

Essays

ARE ALL “LEGAL DOLLARS” CREATED EQUAL?

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“Whether you like it or whether you do not money is money and that is all there is about it.”[†]

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INTRODUCTION

Dollars are fungible. That is one of the basic assumptions of classic economic theory.¹ The practical meaning of this assumption is that a win of

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[†] VIVIANA A. ZELIZER, *THE SOCIAL MEANING OF MONEY 2* (1994) (quoting Gertude Stein, *Money*, SATURDAY EVENING POST, July 13, 1936, at 88).

¹ This assumption served as the basis for modern consumption theories, according to which individuals smooth their consumption over time according to their permanent income. See generally MILTON FRIEDMAN, *A THEORY OF THE CONSUMPTION FUNCTION* (1957).

\$300 in a football bet, a \$3 increase in the price of a stock for which one owns one hundred shares, or a \$300 rise in the value of a pension will all affect the consumption behavior of an individual in an identical fashion.² Building on this assumption, law and economics scholars have also treated legal payments as fungible. To put things in the terminology often used by legal economists, legal payments are the price set for an activity. Just as a dollar paid for a tomato is identical to a dollar paid for a cucumber, so are a dollar paid as a pollution tax to the government and a dollar paid as compensation to the party injured by the pollution. The two simply represent the price a polluter must pay in order to engage in the polluting activity.

Recently, Uri Gneezy and Aldo Rustichini used an experimental setting in order to explore whether fines actually function as prices.³ In their study they imposed a monetary fine on parents who were late picking up their child from a daycare center.⁴ After the introduction of the fine, they observed a steady *increase* in the number of parents coming in late.⁵ This result runs contrary to traditional deterrence models that predict that increasing the cost of an activity will necessarily decrease the rate at which it is performed. Gneezy and Rustichini offer two explanations for their surprising results. First, the introduction of the fine may have changed parents' perception of the social dynamic between themselves and the daycare center. That is to say, parents may have viewed the fine as a price for arriving late. According to this logic, as long as they paid the price for such behavior, parents felt comfortable being late.⁶ Second, the fine may have revealed information to parents regarding the expected sanction for tardiness. Thus, parents who were previously punctual out of fear of incurring a costly sanction may have exercised less caution after learning that the actual cost of the behavior, as revealed by the fine, was less than they had assumed it to be.⁷

While Gneezy and Rustichini offer some interesting insights regarding the relationship between fines and prices, one should note that the fine imposed on parents in their study included two unique characteristics that are not present in all legal payments. First, the imposition of the fine was certain. All of the parents knew that they would be fined every time they came in late. In most real-world situations, however, fines are imposed probabilistically. A driver speeding on the freeway can end up paying a fine, but can also end up paying nothing. Second, the payment of the fine was made

² See Richard H. Thaler, *Anomalies: Saving, Fungibility, and Mental Accounts*, 4 J. ECON. PERSP. 193, 193–94 (1990) (discussing evidence that spending of windfalls deviates from the “life-cycle spending” model).

³ Uri Gneezy & Aldo Rustichini, *A Fine is a Price*, 29 J. LEGAL STUD. 1 (2000).

⁴ *Id.* at 4–5.

⁵ *Id.* at 5–8.

⁶ *Id.* at 13–15.

⁷ *Id.* at 10–13.

directly to the entity that was harmed by the wrongdoer. Fines, on the other hand, are in many cases paid to third parties that were not directly harmed by the regulated act. Paying an emissions tax, for example, provides the government with income, but does not assure any compensation for the people harmed by the pollution.

Our goal in this study is to explore how different characteristics of legal payments affect the way in which people perceive them, and, as a result, the way people might behave in response to different legal schemes. The three characteristics we focus on are: (a) the timing of the payment—we distinguish between payments that are made prior to committing the harmful act and those made after the act has already been committed; (b) the identity of the party to which the payment is made—we distinguish between payments that are paid as compensation to the injured party and those that are paid to a third party; and (c) whether the payment was probabilistic or certain.

We conjecture that social norms, cognitive biases, and other forces may cause people to behave differently under different legal rules that create similar economic consequences. More specifically, we expect that when the legal payment is made in advance, with certainty, and to the party who was harmed by the behavior, the similarity to a price will be greater, making people more willing to engage in the harm-creating behavior if they find it beneficial. As the legal structure shifts away from the paradigmatic structure of a price, by moving the payment after the fact, adding a probabilistic element to it, and changing the identity of the recipient, people might be less inclined to treat the legal payment as a price, leading them to be less willing to engage in harm-creating behavior even if it is in their best interest to do so.

Using a sample of 420 students, we employed a between-subject, three-factor design. Each of the three factors was divided along two levels: timing of payment (ex ante versus ex post), identity of recipient (state versus injured party), and level of certainty (certain versus probable). Participants were randomly divided amongst the six experimental conditions. In each experimental condition, a questionnaire was introduced with a hypothetical scenario that involved the behavior of an owner of a factory that creates a negative externality in its production process. Following the hypothetical, participants were asked about their likely behavior, as well as their social, legal, and moral perceptions. Overall, we found that participants were more likely to engage in production when they paid the individual, when they paid in advance, and when the payment was not probabilistic.

The Essay is organized as follows: Part I reviews the relevant background to our study. We outline traditional economic and legal scholarship that treats money in general, and legal payments specifically, as fungible. We then explore studies that suggest that neither is fungible, and that similar payments could generate different behaviors. Building on these studies,

we suggest several hypotheses to explain the differences between legal regimes. Part II describes the design of our experiment and the results. In Part III we further discuss these results, explore the potential policy implications, and deal with some of the limitations. Finally, in Part IV we briefly conclude.

I. BACKGROUND

The law sets a menu of consequences for different types of behavior. Take, for example, the case of a homeowner who throws a party that creates a nuisance to his neighbors, and assume that lawmakers want to promote efficiency by enacting a law that causes the homeowner to internalize the harm caused to his neighbors. One can imagine several legal regimes that will achieve this goal. The law could require permits for parties, and grant them after payment of a fee equal to the size of the externality. Alternatively, the law could prohibit parties and fine homeowners who hold them with a fine equal to the size of the externality. Finally, the law could allow the homeowner’s neighbors to sue and collect damages that reflect their harms. In this Essay, we attempt to measure whether the choice between different legal regimes affects the way people perceive the situation, and the way they behave as a result.

Looking at the body of legal payments, we identify three dimensions that differentiate them. The first is the timing of the payment: while some payments are made prior to the act being regulated (e.g., a fee), others are made after the fact (e.g., a fine). The second is the identity of the party receiving the payment: some legal payments are made directly to the injured party while others are made to third parties (e.g., the state). The following table summarizes the way in which legal payments align along the first two dimensions we explore.

Table 1: Legal Payments—Timing of Payment and Identity of Recipient

	<i>Third Party</i>	<i>Injured Party</i>
<i>Ex Ante</i>	Fee	Contract Payment
<i>Ex Post</i>	Fine	Tort Damages

A third dimension by which legal payments differ relates to the certainty of their imposition. Ex ante payments are by definition certain, and are therefore not analyzed along this dimension. Ex post payments, on the other hand, are either certain or probabilistic. Returning to the example of the party, while private enforcement might be certain in that setting (note that if the neighbors did not detect the party it would imply that no harm

was caused),⁸ public enforcement will sometimes fail, leading to no payment. Economic analysis has explored how discrete changes in the probability of detection can be dealt with through proper adjustments of sanctions.⁹ We do not aim to explore the effects of such discrete changes. Rather, our focus is on the effect of switching from a regime in which the probability of detection is one hundred percent to one in which it is lower (without concern about the precise probability).

For economists, the comparison between different legal regimes that set monetary consequences to an act is straightforward. Since all dollars are fungible, and rational individuals aim to maximize the amount of dollars they have, economists generally assume that the legal framing of a payment is irrelevant to the decisions individuals make. For example, the chapter in a leading microeconomics text book dealing with negative externalities describes taxes, subsidies, and private rights as equivalent from the perspective of the individuals engaging in the regulated activity.¹⁰ From an economic point of view, these are merely names for the price that needs to be paid for the activity. Building on this assumption, the "seminal insight" of law and economics was that the legal system sets prices for different acts, and that the tools of price theory can be employed in order to predict the way different legal rules will influence people's decisions.¹¹ Based on this insight, legal economists modeled the incentives created by an array of legal payments. Contract remedies were modeled as prices set by the law for breaching a contract.¹² Tort compensation was analyzed as the price set for engaging in risky behavior.¹³ Similarly, criminal sanctions were modeled as prices affecting criminals' decision whether to commit a crime.¹⁴ Later con-

⁸ To be sure, perfect detection does not guarantee perfect enforcement. In the situation described above, private enforcement might fail for a variety of other reasons. For instance, the neighbor might decide not to sue because the costs of filing a legal suit exceed its potential payoffs.

⁹ See, e.g., STEVEN SHAVELL, FOUNDATIONS OF ECONOMIC ANALYSIS OF LAW 502–09 (2004) (discussing the possibility of an optimal balance of sanction size and probability of enforcement).

¹⁰ See ANDREU MAS-COLELL, MICHAEL D. WHINSTON & JERRY R. GREEN, MICROECONOMIC THEORY 351–59 (1995).

¹¹ Russell B. Korobkin & Thomas S. Ulen, *Law and Behavioral Science: Removing the Rationality Assumption from Law and Economics*, 88 CAL. L. REV. 1051, 1054 (2000) (discussing the rational choice model proposed by the law and economics movement).

¹² See, e.g., Steven Shavell, *Damage Measures for Breach of Contract*, 11 BELL J. ECON. 466, 468–69 (1980); Steven Shavell, *The Design of Contracts and Remedies for Breach*, 99 Q. J. ECON. 121, 122 (1984) (modeling breach decisions as a function of the cost of performance and the cost set for breach by the legal system).

¹³ See generally GUIDO CALABRESI, THE COSTS OF ACCIDENTS: A LEGAL AND ECONOMIC ANALYSIS (1970); WILLIAM M. LANDES & RICHARD A. POSNER, THE ECONOMIC STRUCTURE OF TORT LAW (1987) (modeling the decisions of individuals as to the level of care they take as a function of the liability they incur through the tort system).

¹⁴ See, e.g., Gary S. Becker, *Crime and Punishment: An Economic Approach*, 76 J. POL. ECON. 169, 176–79 (1968) (presenting an analysis of the supply of criminal offenses given the probability of conviction, length of punishment, and other variables); Isaac Ehrlich, *Crime, Punishment, and the Market for Offenses*, 10 J. ECON. PERSP. 43, 46–48 (1996) (offering a contemporary treatment of the subject).

tributions continued this line of thought and modeled the different substitution effects between legal prices.¹⁵

The positive view of legal payments as prices went hand-in-hand with the normative claim that when efficiency calls for it, breaching a legal duty while paying the legal price is the desirable mode of action. If legal prices are set in an efficient manner that reflects all of the harms associated with a certain breach of duty, then breaching and paying the price implies a gain in social welfare. In the contractual setting this claim manifests itself in the efficient breach debate.¹⁶ Frank Easterbrook and Daniel Fischel portray the view of legal payments as prices more generally in the following statement:

The penalties Congress names for disobedience are a measure of how much it wants firms to sacrifice in order to adhere to the rules; the idea of optimal sanctions is based on the supposition that managers not only may but also should violate the rules when it is profitable to do so.¹⁷

A corollary of the seminal insight is that different legal regimes are merely tools in a policymaker's toolbox, and that the choice between them should be guided by the costs and benefits of administering them, not by an inherent difference between them. Ronald Coase bases his endorsement of property rights over taxation as a way to deal with negative externalities on the assumption that setting the appropriate level of taxation might be a difficult task for the government.¹⁸ A more detailed analysis of the question was later offered by Steven Shavell, who explored the advantages and disadvantages of different legal regimes aimed at controlling risk.¹⁹ Shavell divided the different regimes along two of the three dimensions we explore in this study, namely, ex post versus ex ante regimes, and regimes initiated by private parties versus those controlled by the state.²⁰ Discussing the relative advantages of ex post and ex ante regimes for different applications, Shavell dealt with questions such as: Do injurers have sufficient resources to pay for the harm they cause? Can specific injurers be identified and assigned liability? Which party possesses information regarding the risk and

¹⁵ See, e.g., Neal Kumar Katyal, *Deterrence's Difficulty*, 95 MICH. L. REV. 2385 (1997) (analyzing substitution between types of crimes); Doron Teichman, *The Market for Criminal Justice: Federalism, Crime Control, and Jurisdictional Competition*, 103 MICH. L. REV. 1831 (2005) (analyzing substitution between geographic areas).

