UNITED STATES SENTENCING COMMISSION, GUIDELINES MANUAL §5E1.2(a)(3) (2002).

56. *Id.* at §2B1.1(b)(1).

57. $5600 = 1.12 * 5000$.

base level fine below the fine currently listed in the sentencing guidelines.⁵⁸

2. *Factors to Consider When Charging Precollection Interest*

A fine that increases with time has the benefit of reducing incentives for defendants to delay proceedings. At present, a delay in proceedings allows a guilty defendant to avoid sanction in the present and thereby reduce the real value of the fine.⁵⁹ If the fine is increasing with time, however, then there is no longer an incentive for the criminal to delay proceedings, since the real value of the sanction is maintained by charging interest on the nominal fine.

Because the value of a fine is eroded by inflation, the precollection interest rate used by the court should reflect both the rate of inflation and the average discounting rate of the typical criminal. If the fine were adjusted for the discount rate only (and not for inflation as well), the adjustment would be inadequate because inflation would erode the value of the fine.

B. *Imprisonment and Discounting*

1. *Preincarceration Interest for Prison Sentences*

Section II demonstrated that discounting also causes disparities in prison sentences imposed after varying lags. As a result, sentencing equality is also furthered through the use of a time-graduated sanction schedule in the case of imprisonment. The argument for a time varying prison sentencing schedule parallels that for fines. The real value of a prison sentence depends upon when it is imposed. A one year sentence imposed today is a stiffer penalty than a one year sentence imposed in two year's time. To ensure that all individuals convicted of like crimes receive similar punishments, the length of a prison sentence should rise as the lag between crime and punishment lengthens. Society should charge "preincarceration interest" to ensure equality of sentencing.⁶⁰

A brief example illustrates the proposal. Because of discounting, most criminals

58. Again, an example is illustrative. Suppose that two criminals per year (A and B) are convicted and fined the maximum amount for larceny. Criminal A pays the fine immediately, while criminal B pays after two year's time. Suppose also that the criminals' discount rates are 12% and that, under the current legal regime, each criminal is given a \$5000 nominal fine. In this case, in which fines are not adjusted for precollection lags, the average discounted value of the two fines is \$4493. Note that although each criminal pays a nominal fine of \$5000, criminal A pays more in discounted terms because A pays his fine immediately.

Society can keep the same average discounted fine while also ensuring equitable sentencing by fining criminal A \$4493 and fining criminal B \$5635. The figure \$5635 was obtained by charging precollection interest to criminal B at a 12% annual rate ($\$4493 \times 1.12 \times 1.12 = \5636). By charging these fines, society attains equitable sentencing because the present discounted values of \$4493 today and \$5635 in two years time are identical when criminals discount the future at a 12% annual rate.

59. See POSNER, *supra* note 6, at 563-64; ZIMRING & FRASE, *supra* note 13, at 462.

60. Preincarceration interest should apply to all time between the commission of the crime and the actual beginning of incarceration. This may include many types of lags including pre-sentencing and post-sentencing lags.

would “prefer” a six month sentence imposed one year from now to a six month sentence that begins tomorrow. As a result, the criminal punished tomorrow receives a harsher punishment. Suppose, however, that the average criminal would be indifferent between a six month sentence imposed tomorrow (call this Sentence 1) and a seven month sentence that begins in one year (call this Sentence 2). Sentence 1 begins earlier, and therefore is less discounted by criminals. Sentence 2 begins later and is therefore subject to more discounting. This effect is cancelled out, however, by the fact that Sentence 2 is longer, so that a criminal will be indifferent between the two sentences. Thus, the sentence adjustment of one month on Sentence 2 creates truly equitable sentencing. In this example, it was assumed that one month was the necessary adjustment to create true equality of sentencing given the differences in lags between crime and punishment. In reality, the necessary adjustments are unknown. To determine the appropriate adjustment rate, society should proceed cautiously. Initially, the adjustment factors should be quite small (less than one month). As the judicial system gains more confidence regarding sentencing adjustments and criminal discount rates, the adjustment factors can grow to the point where they make the average criminal indifferent between shorter sentences imposed earlier and longer sentences imposed later.