¹⁶ See generally Richard Craswell, *Contract Remedies, Renegotiation, and the Theory of Efficient Breach*, 61 S. CAL. L. REV. 629 (1988); Daniel Friedmann, *The Efficient Breach Fallacy*, 18 J. LEGAL STUD. 1 (1989).

¹⁷ Frank H. Easterbrook & Daniel R. Fischel, *Antitrust Suits by Targets of Tender Offers*, 80 MICH. L. REV. 1155, 1177 n.57 (1982).

¹⁸ Ronald H. Coase, *The Problem of Social Cost*, 3 J.L. & ECON. 1, 41–42 (1960).

¹⁹ STEVEN SHAVELL, *ECONOMIC ANALYSIS OF ACCIDENT LAW* 277–90 (1987).

²⁰ Note that Shavell focused on the identity of the party initiating the legal procedure leading to the payment, see *id.* at 278–79, while we focus on the party receiving the payment. Analytically the two do not have to be identical, given the possibility of decoupling. Nonetheless, usually the party initiating the legal process will also be the party receiving the payment.

the ability to reduce it? What are the administrative costs associated with each regime?²¹ Similarly, Shavell's analysis of the private-state dimension focuses on issues such as the level of dispersion of harm and the parties' information.²² Neither Coase nor Shavell explore the possibility that the legal framing itself affects the parties' incentives, and thus could affect the selection of the optimal legal regime.

Despite these views, some law and economics scholars have explored the boundary of perceiving legal remedies as prices. Robert Cooter, for instance, distinguished between prices and sanctions based on the nature of the legal rule.²³ According to Cooter's definition, a sanction "is a detriment imposed for doing what is forbidden," while a price is "payment of money which is required in order to do what is permitted."²⁴ In other words, sanctions are attached to behaviors that violate a certain standard set by the law, while prices are attached to certain behaviors no matter how they are performed. Thus, for example, Cooter suggests that liability within a negligence rule is a sanction, while liability created by a strict liability rule is a price.²⁵ Nonetheless, one should notice that Cooter's distinction between prices and sanctions does not challenge the basic assumption that all legal payments are fungible. According to Cooter, a sanction of \$100 and a price of \$100 create identical incentives.²⁶ Rather, it is the discontinuation in legal liability in a sanctioning system (created by the shift from no liability to total liability when one violates the legal standard) that distinguishes the incentives created by the two systems.²⁷

The assumption of fungible legal dollars runs against several bodies of literature. Social scientists have documented many instances in which people do not treat their dollars as fungible. Legal scholars have argued both that different legal payments ought to be viewed as different, and that people in fact view them as different. We turn now to review this literature and present its implications to our study.

²¹ *Id.* at 279–82.

²² *Id.* at 283–84.

²³ Robert Cooter, *Prices and Sanctions*, 84 COLUM. L. REV. 1523 (1984).

²⁴ *Id.* at 1524–25 (emphasis omitted).

²⁵ *Id.* at 1538–44.

²⁶ This point is most evident in Cooter's mathematical appendix, which treats both prices and sanctions as "detriment[s]" imposed by the legal system and incorporated into people's cost function. *See id.* at 1553–55.

²⁷ To be sure, several legal scholars focusing on the behavioral effects of the law have explored the role of differences between legal payments on parties other than the party committing the regulated act. For example, Michelle Chernikoff Anderson and Robert MacCoun demonstrated that manipulating different aspects of legal payments affects jury decisions regarding those payments. *See, e.g.*, Michelle Chernikoff Anderson & Robert J. MacCoun, *Goal Conflict in Juror Assessments of Compensatory and Punitive Damages*, 23 LAW & HUM. BEHAV. 313, 319–21, 323–25 (1999). Similarly, Jeffery Rachlinski and Forest Jourden documented differences in the behavior of the parties harmed by the act as result of legal framing. *See* Jeffery J. Rachlinski & Forest Jourden, *Remedies and the Psychology of Ownership*, 51 VAND. L. REV. 1541, 1566–72 (1998).

Sociologists have long differentiated between different types of monies. In her study, *The Social Meaning of Money*, Viviana Zelizer documented a wide range of situations in which people earmark monies in unique ways.²⁸ In early twentieth century America, money earned by women was dedicated to specific purposes.²⁹ Similarly, a set of social norms limited the way money received as a gift could be used.³⁰ For instance, gift money was not to be used for expenses, such as groceries, or for paying a gambling debt.³¹ Zelizer concluded that people think and feel differently about various types of money, which leads them to use that money in certain ways.³² While this literature provides a theoretical foundation for our study, in the sense that it demonstrates that people do not treat all of their dollars as fungible, it does not provide us with specific hypotheses. Zelizer generally dealt with the way people treat money they *have*, not the way they treat money they must pay. Furthermore, Zelizer did not explore the unique characteristics of legal payments as such.

Some economists have also shifted from the fungibility assumption, documenting its violations³³: Graduate students with high expected incomes do not treat present and future dollars as fungible and tend to consume less than the life cycle theory of consumption would suggest.³⁴ Dollars that are earmarked by employers as “regular” income or as a “bonus” are consumed differently by households.³⁵ People receiving relatively small windfalls tend to consume them in a way that violates rational choice theory.³⁶ Much like the sociological literature, we find this line of literature motivating, yet we cannot generate specific hypotheses from it. Economic studies of the fungibility of money have also focused on money people receive and the way they spend it; in economic terms, they have measured the marginal propensity to consume. They have not measured nonfungibility between different payments, let alone between different types of legal payments.

²⁸ ZELIZER, *supra* note †, at 21–25.

²⁹ *Id.* at 61–63.

³⁰ *Id.* at 111–14.

³¹ *See id.* (noting that gift money was not to be treated as regular income but rather added to one’s capital).

³² *Id.* at 211.

³³ *E.g.*, Thaler, *supra* note 2 (documenting anomalies in fungibility). Psychologists have also explored the limits of the fungibility assumption in experimental settings. *See, e.g.*, Hal R. Arkes et al., *The Psychology of Windfall Gains*, 59 *ORG. BEHAV. & HUM. DECISION PROCESSES* 331, 332 (1994) (suggesting that windfall gains are spent more readily than other assets).

³⁴ *See* Thaler, *supra* note 2, at 196.

³⁵ *See* Tsuneo Ishikawa & Kazuo Ueda, *The Bonus Payment and Japanese Personal Savings*, in *THE ECONOMIC ANALYSIS OF THE JAPANESE FIRM* 133, 174–76 (Aoki Masahiko ed., 1984) (proposing that “bonus” payments are more likely to be saved in Japan).

³⁶ *See* Michael Landsberger, *Windfall and Consumption: Comment*, 56 *AM. ECON. REV.* 534, 538–39 (1966) (speculating that windfalls are “spen[t] . . . with little thought”); *see also* Peter Kooreman, *The Labeling Effect of a Child Benefit System*, 90 *AM. ECON. REV.* 571, 581–82 (2000) (discussing the potential effects of the labeling of child welfare benefits on parent’s consumption preferences).

Nonfungibility of money has been documented in the crowding-out literature as well. Generally, this literature suggests that external interventions that utilize monetary incentives or punishments may undermine (and, under different identifiable conditions, strengthen) intrinsic motivations.³⁷ For instance, paying people in return for their blood might erode altruistic blood donations.³⁸ A refinement of the crowding-out literature demonstrated that the framing of incentives affects people's behavior. Ernst Fehr and Simon Gächter found that when monetary incentives were framed as a price reduction, they had a greater effect than when they were framed as a bonus.³⁹ Bruno Frey and Alois Stutzer have argued that tradable emissions rights and emissions taxes could create a different crowding-out effect, bringing about different behavior.⁴⁰ This refinement of the crowding-out literature leads us to believe that the legal framing of payments could affect the way in which the law crowds out alternative reasons for action, thereby affecting people's behavior.

An additional line of economic studies that offers more concrete predictions for our study examines decisionmaking in situations of uncertainty. This literature demonstrated that people tend to prefer certain outcomes over probabilistic ones.⁴¹ For example, given the choice between \$3000 for sure and \$4000 with 80% probability, people will tend to choose the certain \$3000.⁴² However, when choosing between \$3000 with 25% probability and \$4000 with 20% probability, most people choose the \$4000 option, despite the fact that the second set of options is the same as the first with all

³⁷ See e.g., Ernst Fehr & Armin Falk, *Psychological Foundations of Incentives*, 46 EUR. ECON. REV. 687, 688 (2002) (suggesting that an overemphasis on the importance of economic incentives actually distorts understandings of them); Ernst Fehr & Bettina Rockenbach, *Detrimental Effects of Sanctions on Human Altruism*, 422 NATURE 137, 139–40 (2003) (suggesting that the nonreciprocal nature of sanctions deters voluntary cooperation); Ernst Fehr & Simon Gächter, *Do Incentive Contracts Undermine Voluntary Cooperation?* 1 (Inst. for Empirical Research in Econ., Univ. of Zurich, Working Paper No. 34, 2002) (showing that a decrease in voluntary cooperation under incentive contracts is consistent with notions of reciprocity and inequity aversion). See generally BRUNO S. FREY, NOT JUST FOR THE MONEY—AN ECONOMIC THEORY OF PERSONAL MOTIVATION 13–19 (1997).

³⁸ See RICHARD M. TITMUSS, THE GIFT RELATIONSHIP: FROM HUMAN BLOOD TO SOCIAL POLICY 245–46 (1971) (arguing that monetary payments to givers of blood could diminish the amount of blood given voluntarily).

³⁹ Fehr & Gächter, *supra* note 37, at 1.

⁴⁰ Bruno S. Frey & Alois Stutzer, *Environmental Morale and Motivation* 14–16 (Inst. for Empirical Research in Econ., Univ. of Zurich, Working Paper No. 288, 2006), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=900370. For a literature review of economic studies discussing the effect on people's behavior of different framing of taxes, see Kees Goudswaard, Koen Caminada & Henk Vording, *Financing the Welfare State*, 42 TAX NOTES INT'L 731 (2006).

⁴¹ See, e.g., Daniel Kahneman & Amos Tversky, *Prospect Theory: An Analysis of Decision Under Risk*, 47 ECONOMETRICA 263 (1979) (demonstrating this in the context of expected utility theory). Much of Kahneman and Tversky's analysis is built on the early contributions of Maurice Allais in *Le Comportement de l'Homme Rationnel Devant le Risque: Critique des Postulats et Axiomes de l'Ecole Americaine*, 21 ECONOMETRICA 503 (1953).

⁴² Kahneman & Tversky, *supra* note 41, at 266–67.

probabilities reduced by a factor of 4.⁴³ The reduction of the probability of winning from 1.0 to 0.25 had a much larger effect than the reduction from 0.8 to 0.2.⁴⁴ These results imply that shifting from a probabilistic to a certain sanction (while holding the size of the sanction constant) might increase the level of the activity being sanctioned because people will no longer have to deal with the uncertainty associated with the sanction.⁴⁵ This prediction runs against traditional deterrence models, according to which any increase in the probability of detection will necessarily reduce activity levels.⁴⁶ The reason for this discrepancy is that traditional theories treated the switch between a probabilistic and a certain regime as merely another “regular” increase in the probability of detection.

Turning to the legal literature, we find several claims made regarding different types of legal payments. The legal philosophy literature has explored in depth the inherent distinction between different types of legal payments. To be sure, the normative nature of the philosophical claims reviewed below renders them distinct from social scientific hypotheses, which are designed to undergo empirical assessment. Thus, one might question the relevance of this literature to an empirical project such as ours. Nonetheless, we find this literature relevant for two reasons. First, despite the normative-positive dichotomy, legal philosophers build some of their insights on “armchair” sociology and assumptions regarding human intuition. Second, even if the philosophical project is purely normative, one would expect to observe some type of correlation between what constitutes normatively desirable behavior and actual behavior.

Up until the 1960s, Anglo-American legal philosophy focused on the role of sanctions in creating legal obligations. For instance, John Austin viewed law as a set of commands created by a sovereign and backed by sanctions.⁴⁷ This line of thought supports the law-as-a-price-setting-device view endorsed by legal economists. Yet later legal philosophers have presented a competing view of the role of law within the process of reasoning. In *The Concept of Law*, H. L. A. Hart presented what is seen as a successful critique of Austin’s command theory of law.⁴⁸ As Hart pointed out, legal

⁴³ *Id.*

⁴⁴ *Id.*

⁴⁵ It is important to note that the behavioral literature distinguishes between perceptions of risk (when the probability of the event is known) and perceptions of uncertainty (when the probability of the event is unknown). In this study we focus on certain versus uncertain enforcement (where participants are not given information on the probability of enforcement) because the theory we focus on is related to the social meaning of enforcement rather than judgment under uncertainty. For a discussion of the difference between risk and uncertainty, see generally Amos Tversky & Craig R. Fox, *Weighing Risk and Uncertainty*, 102 PSYCH. REV. 269 (1995).

⁴⁶ See Becker, *supra* note 14, at 176–79.

⁴⁷ JOHN AUSTIN, THE PROVINCE OF JURISPRUDENCE DETERMINED 18–23 (Wilfrid E. Rumble ed., 1995).

⁴⁸ H. L. A. HART, THE CONCEPT OF LAW (1961).

rules are not simply a set of rules backed by sanctions.⁴⁹ Rather, the body of law includes an array of enabling regimes that are not built on sanctions.⁵⁰ In addition, Hart emphasized the role of obligations created by law. This analysis led Hart to distinguish between taxes and fines as means to achieve social control. As he put it,

[a] punishment for a crime, such as a fine, is not the same as a tax on a course of conduct, though both involve directions to officials to inflict the same money loss. What differentiates these ideas is that the first involves, as the second does not, an offence or breach of duty in the form of a violation of a rule set up to guide the conduct of ordinary citizens.⁵¹

Hart's analysis captures the intuition that different types of legal payments are inherently different because they embody a different moral meaning.

A second strand of legal scholarship relating to our study deals with the expressive power of law. Expressive theories consist of an array of distinct claims, including theories of lawmaking, claims about the connection between the law and social norms, and positive predictions as to the way different legal expressions affect behavior.⁵² Our focus here is on the expressive theories of sanctions. Expressive theories of sanctions argue that, as a descriptive matter, one should distinguish between penalties and punishments.⁵³ While penalties function to a large degree as prices, punishments include a deeper social meaning that expresses resentment and indignation.⁵⁴ Thus, when legal payments are framed as punishments, the power of the law to regulate behavior is greater. An example of the way expressive theories of sanctions have played out in policy debates can be

⁴⁹ *Id.* at 26–41.

⁵⁰ *Id.* Hart suggests that enabling rules confer to people power to create a set of rights and obligations. For example, the rules of contract formation describe the conditions for the creation of an enforceable contract. *Id.* at 27–28.

⁵¹ *Id.* at 39.

⁵² For some prominent examples of this literature, see, for example, Dan M. Kahan, *What Do Alternative Sanctions Mean?*, 63 U. CHI. L. REV. 591, 595–605 (1996); Richard H. Pildes & Elizabeth S. Anderson, *Slingshot Arrows at Democracy: Social Choice Theory, Value Pluralism, and Democratic Politics*, 90 COLUM. L. REV. 2121 (1990); Cass R. Sunstein, *On the Expressive Function of Law*, 144 U. PA. L. REV. 2021 (1996). For a critical view, see, for example, Matthew D. Adler, *Expressive Theories of Law: A Skeptical Overview*, 148 U. PA. L. REV. 1363 (2000). For empirical studies of the expressive function of the law, see, for example, Richard H. McAdams & Janice Nadler, *Testing the Focal Point Theory of Legal Compliance: The Effect of Third Party Expression in an Experimental Hawk/Dove Game*, 2 J. EMPIRICAL LEGAL STUD. 87 (2005); Iris Bohnet & Robert Cooter, *Expressive Law: Framing or Equilibrium Selection?* (Univ. of Cal. Berkeley Sch. of Law, Public Law and Legal Theory Working Paper No. 138, 2003), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=452420; Yuval Feldman, *The Expressive Function of the Law: Legality, Cost, Intrinsic Motivation and Consensus* (unpublished manuscript), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=912989.

⁵³ See, e.g., Joel Feinberg, *The Expressive Function of Punishment*, 49 MONIST 397 (1965), reprinted in JOEL FEINBERG, *DOING AND DESERVING: ESSAYS IN THE THEORY OF RESPONSIBILITY* 95–96 (1970).

⁵⁴ See *id.* at 97–98.

found in the different views presented regarding the use of emissions trading. Economists generally view emissions trading as an efficient way to allocate polluting rights.⁵⁵ Legal environmentalists, on the other hand, have raised the concern that emissions trading will function as a price, and lead to a greater degradation of the environment.⁵⁶

The expressive literature has yet to offer a systematic analysis of legal payments that can explain what precisely distinguishes between penalties and punishments. One recurring theme in this literature is that criminal sanctions carry a powerful expressive force when compared to other forms of sanctioning.⁵⁷ In our framework, this would imply that a combination of an ex post probabilistic payment with the state as the recipient of the payment carries a social meaning that gives it greater deterrent power than an ex ante certain payment to the harmed party. Yet it is not clear if it is the combination of all of these characteristics that creates the unique social meaning, or if each characteristic creates the meaning on its own. We conjecture that it is the first two that carry the expressive social meaning: Probabilistic payments might imply an element of wrongdoing on the part of the paying party. One does not “get caught” or “get away” if one engages in socially legitimate activities. It is only wrongdoers engaging in blameworthy behavior who “get caught.” Ex post payments might have a similar meaning because they are payments that are forced upon the actor by the state. Ex ante payments, on the other hand, are made with consent, which could imply that there has been no wrongdoing on behalf of the payer. Regarding the identity of the party receiving the payment, no conclusion necessarily follows. The state clearly has strong expressive powers, but those could be used both to prohibit and to legitimize an act. Thus, we cannot assume that paying the state will always carry an identical expressive meaning. However, given that both the difference in time and difference in probability are two qualities that differentiate fines from prices, we might expect that this effect will be greater for payments to the state. It seems that when the recipient of the money is the state, and when the payment is dependent upon getting caught, the payment will look like a fine rather than a price. Similarly, paying the state in advance may foster a presumption of legality, as though the state has licensed the behavior in question. Thus, we expect to see some interaction among these three factors, where time and certainty will exert a greater effect when the recipient of the payment is the state, rather than the individual.

⁵⁵ See, e.g., Bruce A. Ackerman & Richard B. Stewart, *Reforming Environmental Law: The Democratic Case for Market Incentives*, 13 COLUM. J. ENVTL. L. 171, 179–84 (1988).

⁵⁶ See, e.g., STEVEN KELMAN, WHAT PRICE INCENTIVES? ECONOMISTS AND THE ENVIRONMENT 44–47 (1981); Sunstein, *supra* note 52, at 2045–46.

⁵⁷ See, e.g., Feinberg, *supra* note 53, at 98–101; Richard H. McAdams, *The Origin, Development, and Regulation of Norms*, 96 MICH. L. REV. 338, 397–400 (1997).

In sum, we have identified three structural dimensions that differentiate legal payments: timing, recipient identity, and certainty. Reviewing the literature has led us to conclude that, even when legal payments are structured such that their economic consequences are similar, they might be perceived by people as different. These differences, in turn, may yield different behavior patterns. With this background in hand, we turn to explore these differences.

II. THE EXPERIMENT

A. Participants and Design

A total of 420 students at Bar-Ilan University and the Hebrew University of Jerusalem completed the questionnaire. The participants were not familiar with the legal issues that were described in the questionnaire. We employed a between-subject, three-factor design. Each factor was divided along two levels: timing of payment (ex ante versus ex post), identity of recipient (state versus injured party), and level of certainty (certain versus probable).

B. Procedure

Participants were randomly divided amongst the six experimental conditions. The questionnaire was introduced with a hypothetical scenario that involved the behavior of an owner of a factory that creates a negative externality in the production process. The text of the questionnaire, distributed to all subjects, read as follows⁵⁸:

Assume that you own a fertilizer factory located adjacent to a small lake. You recently received an order for a specific kind of fertilizer, which the factory has not produced previously. It will cost the factory 200,000 Shekels [around \$50,000] to produce the order. Producing this particular fertilizer also involves dumping a new kind of chemical into the lake. The only effect of dumping this chemical into the lake will be to raise the production expenses of a neighboring fertilizer factory, which is also located at the edge of the same lake. With the exception of the neighboring factory, the lake water is not used by anyone else. Additionally, the new chemical *does not* cause any medical problems or damage to the environment.

The first subgroup was told that, according to the law, in order to dump the chemical they need to pay a license fee of 100,000 Shekels (around \$25,000) to the government, ex ante (hereinafter ex ante-state).

The second subgroup was told that, according to the law, in order to dump the chemical they need to pay the neighboring factory a sum of 100,000 Shekels (hereinafter ex ante-individual).

⁵⁸ The original questionnaire was in Hebrew. For a translation of the full questionnaire, see the Appendix.

The third subgroup was told that, according to the law, if they dump the chemical they are sure to be sued by the neighboring factory, and are expected to pay a sum of 100,000 Shekels (hereinafter *ex post*-individual-certain).

The fourth subgroup was told that, according to the law, if they dump the chemical they might be sued by the neighboring factory, and that if they are sued they are expected to pay a sum of 100,000 Shekels (hereinafter *ex post*-individual-probable).⁵⁹

The fifth subgroup was told that, according to the law, if they dump the chemical they will be fined 100,000 Shekels by the municipal authority. Participants in that group were told that, due to some state-of-the-art equipment, detection of dumping is certain (hereinafter *ex post*-state-certain).

The sixth subgroup was told that, according to the law, if they dump the chemical there is a good chance that they would be sued by the authorities and would have to pay a fine of 100,000 Shekels to the municipal authority (hereinafter *ex post*-state-probable).

The seventh subgroup served as a control and did not undergo any manipulation.

Following the short presentation of the vignettes, participants were asked to estimate the sum of money they would ask for in order to produce the chemical.⁶⁰ In addition, we asked participants about the perceived ethicality of producing the chemical, whether they thought that producing the chemical was the right move for them, whether it was legally permissible to do so, and finally, about the likelihood that in this given situation they would engage in producing the chemical.

C. Results

1. *Differences Between “Legal Dollars.”*—For convenience, we have divided the six experimental groups to three subgroups, using two of the three dimensions: (a) the entity receiving the sum of 100,000 Israeli Shekels, where one category relates to the state (Groups 1, 5, and 6) and the second to the individual (Groups 2, 3, and 4); (b) the certainty and time of payment, where one category relates to certain payment ahead of time (Groups 1 and 2, heretofore *ex ante*), a second relates to certain payment after the fact (Groups 3 and 5, heretofore *ex post*), and a third relates to uncer-

⁵⁹ Rational individuals are expected to strictly prefer the probabilistic option. Given the fact that we held the size of the sanction constant, according to behavioral approach, framing the fine as probabilistic should make people less likely to dump the chemical.

⁶⁰ Given that the amount of money people asked for could be dictated by a large number of factors, and that the definition of what is a large sum of money might vary from one person to another, we supplemented this question with an explicit question whether the participants thought they should ask for a large sum of money in order to produce the fertilizer. For further discussion, see *infra* note 139 and accompanying text.

tain payment after the fact (Groups 4 and 6, heretofore ex post-probable).⁶¹ After this, a 2×3 multivariate analysis of variance (MANOVA) was performed (payment receiving entity \times certainty of payment and time).⁶² The dependent variables, checked simultaneously, were the six attitude variables.⁶³ The independent variables were the following: (a) the entity that received the payment, and (b) the certainty of the payment and time of that payment.⁶⁴ In the MANOVA, a statistically significant⁶⁵ difference was found between the averages based on the identity of the party receiving the payment.⁶⁶ Similarly, a statistically significant difference was found in the multivariate analysis of variance between the averages based on the time of payment and the certainty of payment.⁶⁷ The interaction effect of the entity that received the payment and the certainty of the payment and time of that payment was also statistically significant.⁶⁸

Table 2 presents the means and standard deviations of each of the variables, divided by the six subgroups.⁶⁹ Following the table, we describe the findings of the series of 2×3 ANOVA performed for each variable separately, and the Duncan Post Hoc Tests.⁷⁰

⁶¹ As a result, two new 2- or 3-level independent variables were created.