The sentencing adjustments required for uniform real prison sentencing differ from the adjustments derived for fines. Unlike a fine, a prison sentence unfolds over time; the only way to increase a nominal prison sentence to ensure equality of real sentencing is by “tacking on” years to the end of the sentence. Years tacked on to the end of a prison sentence are more heavily discounted than the years at the beginning of a prison sentence, while additions to a fine will be discounted at the same rate as the rest of the fine. In addition, the “value” of a year free of imprisonment does not depend on inflation—unlike the value of a fine. As a result, the discount factor used for prison sentences should reflect only the discount rates of criminals—and not the inflation rate. This rate is different from the interest rate for fines, which should reflect both the criminal discount rate and the inflation rate.

As with fines, society should specify a base prison sentence for immediate incarceration for a given crime and then lengthen the sentence to maintain the real value of the sentence as the lag between crime and punishment increases. The base sentence can be chosen based on any criteria society chooses, including deterrence goals, retributive goals, or even rehabilitative goals. The adjustment should not only depend upon the lag between crime and sentencing but also on the length of the sentence. The longer a sentence, the larger the nominal adjustment necessary to maintain uniform sentencing because the real value of the years tacked on to the end of a long sentence gets progressively smaller. Under this proposal, all individuals sentenced for a given crime would receive more comparable real sentences.

An example helps illuminate the rationale behind this recommended sentencing

structure.⁶¹ Suppose, for simplicity, (1) that criminals experience a disutility of \$10,000 from a year in prison, (2) have a discount rate of 10 percent, and (3) that society has chosen a base sentence of two years for a criminal punished immediately upon committing the crime.⁶² This base sentence establishes the non-discounted value of the sanction that society deems appropriate. Therefore, the real value of the base sentence from the perspective of when the crime is committed is $\frac{\$10,000}{1} + \frac{\$10,000}{(1 + .1)^1} = \$19,090$. If a criminal is punished after one year, then if the nominal sentence of two years remains constant, the discounted value of the sentence would be $\frac{\$10,000}{(1 + .1)^1} + \frac{\$10,000}{(1 + .1)^2} = \$17,534$. To make the present discounted value of the sentence imposed on the criminal punished after one year equal to the discounted or real value of the base sentence would require tacking on time to the end of the sentence that has a monetary disutility value of $\$19,090 - \$17,534 = \$1,556$. Adding 0.23 years to the *end* of a sentence imposed after a one year delay makes the sentence have a real value equal to that of the base sentence, since $\frac{\$10,000}{(1 + .1)^1} + \frac{\$10,000}{(1 + .1)^2} + .23 * \frac{\$10,000}{(1 + .1)^3} = \$19,090$.⁶³

Suppose instead that the base sentence (imposed instantaneously) were three years. The real value of the base sentence is therefore $\frac{\$10,000}{1} + \frac{\$10,000}{(1 + .1)^1} + \frac{\$10,000}{(1 + .1)^2} = \$27,534$. The same nominal three-year sentence beginning one year after the crime occurred, by contrast, would have a real value of $\frac{\$10,000}{(1 + .1)^1} + \frac{\$10,000}{(1 + .1)^2} + \frac{\$10,000}{(1 + .1)^3} = \$24,867$. The difference in real value between the sentences is thus $\$27,534 - \$24,867 = \$2,666$. To make the two sentences equal would require the addition of 0.39 years to the end of sentence since $\frac{\$10,000}{(1 + .1)^1} + \frac{\$10,000}{(1 + .1)^2} + \frac{\$10,000}{(1 + .1)^3} + .39 * \frac{\$10,000}{(1 + .1)^4} = \$27,534$. Note that the difference

61. This example assumes that discounting is compounded annually.

62. For expositional simplicity, this example assumes that the disutility caused by prison can be expressed in dollar terms. Perhaps the simplest way to conceptualize this example is to assume that the only disutility from prison comes in the form of foregone earnings because the individual cannot be employed and that the net nominal value of these earnings (subtracting cost of living) is \$10,000. Nevertheless, expressing the disutility from a prison sentence is an oversimplification. Even if the disutility from a year in prison does not have a monetary equivalent, however, it can still be discounted by a criminal. Therefore, the recommendations presented in this section apply whether or not years in prison can be quantified in monetary equivalents.