⁶² MANOVA is a common statistical technique that aims to identify the sources of variance among participants. In our design, the purpose of the statistical analysis is to examine whether the experimental groups are different from each other. This procedure allows us to tell how much of the difference between participants could be attributed to their assignment to different subgroups. In plain words, this statistical analysis tells us how much of the difference in the responses of participants can be explained by the framing of the legal payment.

⁶³ "Dependent variables" are variables explained by the model. In our context, the dependent variables are participants' attitudes toward the production of the fertilizer. All six attitude variables were measured on the same metric, 1–10 Likert scale.

⁶⁴ "Independent variables" are variables that are manipulated in the model in order to measure the effects of different values on the dependent variable. In our context, the independent variables are the various legal regimes we described in the questionnaire.

⁶⁵ "Significance" in statistics refers to the odds that a certain result was created by chance. In the context of this Essay, every time a difference or a result is presented as statistically significant, it means that there is less than a 5% likelihood that this difference was coincidental. The 5% level of significance is a common threshold used in statistical analysis. In some cases where the result was stronger, we added $p < .01$, $p < .001$ to imply that the likelihood of a chance driven result was lower than 1%, 0.1% respectively.

⁶⁶ $F(6, 363) = 5.85, p < .001, \eta^2 = .09$.

⁶⁷ $F(12, 726) = 13.03, p < .001, \eta^2 = .18$.

⁶⁸ $F(12, 726) = 3.03, p < .001, \eta^2 = .05$.

⁶⁹ "Standard deviation" (SD) is a common concept used to measure the distribution of a variable around the average.

⁷⁰ "Post hoc tests" are used to identify the source of variance when more than one possible source exists. For example, when an effect of a variable with three levels is significant, one needs to do a post hoc test to identify which of the differences between the levels is responsible for the existence of a significant difference. The post hoc test we chose to use in this paper is called Duncan. It should be noted that we also used the Scheffe Post Hoc Test and, unless mentioned otherwise, the results were similar.

Table 2: Means and Standard Deviations (in Parentheses) of All Measured Dependent Variables Divided by the Identity of Recipient, Certainty of Payment, and Timing of Payment

Variable		State			Individual		
		Ex ante-certain	Ex post-certain	Ex post-probable	Ex ante-certain	Ex post-certain	Ex post-probable
Unethical	M	4.59	6.12	7.06	4.17	5.04	6.40
	SD	(3.11)	(3.01)	(2.35)	(2.58)	(2.38)	(2.70)
Appropriateness	M	6.10	4.53	4.78	6.54	5.79	5.39
	SD	(3.06)	(2.79)	(2.79)	(2.56)	(2.60)	(2.84)
Personal Gain	M	6.27	4.97	5.06	6.53	6.27	5.45
	SD	(3.24)	(2.89)	(2.66)	(2.11)	(2.79)	(3.15)
Perception of Legality	M	3.42	8.19	8.45	3.74	5.23	6.34
	SD	(2.63)	(2.42)	(2.23)	(2.60)	(3.08)	(3.24)
Compliance	M	5.03	3.94	4.41	6.12	5.70	4.77
	SD	(3.27)	(2.80)	(3.07)	(2.54)	(3.09)	(3.09)
Entitlement	M	6.60	7.71	7.97	7.02	7.14	7.85
	SD	(2.64)	(2.13)	(1.70)	(1.84)	(1.97)	(1.81)

a. *Unethicality.*—The measurements of unethicality and appropriateness both focus on the perception of the morality of producing the fertilizer in a given legal payment setting. We first examined the between-group perceived level of unethicality of fertilizer production.⁷¹ In the analysis of variance a significant difference was found between the averages based on the identity of the party receiving the payment.⁷² The average given payment to the individual was significantly lower than the average for payment to the state.⁷³ That is to say, when the payment was made to the individual, participant judgment of fertilizer production unethicality was lower than when the payment was made to the state.

Similarly, a significant difference was found in the ANOVA between the time of payment and the certainty of payment,⁷⁴ where the average for

⁷¹ Ratings for the variable of perceived unethicality of fertilizer production (Unethical) ranged from 1 (fertilizer production in the described legal framework is not unethical) to 10 (fertilizer production in the described legal framework is unethical). Table 2 presents the averages and standard deviations (in parentheses) for the variable of unethicality judgment of fertilizer production according to the sum-receiving entity (state and individual), the time of payment, and amount of certainty.

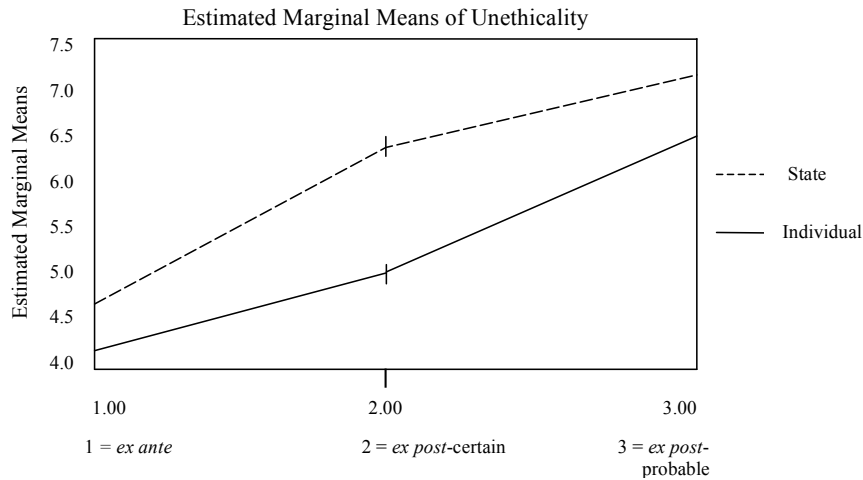
⁷² $F(1, 387) = 6.81, p < .01, \eta^2 = .02$.

⁷³ The results of the individual were (M = 5.30, SD = 2.71), and the results of the state were (M = 5.92, SD = 3.01).

⁷⁴ $F(2, 387) = 24.82, p < .001, \eta^2 = .11$.

Group 1 (ex ante-certain) was the lowest, after which comes the average for Group 2 (ex post-certain) and the average for Group 3 (ex post-probable).⁷⁵ In the Duncan Post Hoc Tests, significant differences were found between the groups. That is to say, when the payment was certain and beforehand, unethicity judgments were the lowest. Shifting payments to after-the-fact caused a rise in unethicity judgments, and adding a dimension of uncertainty to the payment caused another rise in the perception of unethicity.⁷⁶

Figure 1



Explanation for Figure 1 (applicable to all of the following figures). Certain payment in advance (Groups 1 and 2; heretofore, ex ante), in the legal situation in which payment for the spillage is certain and paid in advance. Certain payment after the fact (Groups 3 and 5; heretofore, ex post-certain), in the legal situation in which payment for the spillage is certain and paid after the fact. Uncertain payment after the fact (Groups 4 and 6; heretofore, ex post-probable), in the legal situation in which payment for the spillage is uncertain and paid after the fact.

b. Appropriateness.—We next turn to examine the differences between groups for the variable of judgment of fitting market behavior

⁷⁵ The average for Group 1 (ex ante-certain), (M = 4.40, SD = 2.88); Group 2 (ex post-certain), (M = 5.59, SD = 2.76); Group 3 (ex post-probable), (M = 6.72, SD = 2.55).

⁷⁶ No significant interaction was found between the variable of unethicity judgment of fertilizer production (spillage) and the payment recipient (state, individual) for time of payment and certainty of payment ($p > .05$). That is to say, the differences that were found between the averages for the state and the individual for the variable of unethicity judgment of fertilizer production (spillage) were not related to time or certainty of payment.

(Appropriateness).⁷⁷ In the analysis of variance, a significant difference was found between the averages based on the variable of payment recipient⁷⁸: the average given to the state recipient was significantly lower than the average given to the individual recipient.⁷⁹ That is to say, the appropriateness of production was judged to be lower when the state, rather than the individual, was the payment recipient. Similarly, a significant difference was found in the ANOVA between the averages based on the variable of timing and certainty of payment,⁸⁰ where the average for Group 3 (ex post-probable) was the lowest, after which came Group 2 (ex post-certain), followed by Group 1 (ex ante-certain).⁸¹ In the post hoc tests, the averages for Groups 2 and 3 were significantly lower⁸² than the average for Group 1. In other words, shifting the payment to after-the-fact caused participants to perceive production as a less appropriate choice.⁸³

⁷⁷ The range of ratings in the variable of judgment of fitting market behavior in fertilizer production (Appropriateness) ranged from 1 (fertilizer production in the described legal situation is inappropriate market behavior) to 10 (fertilizer production in the described legal situation is appropriate market behavior). Table 2 presents the averages and standard deviations (in parentheses) for the variable of judgment of fitting market behavior in fertilizer production according to payment recipient, time of payment, and certainty of payment.

⁷⁸ $F(1, 386) = 7.49, p < .01, \eta^2 = .02$.

⁷⁹ The results of the state were ($M = 5.15, SD = 2.95$), and the results of the individual were ($M = 5.87, SD = 2.71$).

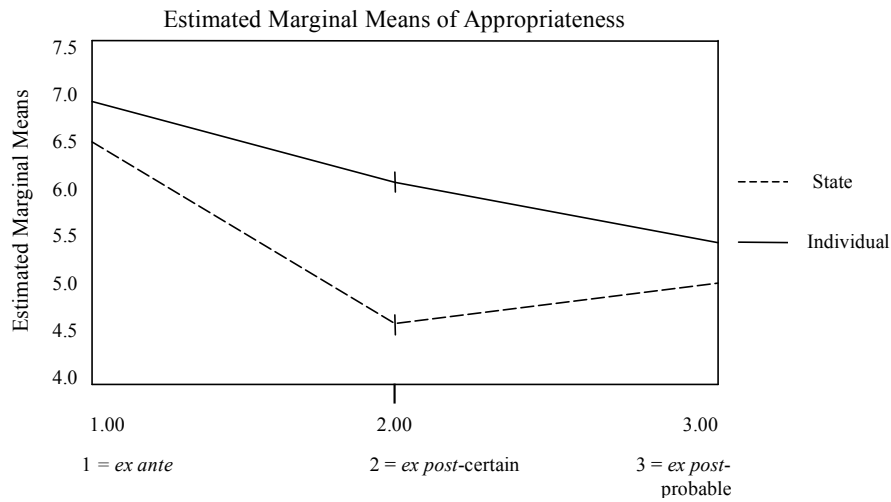
⁸⁰ $F(2, 386) = 7.88, p < .001, \eta^2 = .04$.

⁸¹ The average for Group 1 (ex ante-certain), ($M = 6.30, SD = 2.84$); Group 2 (ex post-certain), ($M = 5.16, SD = 2.76$); Group 3 (ex post-probable), ($M = 5.09, SD = 2.82$).

⁸² $p < .05$.

⁸³ No significant interaction was found for the variables of judgment of fitting market behavior regarding fertilizer production according to payment recipient, and time, and certainty of payment ($p > .05$). That is to say, the differences found between averages for the state and the individual for judgment of fitting market behavior were not related to time or certainty of payment.

Figure 2



c. Personal Gain.—The third measure examined the differences between groups for the variable of perceived personal gain in producing the fertilizer (Personal Gain).⁸⁴ This item prompted participants to judge the behavior on instrumental grounds, asking whether producing the fertilizer and paying the legal payment is a rational move. In the analysis of variance, a significant difference was found between the averages for the variable of payment recipient,⁸⁵ where the average given to the state as the recipient was significantly lower than the average given to the individual.⁸⁶ That is to say, when the state was the proposed payment recipient, judgment of personal gain from production was lower than when the individual was the proposed payment recipient. Similarly, the ANOVA revealed a significant difference between the averages for time and certainty of payment,⁸⁷ where the average for Group 3 (*ex post-probable*) was the lowest, the next highest was Group 2 (*ex post-certain*), and the next was Group 1 (*ex ante-certain*).⁸⁸ Post hoc tests revealed that the averages for Groups 2 and 3 were

⁸⁴ The range of ratings for the variable of judgment of the perceived personal gain in producing the fertilizer (Personal Gain) ranged from 1 (fertilizer production in the described legal situation is not a personally gainful step) to 10 (fertilizer production in the described legal situation is a personally gainful step). Table 1 presents the means and standard deviations (in parentheses) for the variable of judgment of the perceived personal gain in producing the fertilizer, as a function of the payment recipient, time of payment, and certainty of payment.