63. This example abstracts from continuous discounting that would occur over the course of a year. If these suggestions were to be implemented, the discount rate should be calculated continuously according to standard interest practices.

in the size of the adjustment in the two cases (0.39 years with the three year sentence as compared to .23 years for the two year sentence) is greater than the proportional sentence increase (three years as compared to two). This would not be the case with precollection interest on a monetary sum.⁶⁴ The disproportionality occurs because the additions to the sentence occur later when the sentence is three years rather than two. As a result, the preincarceration interest additions to the three-year sentence are discounted to a greater degree and further additions are required to maintain a constant real sentencing value.⁶⁵

Thus, a uniform real prison sentencing schedule contains a number of elements. Society should choose a base sentence. This base sentence should then be “ratcheted up” by charging preincarceration interest to account for both the size of the sentence and the lag between crime and sentencing.⁶⁶ The longer the sentence, the longer the nominal adjustment necessary to maintain equal real sentencing for a given time lag. The longer the lag between crime and punishment, the longer the nominal adjustment necessary to maintain equal real sentencing for a given base sentence length. These adjustments should be made to accord with the criminal discount rate. Under this proposal, all individuals sentenced for a given crime would receive identical real sentences.

2. Other Considerations for Time Graduated Prison Sentences

While this essay recognizes that there are strong equity and retributive motivations for a time-adjusted sentencing schedule, such a schedule may cause inefficiencies from a strict deterrence perspective. If criminals discount the future at a faster rate than society, then sentences imposed after a long lag may be inefficient. Such sentences will achieve little if any deterrence, while consuming

64. For monetary sums, the adjustment for discounting is a percentage of the total sum. Thus, the size of the adjustment is directly proportional to the size of the fine. For example, if the monetary fine increased by one third, then the size of the precollection interest adjustment would also increase by a third.

65. As in the case with fines, adjusting prison sentences for discounting does not imply that the average sentence must go up. Indeed, society can maintain the same average discounted sentence length that it currently applies while also adjusting for discounting and attaining equitable sentencing. For example, suppose that two criminals (A and B) are sentenced to two year prison terms for identical crimes. Criminal A is imprisoned immediately after committing the crime, while criminal B is incarcerated after one year. Assume, further that the non-discounted monetary equivalent of the disutility from a year in prison is \$10,000 while the annual discount rate is 10%. The discounted value of A's prison term is thus $\$19,090 = \$10,000 + \$10,000/1.1$; the discounted value of B's time in prison is $\$17,534 = \$10,000/1.1 + \$10,000/(1.1)^2$. The average discounted value of the two sentences under the current legal regime, which imposes the same nominal sentence on all criminals, is therefore $\$18,312 = (\$17,534 + \$19,090)/2$. Equality of sentencing can be achieved while maintaining the same average discounted value of sentencing by sentencing criminal A to 1.91 years in prison and criminal B to 2.23 years in prison. The discounted values of both of these sentences are equal to \$18,312, which is the same as the average discounted value of the prison sentences under the current legal regime (when sentences were not adjusted). B's sentence, however, must be longer in nominal terms because it is discounted to a greater degree. Thus, charging preincarceration interest enables society to attain equitable sentencing without increasing average discounted sentences.

66. As with fines, the “interest rate” on prison sentences should reflect the average criminal's discount rate.

valuable criminal justice resources. The sentencing schedule described here, by contrast, assumes that criminals punished after long lags should receive the longest sentences.

C. *Implementing a Time-Varying Sentencing Schedule*

While adjusting sanctions for pre-sentencing lags may be desirable in theory, there are obvious questions about its feasibility. Any proposed amendment to sentencing procedures (and particularly a guidelines based structure such as the United States Federal Sentencing Guidelines) must weigh the supposed gains of the adjustment with the costs of a more complicated sentencing scheme. In this case, adjusting both fines and imprisonment sentences for the lag between crime and punishment would be reasonably straightforward and would achieve a significant gain in equity.