⁸⁵ $F(1, 384) = 5.07, p < .05, \eta^2 = .01$.

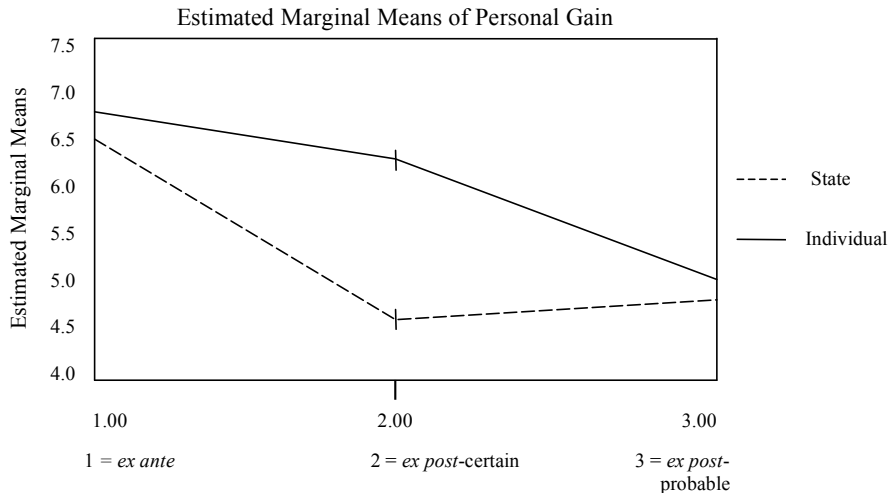
⁸⁶ The average for the state was ($M = 5.43, SD = 2.98$), and the average for the individual was ($M = 6.04, SD = 2.78$).

⁸⁷ $F(2, 384) = 5.42, p < .01, \eta^2 = .03$.

⁸⁸ The average for Group 3 (*ex post-probable*), ($M = 5.26, SD = 2.91$); Group 2 (*ex post-certain*), ($M = 5.61, SD = 2.91$); and Group 1 (*ex ante-certain*), ($M = 6.39, SD = 2.77$).

significantly lower than the average for Group 1.⁸⁹ In other words, when the payment was ex post, whether probable or certain, fertilizer production was judged to be less personally gainful than when the legal situation was ex ante-certain.⁹⁰

Figure 3



d. *Perception of Legality.*—The fourth measure examined the differences between groups for the variable of perceived unlawfulness of fertilizer production (Perception of Legality).⁹¹ The purpose of this measure was to examine whether participants viewed the legal payment as legitimizing their behavior. The ANOVA revealed a significant difference between the averages for the variable of payment recipient,⁹² where the average for payment to the individual was significantly lower than average for payment to the state.⁹³ In other words, when the individual was presented as the

⁸⁹ $p < .05$. The Scheffe Post Hoc Test revealed that the average for Group 3 was significantly lower than the average for Group 1 ($p < .05$) but did not differ from the average for Group 2 ($p > .05$).

⁹⁰ No significant interaction was found for the variable of judgment of personal gain in producing the fertilizer according to payment recipient, time, and certainty of payment ($p > .05$). That is to say, the differences found between the averages for the state and the individual for judgment of personal gain in producing the fertilizer were not related to time or certainty of payment.

⁹¹ The range of ratings for the variable of judgment of perceived unlawfulness of fertilizer production (Perception of Legality) ranged from 1 (fertilizer production in the described legal situation is lawful) to 10 (fertilizer production in the described legal situation is unlawful). Table 2 presents the averages and standard deviations (in parentheses) for the variable of judgment of perceived unlawfulness of fertilizer production, as a function of the payment recipient, time, and certainty of payment.

⁹² $F(1, 380) = 28.85, p < .001, \eta^2 = .07$.

⁹³ The average for the individual was ($M = 5.19, SD = 3.18$), and the average for the state was ($M = 6.59, SD = 3.44$).

payment recipient, subjects judged production to be more lawful than when the state was presented as the payment recipient. Similarly, the ANOVA revealed a significant difference between the averages for timing and certainty of payment,⁹⁴ where the average for Group 1 (ex ante-certain) was lowest, after which came Group 2 (ex post-certain) and then Group 3 (ex post-probable).⁹⁵ Post hoc tests revealed that the average for Group 1 was significantly lower than the averages for Groups 2 and 3, which were not significantly different. In other words, shifting the payment to after-the-fact caused participants to perceive production as less lawful.

In contrast to all other measures, a significant interaction⁹⁶ was found between the variables of perceived unlawfulness of production and payment recipient according to time and certainty of payment.⁹⁷ For Group 1 (ex ante-certain), there was no significant difference between the averages based on the designation of the state or the individual as the payment recipient.⁹⁸ However, significant differences between state and individual recipients were found for Group 2 (ex post-certain)⁹⁹ and Group 3 (ex post-probable), for which the averages for the state as recipient were significantly higher than the averages for the individual as recipient. The pattern of findings shows that the perception of lawfulness of production is higher when the individual is the proposed payment recipient than when the state is the proposed payment recipient. These disparities were only found when the payment was ex post-certain or ex post-probable, but not when it was ex ante-certain.¹⁰⁰

⁹⁴ $F(2, 380) = 76.62, p < .001, \eta^2 = .29$.

⁹⁵ The average for Group 1 (ex ante-certain), ($M = 3.42, SD = 2.62$); Group 2 (ex post-certain), ($M = 6.77, SD = 3.12$); Group 3 (ex post-probable), ($M = 7.39, SD = 2.97$).

⁹⁶ The meaning of an "interaction" between the recipient, time, and certainty is that the differences found between the averages for the state and the individual for the variable of perceived unlawfulness of production were "moderated" by the conditions of time and certainty of payment. The question who received the money affected the importance of timing and certainty to the perceived unlawfulness of the production.

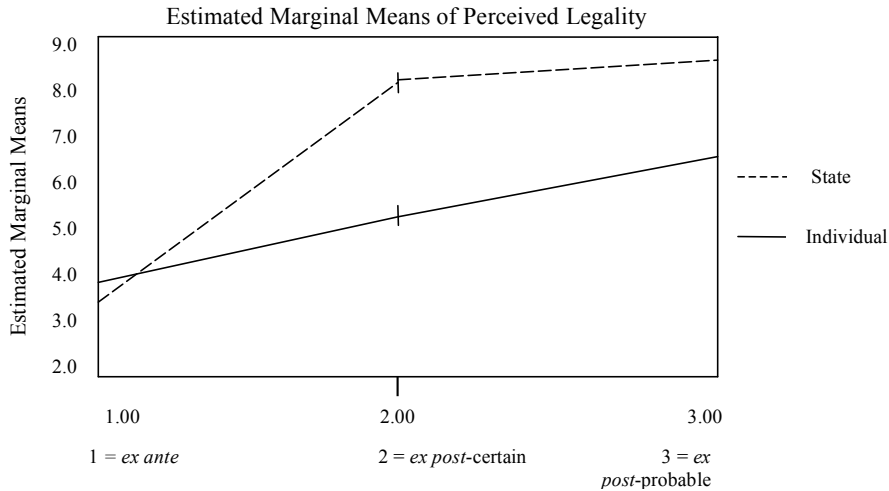
⁹⁷ $F(2, 380) = 14.33, p < .001, \eta^2 = .07$.

⁹⁸ $F(1, 380) = 1.44, p > .05, \eta^2 = .00$.

⁹⁹ $F(1, 380) = 36.29, p < .001, \eta^2 = .09$.

¹⁰⁰ The analysis demonstrates that there are significant differences between the averages for all three groups for time and certainty of payment: when the payment recipient is the state, ($F(2, 380) = 80.68, p < .001, \eta^2 = .30$); when the payment recipient is the individual, ($F(2, 380) = 14.41, p < .001, \eta^2 = .07$). The strength of the effect was more pronounced in the former.

Figure 4



e. Compliance.—The fifth measure was related to the differences between groups for the variable of intention to produce the fertilizer (Compliance).¹⁰¹ Intention to behave has been shown in many previous studies to be the best proxy for behavior,¹⁰² and hence in the context of this study it is the closest approximation of actual behavior. The ANOVA revealed a significant difference between the averages for the payment recipient,¹⁰³ where the average for the state as the recipient was significantly lower than the average for the individual as the recipient.¹⁰⁴ Put differently, when the state was the proposed payment recipient, subjects were less willing to produce the fertilizer compared to when the individual was the proposed payment recipient.

Similarly, the ANOVA revealed a significant difference between the averages for timing and certainty of payment,¹⁰⁵ where the average for Group 3 (*ex post-probable*) was the lowest, after which came Group 2 (*ex*

¹⁰¹ The range of scores for the variable of intention to produce the fertilizer (Compliance) ranged from 1 (would try not to produce the fertilizer in the described legal situation) to 10 (would try to produce the fertilizer in the described legal situation). Table 2 displays the averages and standard deviations (in parentheses) for the variable of compliance with fertilizer production, as a function of the payment recipient, time, and certainty of payment.

¹⁰² See Icek Ajzen, *From Intentions to Actions: A Theory of Planned Behavior*, in ACTION-CONTROL: FROM COGNITION TO BEHAVIOR 11, 14–18 (Julius Kuhl & Jürgen Beckman eds., 1985) (providing a summary of empirical data suggesting a correlation between intentions and actions).

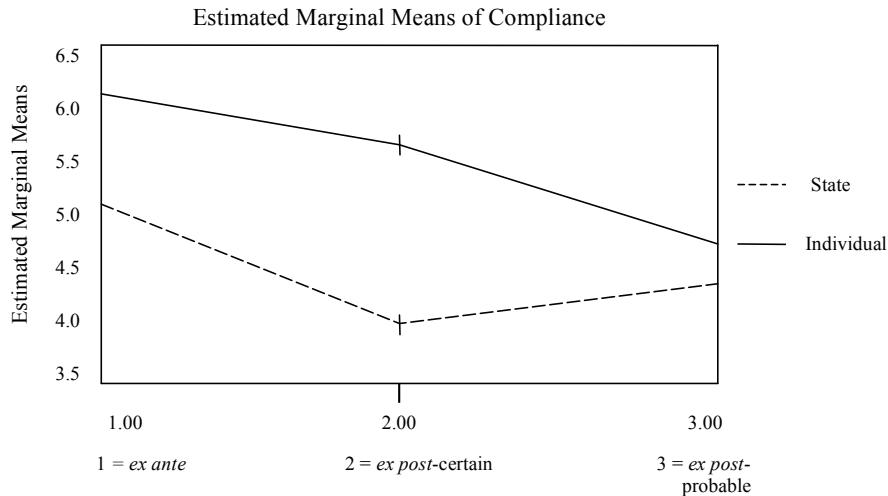
¹⁰³ $F(1, 384) = 12.43, p < .001, \eta^2 = .03$.

¹⁰⁴ The average for the state was ($M = 4.46, SD = 3.08$), and the average for the individual was ($M = 5.48, SD = 2.98$).

¹⁰⁵ $F(2, 384) = 3.78, p < .05, \eta^2 = .02$.

post-certain), followed by Group 1 (ex ante-certain).¹⁰⁶ The post hoc tests revealed that the average for Group 3 was significantly lower than that of Group 1. The average for Group 2 was not significantly different than that of the other groups. In other words, shifting from an ex ante regime to an ex post probabilistic regime reduced the willingness of participants to engage in production.¹⁰⁷

Figure 5



f. Entitlement.—The sixth measure examined the differences between groups for the variable of demanding a high price for fertilizer production (Entitlement).¹⁰⁸ This measure attempts to capture participants' overall dislike for engaging in the production in each legal setting. Asking for a higher price represents their willingness to pay to not engage in this practice. The ANOVA revealed no significant differences between the averages for the variable of payment recipient. However, the ANOVA did reveal a significant difference between the averages for the variable of time and certainty of payment,¹⁰⁹ where the average for Group 1 (ex ante-certain)

¹⁰⁶ The average for Group 1 (ex ante-certain), ($M = 5.53$, $SD = 3.00$); Group 2 (ex post-certain), ($M = 4.81$, $SD = 3.07$); Group 3 (ex post-probable), ($M = 4.59$, $SD = 3.08$).