Since equity and uniformity of sanctions are fundamental aims of the criminal justice system, there are important considerations mitigating in favor of adjusting sentences for discounting. Moreover, time-adjusted sentences would address the problem that delays in sentencing “reduc[e] the expected cost of punishment for anyone with a positive discount rate,” one of the principal concerns motivating the costly drive to speed up the judicial process.⁶⁷

Time-adjusted sentencing applies to both guidelines-based and non-guidelines based sentencing structure. In the Supreme Court’s *Blakely* decision,⁶⁸ the Court found that mandatory adherence to the guidelines was unconstitutional because “any fact that increases the penalty for a crime beyond the prescribed statutory maximum must be submitted to a jury, and proved beyond a reasonable doubt.”⁶⁹ The Court’s “remedial” opinion in *Booker*, however, requires judges to apply the guidelines in an advisory fashion.⁷⁰ While these decisions have affected many aspects of the sentencing guidelines, they do not affect the use of the lag between crime and punishment. By convicting an individual of a specific criminal act, the jury necessarily determines the day (or days) upon which the act was committed.⁷¹ As a result, adjusting sentencing for the lag between crime and punishment (even in a mandatory fashion) does not run afoul of the *Booker*, *Blakely*, and *Apprendi* precedents. Even if guidelines-based sentencing were no longer in use, the proposals made here could be applied equally well to discretionary sentencing. Because the time lag “facts” must be determined by the jury, these facts may be used to adjust the nominal sentence.

The first step in computing a time-adjusted sentence is the determination of the

67. POSNER, *supra* note 6, at 563.

68. *Blakely v. Washington*, 542 U.S. 296 (2004).

69. *Id.* at 301 (quoting *Apprendi v. New Jersey*, 530 U.S. 466, 490 (2000)).

70. *United States v. Booker*, 543 U.S. 220, 222 (2005).

71. The lag between crime and punishment with respect to crimes undertaken over multiple days (e.g. criminal conspiracies), should be calculated from the day on which the conspiracy began.

baseline sanction. In a guidelines-based system, the baseline sentence for each category of crime would be determined by a sentencing commission. Note that the optimal baseline sentences in a time-adjusted sentencing framework would differ from the current prescriptive sentences, which do not recognize the possibility of time varying sentences. The optimal baseline sanction would be smaller than the current prescriptive sanction for a given offense category because the baseline sanction is chosen with the knowledge that all actual sanctions would be adjusted upwards to account for the lag between crime and punishment. Other than this modification, however, sentencing commissions would operate as they do today.

In a discretionary sentencing system, the judge or jury will determine the baseline sentence (without considering the lag between crime and punishment). The time-adjusted sentence would then be determined by applying the precollection or preincarceration interest procedures described below to the base-line sanction determined by the judge and the jury.

Adjusting monetary and prison sanctions for time will undeniably complicate sentencing procedures.⁷² For example, the United States Sentencing Guidelines Manual already includes hundreds of pages of text detailing various sentencing considerations. One must hesitate before adding to this corpus.

Adjusting for discounting in the case of fines is reasonably straightforward, however. The court system already charges interest on fines from the day the fine is imposed.⁷³ The sentencing scheme described here merely extends the commencement of interest charges to the date of the crime, a concept analogous to prejudgment interest in civil cases.⁷⁴ Indeed, because courts already have experience with prejudgment interest for tort judgments and civil fines,⁷⁵ a guidelines-based prejudgment interest scheme may be unnecessary. Courts could simply modify their existing methods for determining the appropriate amount of prejudgment interest to calculate the appropriate amount of precollection interest as discussed above.⁷⁶

The interest rate for both fines and prison sentences should reflect a criminal's discount rate.⁷⁷ The rate for fines should also reflect the inflation rate while the rate

72. See Michael Tonry, *Sentencing: Allocation of Authority*, in *ENCYCLOPEDIA OF CRIME AND JUSTICE* 1436 (Sanford H. Kadish ed., 1983) for a discussion of the complexity of the sentencing process.

73. See 40 U.S.C. § 258(e-1)(1) (2000); 18 U.S.C. § 3612 (2000 & Supp. III 2003).

74. See Knoll, *supra* note 19, at 294 (describing prejudgment interest in civil cases).

75. See *id.* at 294-95 (citing treatises and cases dealing with prejudgment interest).

76. Precollection interest will not be identical to prejudgment interest because precollection interest should apply to the entire time between the crime and the actual payment of the fine, while prejudgment interest applies to the time between the tort and the judgment.

77. The proposals can be modified to account for the costs of uncertainty and fear that potentially accompany pretrial delays. First, the interest rate that is used to adjust sentences can be reduced to account for the uncertainty effects. Suppose that the costs of uncertainty and fear while facing trial equal 3 percent of the actual sentence on an annual basis, while the discount rate remains 10 percent. This suggests that the adjustment factor for sentences or pretrial detention credit should be 7 percent (i.e., 10%-3%) rather than 10 percent. This would ensure that sentences are not over-adjusted because the discount rate ignores the impacts of pretrial uncertainty.

for prison sentences should not be adjusted for inflation. In the case of both fines and sentences, the interest rate should be set to reflect the interest rates available to the average criminal.⁷⁸

Adjusting prison sentences for the lag between crime and punishment is more complicated. As described above, there is no simple formula for determining the necessary adjustment. The percentage nominal addition to the prison sentence depends not only on the lag between crime and punishment but also the length of the sentence. The adjustments to prison sentences would thus require a grid-like schedule for proper implementation. One axis of the grid would list various sentencing lags, while the other axis would list baseline sentences. A judge or jury would first calculate the baseline sentence. The judge would then find the appropriate sentence/sentencing-lag cell on the grid to determine the appropriate adjustment. While this is undoubtedly more complicated than the existing structure, it is not overly taxing. For an example of an excerpt from the proposed grid, see Table 2 in the appendix.⁷⁹

Suppose that a criminal is convicted in Federal district court of larceny of an amount greater than \$200,000. Further suppose that the criminal has no prior history of criminal activity. At present, the Federal Sentencing Guidelines specify that an offender with this combination of offense level and criminal history should receive a prison sentence between 27 and 33 months.⁸⁰ Suppose that the judge specifies a baseline sentence of 27 months.⁸¹ Alternatively, suppose that (in a discretionary sentencing system) a judge or jury decides upon a 27 month baseline sentence based on the facts determined by the jury at trial. This baseline sentence represents the length of prison time that should be served if the prisoner had been placed in prison immediately. The judge will now apply this baseline, along with the length of the lag between crime and incarceration, to determine the actual length of time that the criminal should serve in prison using a table similar to the existing table used to combine offense levels and previous criminal history to

78. This could be determined by surveys or by other empirical methods, such as analyses of borrowing patterns. See Knoll, *supra* note 19, at 308-20, for a discussion of the appropriate prejudgment interest rate in civil cases. While some may object to imposing the average criminal's discount rate on all criminals, the current system also implicitly imposes the same discount rate (zero) upon all criminals. By using a clearly incorrect discount rate of zero (i.e., not adjusting for lags), current sentencing procedures ensure inequitable sentencing.

Note that if criminals discount the future hyperbolically, the appropriate discount rate is the discount rate between two future events, rather than the rate between the present and the future. Hyperbolic discounting means "that impatience is very strong for near rewards (and aversion very strong for near punishments) but that each of these declines over time." Jolls, Sunstein & Thaler, *supra* note 1, at 1539; see also Laibson, *supra* note 33, at 445-46 (developing a mathematical model of hyperbolic discounting).

79. Note that the figures in the grid are calculated using annual discount rates. The discount rate used is a 10 percent inflation-adjusted annual rate. In actuality, continuous discount rates should be employed.

80. See UNITED STATES SENTENCING COMMISSION, GUIDELINES MANUAL § 2B1.1(b)(1)(G), and at 381 (2006) (according to the U.S. Sentencing Guidelines Manual, this type of larceny is an offense level of 18 and the sentencing table in section 5A specifies that an offense level of 18 with no prior record should receive a sentence of 27 to 33 months).

81. With longer baseline sentences, the size of the nominal adjustments to the sentence would be larger.

determine a sentence length. Suppose that the lag between crime and punishment is 6 months. The judge would now go to the point on the graph corresponding to a 27 month base sentence after a six month lag (27, 6). In Table 2, this point equals 28.2. Thus, the judge would sentence the prisoner to 28.2 months in prison. Suppose that instead of 6 months, the lag was one year. In this case, the appropriate cell in Table 2 equals 30.1 months. The sentence is longer in the second case because the sentence begins later, meaning that the sentence is subject to greater discounting. These adjustments are not punitive. They simply insure that all sentences have a constant discounted value.

Finally, the time-varying sentencing scheme should be adopted cautiously. The initial estimates of discount rates used for adjusting should be on the low end of the range of estimates. As the judicial system gains more experience in applying the time-varying sentencing scheme, the discount rate can be altered as necessary.