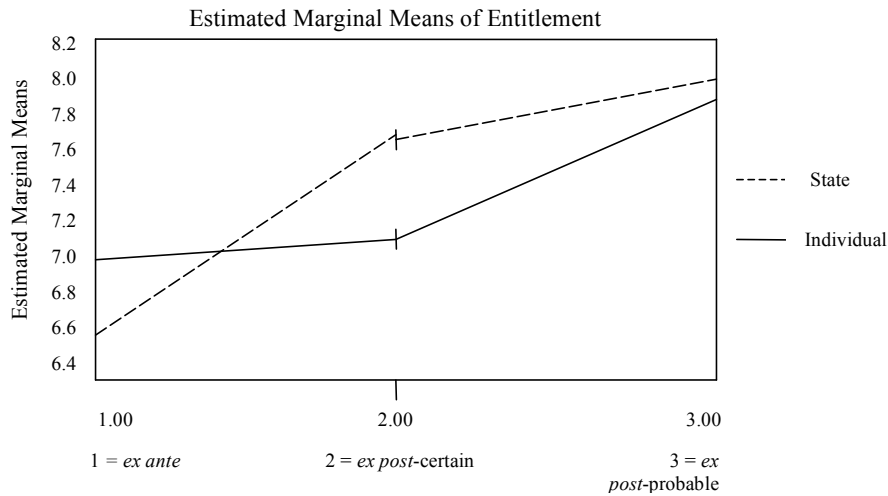
¹⁰⁷ No significant interaction was found for the variable of judgment of compliance to fertilizer production according to payment recipient, time, and certainty of payment ($p > .05$). That is to say, the differences found between the averages for the state and the individual for willingness to comply were not related to time or certainty of payment.

¹⁰⁸ The range of scores for the variable of demanding a high price for fertilizer production (Entitlement) ranged from 1 (would refrain from asking for a high price to produce the fertilizer in the described legal situation) to 10 (would ask for a high price to produce the fertilizer in the described legal situation). Table 2 displays the averages and standard deviations (in parentheses) for the variable of Entitlement, as a function of the payment recipient, time, and certainty of payment.

¹⁰⁹ $F(2, 380) = 9.44$, $p < .001$, $\eta^2 = .05$.

was the lowest, after which came Group 2 (ex post-certain), followed by Group 3 (ex post-probable).¹¹⁰ The post hoc tests revealed that the average for Group 1 was significantly lower than the averages for Groups 2 and 3, which were not significantly different from one another. In other words, demand for an especially high price in return for production was lower when the legal payment was made ex ante.¹¹¹

Figure 6



2. *Summary of the Results.*—In contrast to rational choice theory predictions, we found that the structure of legal payments is important. The identity of the party receiving the payment, the timing of it, and the certainty with which it is assessed were all found to be related to most measured variables.

a. *Identity of recipient.*—In all six measures, participants preferred a situation in which the payment was made to an individual rather than to the state. Overall, people perceived this setting to be more moral, and production in it to be more socially and legally acceptable. Perhaps most importantly, participants were more likely to produce the fertilizer in this situation. However, the difference between the situations was not significant regarding the price participants would ask for producing the fertilizer.

¹¹⁰ The average for Group 1 (ex ante-certain), (M = 6.79, SD = 2.31); Group 2 (ex post-certain), (M = 7.42, SD = 2.06); Group 3 (ex post-probable), (M = 7.91, SD = 1.75).

¹¹¹ No significant interaction was found for the variable of Entitlement, according to payment recipient, time, and certainty of payment (p > .05). That is to say, the differences found between averages for the state and the individual for demand of an especially high payment to produce the fertilizer were not related to time or certainty of payment.

b. Timing of payment.—A strong and significant difference existed between paying ex ante and paying ex post, regardless of whether the payment was probable or certain. Participants thought it was more moral, and more socially and legally acceptable, to produce the fertilizer when they made the payment ex ante. Furthermore, participants required a smaller profit for production in the ex ante situation compared with the ex post situation.¹¹²

c. Certainty of payment.—In all six measures, participants demonstrated a dislike for probabilistic payments. However, in five of the six measures the ex post-probabilistic group was significantly different only in comparison to the ex ante group, not in comparison to the ex post-certain group. The comparison to the ex ante group could not be attributed to the effect of certainty alone, as the timing of payment is different too. Hence, only a comparison between the ex post-certain and ex post-probable groups could measure the effect of uncertainty, but this comparison was not significant in five of the six measures. However, with regard to the measure of intention (or Compliance), ex post-probabilistic participants differed significantly from the ex post-certain group, implying that when the payment was uncertain they were less likely to produce the fertilizer when compared with the situation where the payment was certain.

d. Interaction between identity of recipient and timing of payment.—A significant interaction emerged regarding the perception of legality. There was a difference between ex post and ex ante when the state was the recipient. However, when the individual was the recipient, there was no such difference. This pattern was also evident in some of the other measures (e.g., Entitlement), but only with a marginally significant interaction. Thus, we found some evidence that the importance of timing was stronger when the recipient was the state.

III. DISCUSSION AND POLICY IMPLICATIONS

In this Part, we turn to explore the implications of our findings for legal policymaking. First, we tie the findings of Part II to the theoretical literature reviewed in Part I. We then suggest several policy implications resulting from these findings. Due to the preliminary nature of this study, these suggestions are tentative rather than definitive. Finally, we point out the limitations of our study, and outline future research that could help overcome some of these limitations.

¹¹² The only exception was when the dependent variable was Compliance, or the intention to produce; in that case the ex ante group differed significantly only from the third group of ex post-probable.

A. Are Fines Prices?

In this Essay, we document consistent and robust differences between legal payments based on their structures. This result runs against traditional economic theory, which assumes that all legal payments are fungible. Thus, our findings suggest that the fine-as-a-price paradigm should be re-visited, and refined along the three dimensions studied here.

First, much like in other settings, people like certainty and dislike uncertainty with respect to legal payments.¹¹³ Our study demonstrates that people perceived probabilistic payments as an indicator that the sanctioned behavior is less moral and less acceptable than activities subject to certain payments. Furthermore, participants were less willing to engage in a harmful activity when a probabilistic element was added to otherwise equal legal payments. This result confirms our hypothesis and that of others writing on the deterrent effect of ambiguity.¹¹⁴ Although this effect was consistent across all measures, it was not significant in all of them. The lack of significance across all measures might be explained by the fact that rational individuals are expected to strictly prefer the probabilistic option, given the fact that we held the size of the sanction constant. Thus, our finding in this measure could be interpreted as particularly powerful. Finally, we note that our findings do not allow us to decipher what is driving them, since cognitive biases associated with both uncertainty aversion and the expressive meaning of probabilistic sanctions might be in place.

Second, our findings demonstrate the significance of the timing of payment. In accordance with our predictions, paying before the harmful act rather than after it reduced the negative perception of the payment and increased the willingness of people to engage in harmful activity. This result follows the connection we drew between the paradigmatic structure of a price versus a legal payment. In the private setting, *ex ante* payments could imply consent that was granted in return for the legal payment, thereby justifying the act. *Ex post* payments to individuals, on the other hand, do not imply consent, and therefore sustain the perception of the act as forbidden. In the context of the state, *ex ante* payments give salience to the unique role of the state as a legitimate source of authority. Numerous studies of social

¹¹³ See Shawn P. Curley, J. Frank Yates & Richard A. Abrams, *Psychological Sources of Ambiguity Avoidance*, 38 *ORG. BEHAV. & HUM. DECISION PROCESSES* 230, 230–31 (1986) (surveying research on ambiguity avoidance and seeking to explain it); Hillel J. Einhorn & Robin M. Hogarth, *Ambiguity and Uncertainty in Probabilistic Inference*, 92 *PSYCH. REV.* 433 (1985) (developing a quantitative model accounting for the role of ambiguity in inferential judgments); Craig R. Fox & Martin Weber, *Ambiguity Aversion, Comparative Ignorance, and Decision Context*, 88 *ORG. BEHAV. & HUM. DECISION PROCESSES* 476, 478 (2002) (discussing how relative degrees of ambiguity can affect decisionmaking).

¹¹⁴ See, e.g., Alon Harel & Uzi Segal, *Criminal Law and Behavioral Law and Economics: Observations on The Neglected Role Of Uncertainty In Deterring Crime*, 1 *AM. L. & ECON. REV.* 276, 277 (1999) (suggesting that ambiguity of enforcement increases deterrence); Uzi Segal & Alex Stein, *Ambiguity Aversion and the Criminal Process*, 81 *NOTRE DAME L. REV.* 1495, 1497 (2006) (discussing how ambiguity aversion creates power imbalances between the prosecution and defendants).

psychology have documented the unique power of the state in securing obedience.¹¹⁵ This power has been tested even in extreme cases such as torture.¹¹⁶ Thus, paying the state in advance and getting a license from it might be especially appealing to participants. Ex post payments to the state, however, employ the ability of state sanctions to shape people's moral reasoning and perception of wrongdoing. When such a payment is given to the state, it brings some greater moral opprobrium and social labeling against engaging in that behavior, increasing the impact of the payment above the cost of the sanction.¹¹⁷ This dimension of state-based sanctions was confirmed in various empirical studies that focused on the moral effect of formal sanctions.¹¹⁸

Third, in accordance with our predictions, people were more willing to engage in harmful behavior when the individual harmed by the act, rather than a third party, received the payment. This result suggests that the framing of a payment as compensation connotes a different social meaning. Compensation brings the parties closer to the paradigmatic price, especially in cases where the losses suffered by the injured party are purely monetary. It removes (to a certain degree) the harm caused to the injured party from the decisionmaking calculus, thus allowing individuals to consider their personal benefit without the moral burden of having injured another.

Finally, the interaction between the identity of recipient and the time and certainty of payment provides additional support for the fine-as-a-price paradigm.¹¹⁹ A post hoc analysis that followed the interaction demonstrates that when the state was the recipient, the timing had a greater effect on the attitudes of the participants in comparison to when the individual was the recipient. Because many paradigmatic prices are paid in advance (e.g., the

¹¹⁵ See generally HERBERT C. KELMAN & LEE HAMILTON, *CRIMES OF OBEDIENCE: TOWARD A SOCIAL PSYCHOLOGY OF AUTHORITY AND RESPONSIBILITY* (1989) (describing the psychology of authority and obedience in the context of historical events such as the military-ordered killings in My Lai, Vietnam).

¹¹⁶ See Herbert C. Kelman, *The Social Context of Torture: Policy, Process, and Authority Structure*, in *THE POLITICS OF PAIN: TORTURERS AND THEIR MASTERS* 19, 19 (Ronald D. Crelinsten & Alex P. Schmid eds., 1994) (discussing the sources of the power of the state to give people (in our terminology) a moral license to harm others).

¹¹⁷ See Dan M. Kahan, *Social Influence, Social Meaning, and Deterrence*, 83 VA. L. REV. 349, 352–61 (1997) (discussing the impact criminal convictions can have on perceptions of social status).

¹¹⁸ See, e.g., Raymond Paternoster & Sally Simpson, *Sanction Threats and Appeals to Morality: Testing a Rational Choice Model of Corporate Crime*, 30 LAW & SOC'Y REV. 549 (1996) (showing that the greater the perceived sanction, the greater the perceived moral wrongdoing associated with the sanctioned behavior); Kirk R. Williams & Richard Hawkins, *Perceptual Research on General Deterrence: A Critical Review*, 20 LAW & SOC'Y REV. 545 (1986) (distinguishing between mere deterrence (formal cost), normative validation (internalization) and social deterrence (social cost)); Frank Zimring & Gordon Hawkins, *The Legal Threat as an Instrument of Social Change*, 27 J. SOC. ISSUES 33 (1971) (examining how punishment traditionally associated with price might teach right and wrong).

¹¹⁹ Though the interaction between the identity of recipient and the timing of payment was significant only in one measure (perceived unlawfulness), it was evident, albeit in weaker forms, in some of the other measures as well.

classic spot-market transaction), while fines are usually paid after the fact, it was expected that people would be more willing to engage in production when the payment was done in advance. However, because it is easier to view the payment as a fine when the state is the recipient of the payment, the effect of timing is likely to be stronger in those scenarios than when the individual is the recipient. Furthermore, when the state is the recipient of the payment, shifting the timing to *ex ante* is of greater significance because it transforms the situation into one in which the individual acts in complete compliance with the law. Hence, the timing of the payment should receive greater attention from policymakers when the recipient of the payment is the state.