IV. POLICY RAMIFICATIONS

A. Policy Considerations for Time-Varying Sentencing Schedules

The time-varying sentencing proposal raises several important legal and policy questions. Before examining these questions, one point must be emphasized. A time varying sentencing structure is not punitive. Criminals punished after a long lag are not given a greater nominal sentence as a punishment for the long lag. Instead, the discount rate should be chosen to make criminals indifferent about when their punishment is imposed. The current status quo, by contrast, does not make criminals indifferent about when their punishments begin. Because of discounting, most criminals will prefer to delay their punishments to the greatest extent possible. Criminals with minimal resources, who may be unable to delay their punishments, will therefore receive greater real sentences than others with greater abilities to defer punishment. The time varying sentencing proposal reduces these inequities.

At present, accused criminals who make bail have two incentives to exercise their process-based rights. First, the procedural rights may result in an acquittal or dismissal of the charges or enable the accused to properly state his case. Second, the exercise of procedural rights delays the eventual punishment,⁸² thereby reducing the real cost of that punishment. The time-varying sentencing schedule removes the second incentive to pursue procedural rights. Because the time-varying sentencing proposal attempts to make criminals indifferent between punishment today and punishment in the future, an accused criminal obtains no gain from delaying punishment by exercising his procedural rights.

An accused criminal will have less total incentive to exercise procedural rights

82. This assumes that the accused criminal is free on bail. If the criminal is not free on bail, then the sentence will be shorter in nominal terms because the sentence began earlier. For a discussion of pretrial detention, see Section IV.B.

under a time-varying sentencing schedule. This should not constitute an unfair burden on process, however. Presumably, the importance of process is to ensure more complete and accurate decisions, and not to simply delay punishment. An accused criminal's option to exercise procedural rights because of a desire to be heard or a desire to obtain acquittal is not impaired by the time-varying structure. Because the time-varying interest is not punitive, the accused is no worse off as a result of exercising procedural rights. As a result, if the accused feels a genuine desire to be heard or feels that there is a real chance of acquittal, he will have nothing to lose by exercising his procedural rights. The time-varying sentencing structure merely eliminates the delay factor as an incentive for exercising procedural rights. This change in incentives may even improve the quality of procedural rights. By eliminating procedural maneuverings whose sole purpose is to delay punishment, a time-varying sentencing structure helps insure that those criminals who do choose to exercise their procedural rights will be taken more seriously. Because of these considerations, the time-varying sentencing proposal does not violate due process rights from either a constitutional or policy-making perspective.

B. Pretrial Detention

Even if one does not accept the time-varying sentencing proposal made above, the interaction of discounting and the lags between crime and punishment has obvious implications for pretrial detention policies.⁸³ During pretrial detention, the effective "punishment" for a crime begins not at the imposition of the sentence but rather at the beginning of the detention. For those who are able to avoid pretrial detention, by contrast, punishment (if convicted) begins after trial, which often occurs after a long lag. Many commentators have critiqued the inequity of detaining potentially innocent suspects before conviction.⁸⁴ A consideration of discounting reveals that even pretrial detainees who are in fact guilty receive stiffer sentences than their counterparts who are not detained.

Under the current sentencing system, pretrial detainees generally receive credit for time served if they are found guilty.⁸⁵ Indeed, pre-sentence detention credit is

83. This discussion applies primarily to pretrial detention in jails or prisons. Pretrial detention in an accused criminal's home presumably causes less disutility than pretrial detention in a jail. As a result, the "credit" arguments made below apply less forcefully to pretrial detention in homes.

84. See, e.g., Alan Dershowitz, *On Preventive Detention*, in *CRIME, LAW, AND SOCIETY* (Abraham Goldstein & Joseph Goldstein eds., 1971). See also POSNER, *supra* note 6, at 563-67, for a discussion and incisive critique of these arguments.

85. See, e.g., 18 U.S.C. § 3585(b) (2001)

A defendant shall be given credit toward the service of a term of imprisonment for any time he has spent in official detention prior to the date the sentence commences—

- (1) as a result of the offense for which the sentence was imposed; or
- (2) as a result of any other charge for which the defendant was arrested after the commission of the offense for which the sentence was imposed;

frequently mandated by statute or court rule.⁸⁶ The logical conclusion from these statutes and rules is that pretrial detention is not intended as a punishment, but rather is an imperfect solution to the problem of guaranteeing that accused criminals appear at trial. Indeed, a number of cases explicitly note that pretrial detention should not be imposed for the purpose of punishment.⁸⁷

Because pretrial detainees who are found guilty receive credit for time served, the total nominal amount of time served for a given crime is the same with or without pretrial detention. A proper consideration of discounting, however, suggests that convicted pretrial detainees do not receive full real credit for time served. With pretrial detention, the punishment for a crime begins earlier. As a result, it is discounted to a lower degree than if pretrial detention is not imposed. The criminal who suffers from pretrial detention thus receives a stiffer real penalty than an otherwise equivalent criminal who furnishes bail. Full credit for time served should therefore include “interest” on time served.⁸⁸ The interest rate should reflect the rate at which the average criminal discounts the future.⁸⁹

that has not been credited against another sentence.

Id.; CAMPBELL, *supra* note 26, at § 9:28.

86. *See, e.g.*, 18 U.S.C. § 3585(b).

87. *See, e.g.*, United States v. Gallo, 653 F. Supp. 320, 335 (E.D.N.Y. 1986) (“Otherwise valid pretrial detention does assume a punitive character, and thus offends the due process clause, when it is significantly prolonged.”); *see also* United States v. Gonzales Claudio, 806 F.2d 334 (2d. Cir. 1986).

88. This analysis assumes that sentences “should” begin after conviction. If, by contrast, they “should” begin immediately after the crime, then criminals released on bail should have to “pay” interest and serve longer sentences. The notion that criminals are innocent until proven guilty and must get “credit” for time served, however, seems to imply that sentences are intended to begin upon conviction.

89. An example is illustrative. Suppose that two criminals (A and B) are both sentenced to four years in prison for identical crimes one year after committing a crime. Criminal A spent the entire year before sentencing in pretrial detention, while criminal B (who is wealthier, but otherwise identical to criminal A) was able to furnish bail. Criminal A receives pretrial detention credit of one year, so both criminals A and B spend a total of four years in prison. For simplicity, suppose further that the only disadvantage of prison is that the individual must forego earnings of \$10,000 per year (net of living expenses) and that each criminal’s discount rate is a (relatively low) 10% per year. From a time discounted perspective, Criminal A suffered total lost earnings of \$34,638 = \$10,000 + \$10,000/(1.1)² + \$10,000/(1.1)³ + \$10,000/(1.1)⁴. Criminal B, by contrast, only began losing the \$10,000 annually after one year. Thus, Criminal B’s total lost earnings are \$31,698 = \$10,000/(1.1)² + \$10,000/(1.1)³ + \$10,000/(1.1)⁴ + \$10,000/(1.1)⁵. Criminal A’s discounted lost earnings are thus \$3170 = \$34,868-\$31,698 higher than Criminal B, even though both criminals spent four years in prison. Criminal A’s sentence is stiffer because the four years in prison occur earlier, and are thus less discounted. Pretrial detention credit, however, should equilibrate the sentences of those who do and do not make bail. Thus, Criminal A should receive pretrial detention “interest” in addition to credit—Criminal A should spend less than four years in jail, thus getting more than a one year reduction to the sentence for Criminal A’s pretrial detention time. The appropriate amount of pretrial detention interest can be determined by solving for the variable *x* in the following equation: \$31,698 = \$10,000 + \$10,000/(1.1)² + \$10,000/(1.1)³ + \$10,000/(1.1)⁴**x*.

In this case, *x* = .58. In words, to equilibrate A’s sentence with B’s, A should serve only 3.58 years in prison (3 years and 211 days). Thus, in addition to the one year of pretrial detention credit, A should receive 154 days of pretrial detention interest if A’s pretrial credits are to equilibrate the sentences of A and B. This is a sizable amount of interest on sentence lengths and delays that are common occurrences in state and federal criminal justice systems, suggesting that pretrial detention interest is an important (and hitherto overlooked) feature of assuring equity for those unable to make bail.

For a time-varying sentencing guideline such as the one described in the previous section, by contrast, only a minor adjustment is necessary to correct this inequity. If a criminal is denied or cannot make bail, the sentence should be adjusted according to when the criminal is first detained, rather than convicted, since punishment begins with detention. This would imply that a criminal denied or unable to furnish bail would receive a shorter nominal sentence than an otherwise identical criminal who remained free until conviction.