To sum up, there appears to be a continuum of legal payments. These payments are perceived differently by people, and as a result generate distinct incentives. At one end of this continuum lie legal payments that are similar in structure to a paradigmatic price. These are payments made to another private party in advance. At the other end of the continuum lie legal payments that are similar in structure to a paradigmatic punishment. These are payments made to the state after the fact, and assessed probabilistically. As legal payments shift from the price side to the punishment side of the continuum, people begin to see the payment-triggering activity as less moral, and as a result they are less willing to engage in it.

B. Choosing Between Alternative Legal Regimes

So law does matter. Legal payments are not mere prices, and the choice between them may affect behavior. Given that, we turn to review some of the implications of our findings for the design of optimal legal rules. At the outset we would like to emphasize that due to the preliminary nature of our project, our suggestions should not be read as definitive calls for swift legal reform. Rather, we point out several policy debates that should be revisited both theoretically and empirically in light of our findings.

The general implication of our work is that when policymakers choose between legal regimes, they not only set monetary consequences for different types of behavior, but also determine how people will perceive those consequences. While some legal payments are perceived as prices and therefore encourage people to conduct cost-benefit analyses, others exclude such considerations from people's decisions. Thus, the choice between different modes of payment should focus on whether policymakers want to encourage noncompliance when the benefit derived from the activity is larger than the legal payment assessed. If policymakers aim to promote efficiency, and can set legal payments such that they capture the full social harm caused by the activity, there is a clear advantage in framing legal payments as prices. In these cases, our analysis supports *ex ante* payments made directly to the parties who will be harmed by the act. These payments

would crowd out people's intrinsic motivation not to harm others, and cause them to engage in the harm-generating behavior, provided it is beneficial for them to do so. If, on the other hand, policymakers aim to reduce the harmful activity notwithstanding its efficiency, they should consider framing the payment to be as different from a price as possible: making the payment probabilistic, assessing it after the harmful activity, and directing it to the state. Such framing could create additional deterrence without increasing the size of the payment. This could be especially useful when political forces limit the ability to raise sanctions or when harm-doers have limited resources.

Pollution is a classic example of a harmful activity that we want people to engage in if the benefits arising from it outweigh its harms.¹²⁰ Policymakers tend to recognize that command-and-control regulation might create inefficiencies that environmental taxes can prevent.¹²¹ Our findings confirm this assertion, and they demonstrate that pollution taxes could encourage people to conduct cost-benefit analyses.¹²² Furthermore, our results could inform the optimal design of a pollution tax to increase the likelihood that people view it as a price. For example, ensuring that people realize the tax compensates the individuals harmed by pollution will increase the likelihood that they view the tax as a price. Indeed, several scholars have attacked some of the underlying rationales of pollution taxes, suggesting that the taxes should be used to compensate those who are harmed by pollution,¹²³ yet these scholars have focused on the distributive arguments rather than on behavioral analysis. Similarly, the certainty of detection is important to prevent an association with fines. Employing new technological tools that assure complete detection will cause polluters to perceive the taxes they pay as mere prices.

The results offer an additional perspective to the current debate regarding the behavioral effects of environmental regulation. Some have argued

¹²⁰ We do not wish to defend the strong utilitarian claim that any harm to the environment that creates greater benefit is justified. All we claim is that some type of cost-benefit analysis in the environmental context is essential. For a discussion, see generally CASS R. SUNSTEIN, *FREE MARKETS AND SOCIAL JUSTICE* 193–200 (1997).

¹²¹ See, e.g., MIKAEL S. ANDERSEN, *GOVERNANCE BY GREEN TAXES: MAKING POLLUTION PREVENTION PAY* 24–25 (1992); see also Britt Groosman, *Pollution Tax*, in II *ENCYCLOPEDIA OF LAW & ECONOMICS: CIVIL LAW & ECONOMICS* 538, 538 (Boudewijn Bouckaert & Gerrit De Geest eds., 2000). For econometric evidence on its impact, see Robert W. Hahn, *The Impact of Economics on Environmental Policy*, 39 *J. ENVTL. ECON. & MGMT.* 375 (2000); Robert N. Stavins, *Experience with Market-Based Environmental Policy Instruments* (John F. Kennedy Sch. of Gov't, Harvard Univ., Working Paper No. 00-004, 2001), available at http://papers.ssrn.com/abstract_id=199848.

¹²² For support for the argument that environmental taxation would crowd out internal social norms of environmental protection by polluting factories, see Ching-Chong Lai, Chih-Yu Yang & Juin-Jen Chang, *Environmental Regulations and Social Norms*, 10 *INT'L TAX & PUB. FIN.* 63 (2003), which argues that social sanctions can effectively deter pollution in the absence of high fines, *id.* at 64.

¹²³ E.g., Groosman, *supra* note 121, at 539–56 (arguing that the "raison d'être" of emissions taxes are externalities and compensation).

that the effect of taxation on behavior is contingent upon the size of the tax.¹²⁴ Large or small taxes would reduce pollution, while intermediate taxation would crowd out intrinsic motivation without suggesting a costly enough incentive to abstain from polluting. In that regard, scholar Bruno Frey calls for the use of other means of regulation with less of a crowding-out effect.¹²⁵ Others have argued that Frey's predictions are uninformative since they fail to account for numerous factors related to the framing of the payments (e.g., tax versus subsidy).¹²⁶ Based on the findings accumulated in this Essay, it is safe to say that Frey's perspective is indeed unsatisfactory, as it focuses on the size of the payment as the sole factor that would moderate the level of crowding out. Frey's model ignores the importance of factors such as certainty, timing, and the identity of the recipient. There is a limit to the magnitude of payment a state can realistically request from individuals; thus, the different ways of framing the payment could be an effective policy tool.¹²⁷

Turning to the issue of uncertainty, the findings reported in our study suggest a conclusion that runs against the conventional wisdom of enforcement. The comparison between the probabilistic groups and the certain groups showed that raising the probability of detection to one hundred percent while holding the size of the sanction constant could cause more people to behave in a harmful manner. Thus, contrary to the prediction of rational choice theory that any increase in the probability of detection will also increase deterrence, our results suggest that an increase to a one hundred percent probability of detection might actually reduce deterrence because it will change the social meaning of the sanction. Take, for instance, the issue of the enforcement of traffic laws. Current technology allows regulators to detect some violations of these laws with complete certainty using a combination of "black boxes" and GPS.¹²⁸ Rental companies have already used this technology in order to fine customers who drove their cars above the speed limit.¹²⁹ While traditional analysis would suggest that utilizing such technology will necessarily increase compliance (or allow for a reduction of the level of sanctions), our analysis suggests that shifting to a

¹²⁴ See, e.g., Frey & Stutzer, *supra* note 40, at 14–16 (suggesting that the size of the crowding-out effect is directly linked to the size of the environmental tax rates).

¹²⁵ *Id.* at 18–20.

¹²⁶ E.g., Karine Nyborg, *Informational Aspect of Environment Policy Deserves More Attention: Comment on the Paper by Frey*, 22 J. CONSUMER POL'Y 419 (1999).

¹²⁷ For example, Shavell describes the limits of the legal system to deter companies from taking risks which exceed their assets. Given that these companies cannot pay for the losses they might cause, they become, in Shavell's terminology, "judgment proof." In such a situation, the importance of the dimensions we explore in this Essay become even more important, because they would make it possible to create sufficient deterrence in cases where other factors might prevent a net increase in the magnitude of the fine. See SHAVELL, *supra* note 9, at 230–31.

¹²⁸ See Aaron Renenger, *Satellite Tracking and the Right to Privacy*, 53 HASTINGS L.J. 549, 553–54 (2002) (describing how GPS technology can be used to monitor the behavior of both cars and children).

¹²⁹ *Id.*

regime in which sanctions are one hundred percent certain might cause people to be more willing to engage in cost-benefit analyses, bringing about lower compliance overall.¹³⁰ In such situations, the magnitude of the payment must be increased to sustain a given level of deterrence.

C. Limitations of the Current Study and Suggestions for Further Refinements

In this final Section, we evaluate the potential criticisms to this project. We outline the limitations of our results and sketch out additional research that could help deal with these limitations, thus deepening our understanding of legal payments.

The first limitation of our results is the high standard deviation measured for participants' estimations of their price requests (in return for their agreement to produce the fertilizer). Therefore, this measure did not yield significant differences between the subgroups of the sample. This large variation might be related to the difficulties the participants faced when they attempted to estimate a price with such limited information. Future research could attempt to deal with this problem by giving participants more detailed information about the circumstances of the case. Such additional information could improve the ability of participants to give more accurate estimates of the price they would demand in such circumstances.¹³¹

A second limitation might be seen in the strong feelings of social desirability that may have been evoked by the selected experimental scenario. Indeed, participants in our study were explicitly requested to account for and describe their willingness to profit at the expense of others. This fact might have a greater effect on answers regarding the identity of the recipient because people might feel that it would look better if they were willing to produce the fertilizer only when they compensated the damaged party. With regard to the timing of the payment and the probability of detection, the social desirability effect might still exist, but is expected to be weaker, as choices are more equal in their perceived desirability.

A third limitation of our study might stem from the way in which we chose to describe the harm caused. Our experimental setting was a unique case where a clear victim existed, both when the payment was made to the state and when the payment was made to the individual. In many real-world cases, however, there is no identifiable victim, and one can only iden-

¹³⁰ This will depend on how people perceive the probability of detection prior to the use of the new technology. If detection was previously perceived to be low, then the increase in the probability of detection could outweigh the certainty effect. In this regard our results suggest that more compliance can be achieved by raising the probability of detection to a level that is below the one hundred percent threshold, which will allow policymakers to preserve the deterrence power of uncertainty.

¹³¹ Nonetheless, as explained earlier, we used a Likert scale to measure participants' estimations of the magnitude of the sum they would request (Entitlement); this measure was intended to capture the same behavioral estimate.

tify a group of people, e.g., the people living in the village next to the factory, of whom some were harmed by the act. In these contexts, locating an individual victim and making a direct payment to her might make people more resistant to view the payment as a legitimate price.

Along those lines, our findings should not be generalized to situations in which the harm cannot be quantified or fully compensated. Legal scholars have long since distinguished between harms that are commensurable and those that are not.¹³² Unlike the utilitarian claim that decisions can be aligned along a utility metric, and the economic assumption that decisions can be evaluated through a monetary metric, the incommensurability view holds that some types of decisions do not reflect a preference of one value over the other. Incommensurability suggests that compensatory damages, for example, do not function as a price.¹³³ Rather, they are intended to acknowledge wrongdoing on the part of the wrongdoer, and to bring redress to victims by showing that their rights are taken seriously.¹³⁴ Thus, in situations involving bodily harms it is quite possible that the way people perceive the situation will differ substantially from the perceptions reported in our study. While, as we argue above, in such cases we might want to prevent a transformation from fines to prices, it is essential to explore experimentally the perception of people in such settings, and examine whether the pattern we presented in this study is replicated.

A fourth limitation results from the fact that participants were asked to make a business-like decision in which one business entity harms another. One should not generalize from the selected business-like setting to all types of disputes, since our setting may have signaled to participants a need to employ a calculative approach, rather than a moral or emotional one. Arguably, in more private settings (e.g., a neighbor dispute), people might tend to employ different perspectives when evaluating legal payments. For instance, Tom Baker documented substantial differences between the way tort victims treat money they receive from liability insurance companies versus money they receive directly from tortfeasors.¹³⁵ With respect to the former, victims clearly aim to maximize the amount of payments they re-

¹³² For important contributions to the philosophical literature on incommensurability, see ELIZABETH ANDERSON, *VALUE IN ETHICS AND ECONOMICS* 55–59 (1993), which explores the notion of nonfungible incommensurable goods, and JOSEPH RAZ, *THE MORALITY OF FREEDOM* 321–66 (1986), which reconciles incommensurability with other liability concepts. For a discussion of the later legal implications of the concept, see generally Cass R. Sunstein, *Incommensurability and Valuation in Law*, 92 *MICH. L. REV.* 779 (1994), and MARGARET JANE RADIN, *CONTESTED COMMODITIES* (1996).