V. CONCLUSION

This essay examines the implications of discounting for equitable sentencing. Because criminals discount the future (and some claim that criminals discount the future at particularly high rates), sentences imposed after a long lag are, in effect, smaller than seemingly identical sentences imposed immediately after the commission of a crime. To make sentences more equitable, this essay recommends that sentences be adjusted for the lag between crime and punishment; a sanction imposed after a long lag should be larger in absolute terms than a sanction imposed quickly.

For criminal fines, the time-graduated policy advocated here can be implemented simply. Indeed, the imposition of precollection interest is closely analogous to the imposition of prejudgment interest in private law. This essay's proposal, however, differs from prejudgment interest in several ways. First, it applies to criminal law and not private law. In addition, it advocates using an interest rate equivalent to the average criminal's discount rate plus the inflation rate. Finally, this essay recommends that interest be charged until the fine is actually paid. Because prejudgment interest is analogous to precollection interest, the time-graduated policy should not prove overly difficult to implement nor should it cause significant public controversy.

Preincarceration interest for prison sentences, by contrast, will be more difficult to implement and potentially more contentious. With prison sentences, interest is imposed by tacking on time to the end of a sentence. Calculating the appropriate amount of preincarceration interest on sentences is more complicated than fine calculations because sentences unfold over time. In light of the fact that no criminal justice system in the United States has ever applied such a concept to its sentencing scheme, this proposal may generate controversy among policymakers and accordingly be more difficult to implement. In response, this essay recommends that the adjustments be implemented through the use of a table analogous to the tables used in the United States Sentencing Guidelines (see Table 2 in the Appendix).

In spite of these reservations, the implications of discounting for equitable sentencing must be addressed. The example of pretrial detention credit discussed above demonstrates that ignorance of discounting can lead to significant policy errors. Although pretrial detainees supposedly receive credit for time served,

discounting implies that they receive less than full credit. To remedy this deficiency, this essay recommends that pretrial detainees receive interest in addition to credit for time served. Hopefully, this is but one of many examples in which sentencing can be made more equitable by accounting for discounting. This essay represents a first step along this road.

APPENDIX

Table 1: Lags Between Arrest, Disposition, and Sentencing*

City	Delays Between Arrest and Disposition			Delays Between Disposition and Sentencing
	Median Delay of All Cases	Percentage of Cases Older than 6 months	Percentage of Cases Older than 1 year	Median Delay of All Cases
Seattle, WA	59 days	9%	2%	32 days
Cincinnati, OH	79 days	13%	3%	28 days
Portland, OR	85 days	11%	7%	n/a
Santa Clara, CA	86 days	22%	5%	n/a
Des Moines, IA	100 days	13%	1%	n/a
Grand Rapids, MI	104 days	22%	5%	52 days
St. Petersburg, FL	105 days	22%	6%	n/a
Tucson, AZ	113 days	25%	9%	50 days
Omaha, NE	115 days	16%	2%	78 days
Baltimore, MD	135 days	21%	2%	n/a
Oakland, CA	143 days	42%	17%	45 days
Austin, TX	193 days	53%	21%	25 days
Fort Worth, TX	195 days	54%	23%	n/a
Sacramento, CA	224 days	59%	18%	n/a
Birmingham, AL	304 days	88%	41%	72 days
Hackensack, NJ	314 days	88%	37%	86 days
All Courts	126 days	34%	12%	52 days

*Data from Ostrom & Kauder, *supra* note 24, at 106.

Table 2: Sentencing Adjustment Table

Table reflects baseline sentence with interest added to account for length of lag between crime and incarceration

Intended Real Value of Prison Sentence ("Baseline Sentence")	0-month lag	6-month lag	12-month lag	18-month lag
24 months	24-month adjusted sentence	25.2-month adjusted sentence	26.5-month adjusted sentence	28.0-month adjusted sentence
27 months	27-month adjusted sentence	28.2-month adjusted sentence	30.1-month adjusted sentence	31.5-month adjusted sentence
36 months	36-month adjusted sentence	37.8-month adjusted sentence	39.6-month adjusted sentence	41.5-month adjusted sentence