¹³³ See Margaret Jane Radin, *Compensation and Commensurability*, 43 *DUKE L.J.* 56, 56 (1993) (addressing the debate over whether nonpecuniary harms, like the loss of a limb, can be commodified); Sunstein, *supra* note 132, at 840–43.

¹³⁴ Radin, *supra* note 133, at 61.

¹³⁵ Tom Baker, *Blood Money, New Money, and the Moral Economy of Tort Law in Action*, 35 *LAW & SOC'Y REV.* 275, 276 (2001).

ceive.¹³⁶ With respect to the latter, however, social norms labeling this money as "blood money" limit (actually, almost eliminate) its value, causing victims not to pursue compensation from "real people."¹³⁷ Hence, future research should examine whether changing the setting impacts the pattern, as it did in this case.

A fifth limitation was caused by the fact that all payments made to a third party in our study were made to the state. Payments to the state create two effects, which are hard to separate in a single comparison: (a) the victim is not being compensated, and (b) the expressive power of the state is at work. Situations in which the third party collecting the payment is not the state, e.g., a trade association, might bring about different results. For example, Baker documented differences between the way people treat money paid to insurance companies and money paid to victims of tortious acts.¹³⁸ In that sense, paying an insurance company creates an ideal intermediate category, where the individual is not getting paid, but the state's expressive power is not being triggered either. Future research should test all three scenarios on one subject, allowing for greater isolation of each of the effects that are unique to the individual and the state.

Additionally, our questionnaire did not attempt to control for the size of the payment. Much of the crowding-out literature has argued that the magnitude of this effect could depend on the size of the monetary incentives being used. Frey and Stutzer, for example, have argued that there is a U-shaped connection between the size of the incentive and the crowding-out of intrinsic motivation, such that crowding-out is strongest with intermediate payments.¹³⁹ Thus, controlling for the size of the payment is expected to affect the tendency of people to view the payment as a price, and their willingness to engage in harm-generating behavior.

Finally, one should recognize the general limitations of the methodology we employed. Measured items were basically attitudinal scales. Given the extensive literature on the complexity of the attitude-behavior relationship,¹⁴⁰ one ought not overstate these findings. Future research should attempt to combine other methodological approaches with additional types of proxies for behavior.¹⁴¹ That said, it should also be recognized that numerous studies have documented the validity of using intention as a proxy for

¹³⁶ See *id.* at 281–301.

¹³⁷ See *id.*

¹³⁸ *Id.* at 301–13 (discussing the concept of "new money").

¹³⁹ Frey & Stutzer, *supra* note 40, at 16; see also Uri Gneezy & Aldo Rustichini, *Pay Enough or Don't Pay at All*, 115 Q. J. ECON. 791, 800–07 (2000) (evaluating the empirical evidence for this effect).

¹⁴⁰ See, e.g., Yuval Feldman, *Attitudes and Behavior*, in *ENCYCLOPEDIA OF LAW & SOCIETY: AMERICAN AND GLOBAL PERSPECTIVES* 102 (David S. Clark ed., 2007).

¹⁴¹ As in game-based settings.

behavior.¹⁴² Thus, we expect that the current pattern of findings would be replicated using other methodologies.

A separate set of questions that we leave for future research relates to how the legal framing of payments affects the behavior of the *recipients*. Our study was motivated by the view of legal payments as prices, and therefore focused exclusively on the payer's side of the legal equation. However, distinct legal payments could have different meaning for the recipient's side as well. For example, aiding the poor through the tax system or through private law could create different motivations on the side of the receiving party, even if they receive identical sums of money. The traditional economic approach to the question of which type of redistributive tool is superior is that the tax-and-transfer system is the most efficient way to redistribute wealth, since income taxes only create inefficiencies associated with distorted work incentives, while redistributive private law rules create the same distortions regarding work, and additional distortions with respect to the activity that they regulate.¹⁴³ Recently, Daphna Lewinsohn-Zamir argued that once the fungibility assumption is relaxed and we acknowledge that there could be differences between dollars received from the tax-and-transfer system and those received through private law, the use of private law in order to redistribute wealth could be justified from a consequentialist perspective.¹⁴⁴ Nonetheless, this theoretical conclusion was based on behavioral studies that did not explore the unique nuances of legal payments. A complete theory of efficient redistribution should follow along the lines we set in this study and explore the differences between different types of redistributive legal payments.

Our results also suggest an array of potential studies in the area of optimal contract design. For instance, our findings offer an additional perspective on the choice made by contracting parties between liquidating damages in the contract and relying on courts to determine them after the breach has occurred. While we do not disagree with the existing literature outlining the different considerations relevant to this choice,¹⁴⁵ we find it incomplete in the sense that it treats liquidated damages and court-determined damages as fungible. Our analysis suggests, however, that liquidated damages might be perceived differently by the potential breaching party. The

¹⁴² *E.g.*, Ajzen, *supra* note 102, at 14–18.

¹⁴³ *See, e.g.*, Louis Kaplow & Steven Shavell, *Why the Legal System Is Less Efficient than the Income Tax in Redistributing Income*, 23 J. LEGAL STUD. 667, 668 (1994).

¹⁴⁴ Daphna Lewinsohn-Zamir, *In Defense of Redistribution Through Private Law*, 91 MINN. L. REV. 326, 362–72 (2006).

¹⁴⁵ *See, e.g.*, Philippe Aghion & Benjamin Hermalin, *Legal Restrictions on Private Contracts Can Enhance Efficiency*, 6 J.L. ECON. & ORG. 381 (1990); Charles J. Goetz & Robert E. Scott, *Liquidated Damages Penalties, and the Just Compensation Principle: Some Notes on an Enforcement Model and a Theory of Efficient Breach*, 77 COLUM. L. REV. 554 (1977); Alan Schwartz, *The Myth that Promisees Prefer Supracompensatory Remedies: An Analysis of Contracting for Damage Measures*, 100 YALE L.J. 369 (1990).

fact that liquidated damages are set *ex ante* might cause potential breachers to view them as a payment that is closer to a price.¹⁴⁶ Thus, all things being equal, contracting parties are expected to be more willing to breach and pay damages when damages are set prior to the breach.

Given the price nexus between contracting parties, a contract design that promotes additional breaches is desirable from their perspective because it could help promote efficient breaches during the performance of a contract. As long as damages are liquidated such that they reflect the full cost of the breach, all breaches enlarge the size of the contractual pie. A good example of this is the fine imposed in the daycare center that Gneezy and Rustichini studied.¹⁴⁷ Arguably, in such a setting, one can easily calculate the harm caused by parents coming in late, which mostly consists of the value of the time of the employees who are required to stay late. The introduction of the fine could assist the daycare center and the parents in reaching an efficient outcome by capturing the surplus between the value of the time for late parents and the value of the time for the daycare center's employees.

CONCLUSION

We began this study with a question: Are all "legal dollars" created equal? And we end it with an answer: No, they are not. We identified three structural characteristics of legal payments that create consistent differences between them: the identity of the party receiving the payment, the timing in which it is made, and the certainty with which it is assessed. The shift between the different payments gradually transforms prices into punishments, and changes the way people treat legal payments. This result runs against the fundamental assumption of economic analysis of law that all legal payments are fungible. We then demonstrated that relaxing this assumption suggests that an array of policy debates, ranging from environmental regulation to law enforcement, should be revisited in order to fully understand the effects of legal regimes that seem to be equivalent from an economic perspective.

While the results we present are robust, in the sense that they demonstrate differences between legal payments, one should note that this study has explored a point not studied empirically before, and that there is much more work to be done before we fully understand the differences we documented. Thus, we cannot offer at this point a comprehensive theory explaining the differences between all legal payments in every conceivable context. In order to progress towards development of such a theory, we of-

¹⁴⁶ To be sure, the case of liquidated damages is distinct from our experimental setting in the sense that both liquidated damages and court-determined damages are *paid* after the breach. Hence, one should view the liquidated damages situation as a unique hybrid case in which the payment is assessed *ex ante* but actually paid *ex post*.

¹⁴⁷ See *supra* notes 3–7 and accompanying text.

ferred several suggestions for future research that could help broaden our understanding of the distinctions between legal payments. Undoubtedly, deciphering the social meaning of legal dollars is a tricky task. If one intends to utilize law in an optimal fashion, however, it is an essential task.

APPENDIX: METHODOLOGY

QUESTIONNAIRE

ATTITUDE SURVEY: The following survey is designed to test your attitudes regarding legislation on dumping chemicals into Israeli lakes.

GENERIC SCENARIO: Assume that you own a fertilizer factory located adjacent to a small lake. You recently received an order for a specific kind of fertilizer, which the factory has not previously produced. It will cost the factory 200,000 Shekels [around \$50,000] to produce the order. Producing this particular fertilizer also involves dumping a new kind of chemical into the lake. The only effect of dumping this chemical into the lake will be to raise the production expenses of a neighboring fertilizer factory, which is also located at the edge of the same lake. With the exception of the neighboring factory, the lake water is not used by anyone else. Additionally, the new chemical does not cause any medical problems or damage to the environment.

Manipulation A: ex ante-state: By law, before dumping the new chemical into the lake, you must pay a license fee of 100,000 Shekels (around \$25,000). You cannot purchase the raw materials needed to make the new chemical without presenting the permit attained by paying this fee. With the exception of paying this fee, you do not anticipate any other expenses.

Manipulation B: ex ante-individual: By law, before dumping the new chemical into the lake, you must pay the neighboring factory a sum of 100,000 Shekels (around \$25,000). You will be able to purchase the raw materials needed to make the new chemical only after presenting a permit showing that the neighboring factory received the aforementioned payment. With the exception of paying this fee, you do not anticipate any other expenses.

Manipulation C: ex post-individual-certain: By law, after dumping the new chemical into the lake, the neighboring factory can sue you for the resultant increase in his production expenses. There is no question that the neighboring factory will notice that you dumped the chemical, take you to court, and win the lawsuit. The anticipated cost of the lawsuit is 100,000 Shekels (around \$25,000). With the exception of paying this fee, you do not anticipate any other expenses.

Manipulation D: ex post-individual-probabilistic: By law, after dumping the new chemical into the lake, the neighboring factory can sue you for the resultant increase in its production expenses. If the neighboring factory no-

tices that you have dumped this new chemical into the lake, and if it sues you, the anticipated cost of the lawsuit is 100,000 Shekels (around \$25,000). That said, the possibility exists that the neighboring factory will not notice that you have dumped the chemical, and you will therefore not have to pay anything. With the exception of the possibility of paying this fee, you do not anticipate any other expenses.

Manipulation E: ex post-state-certain: By law, anyone who dumps a new chemical into the lake will be fined 100,000 Shekels (around \$25,000) by the municipal authority. On account of state-of-the-art chemical detection equipment installed next to your factory, there is no question that the spillage will be detected (after the fertilizer production order has already been completed). With the exception of the possibility of paying this fine, you do not anticipate any other expenses.

Manipulation F: ex post-state-probabilistic: By law, anyone who is caught dumping a new chemical into the lake will be fined 100,000 Shekels (around \$25,000) by the municipal authority. That said, there is a certain chance that you will not get caught, as the authorities may not detect any spillage. No matter what, there is no doubt that you will manage to complete the fertilizer production order before the authorities will be able to detect the spillage. With the exception of the possibility of paying this fine, you do not anticipate any other expenses.

Control: The control group did not undergo any manipulation.

QUESTIONS (FOR ALL GROUPS):

1. What is the minimal price you will request for producing the fertilizer, within the framework of the legal situation described above (reminder: production costs total 200,000 Shekels)?
2. Producing the fertilizer within the framework of the legal situation described above is ethically objectionable: 1 (not objectionable) – 10 (objectionable).
3. Producing the fertilizer within the framework of the legal situation described above is an appropriate step for me, personally: 1 (inappropriate) – 10 (appropriate).
4. Producing the fertilizer within the framework of the legal situation described above does not contradict the law: 1 (contradicts) – 10 (does not contradict).

5. As much as possible, I will try not to produce the fertilizer within the framework of the described legal situation: 1 (will not try) – 10 (will try).
6. Within the framework of the described legal situation, for the production of the fertilizer I will ask for an especially high price: 1 (low price) – 10 (high price).

