

# When Does Organized Crime Pay? A Transaction Cost Analysis

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This paper develops a transaction cost-based theory of organized crime. Following Schelling (*Journal of Public Law* 1967;20:71–84), I treat the organized criminal firm as a formal governance structure that specializes in providing illegal goods and services to downstream buyers. Drawing upon Williamsonian transaction cost analysis and the literature on self-enforcing contracts, the paper predicts which illegal goods and services will be supplied in the marketplace by organized criminal firms versus internally by downstream firms. The paper highlights the joint roles of production scale economies, contracting frequency, transaction specificity, and uncertainty to predict the activities of organized crime. These four factors appear capable of explaining many of the important empirical regularities in markets where organized crime is present.

## I. Introduction

Crime, like any economic activity, may be supplied through various market structures. For example, a loan shark may supply its own capital and self-protect from police scrutiny, or it may contract out in the marketplace for these inputs to its primary line of business. The firm's choice between supplying its requirements internally and transacting with an upstream supplier of capital and police bribery will be guided by the relative cost of within-firm versus market transactions. When the loan shark vertically specializes, it transacts in the marketplace with what Thomas Schelling (1967, 1971) has defined as the "organized criminal firm": a firm specialized in providing goods and services to other criminals and, to a much lesser degree, carrying out illegal activities with the public as final consumers or victims. Schelling's organized criminal firm is characterized by (i) a primary line of business that is illegal, (ii) ongoing, illegal market transactions with other specialized firms, and (iii) a formal organizational or governance structure to enforce market transactions. Included in Schelling's characterization is the traditional view of organized crime as *La Cosa Nostra* or *Mafia*.<sup>1</sup>

Among economists, monopoly theory has been the predominant framework for

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analyzing the organized criminal firm. Schelling (1971: 75) argues, for example, that “we find ‘organized crime’ in the lines of business that lend themselves to monopoly,” and Rubin (1973: 155) classifies “a crime to be ‘organized’ if criminals in that line have some market power.” Whether in racketeering, police bribery, or narcotics distribution, the organized criminal firm is regarded as an enterprise that “eschews competition and strives for monopoly over particular activities on an individual or territorial basis” to appropriate downstream profits through extortion or monopoly pricing of its services (Abadinsky, 1981: 21).<sup>2</sup> Public policy towards organized crime also has been analyzed using welfare comparisons between monopoly and competitive supply (Schelling, 1967; Buchanan, 1973; Backhaus, 1979).

Equating organized crime with monopoly power is at variance with a careful examination of the markets in which organized crime operates and the products that it supplies. Criminologists have identified organized crime’s frequent presence in labor racketeering, loan-sharking, gambling, importing and wholesaling of narcotics, prostitution, extortion and protection, smuggling, counterfeiting, and fencing of stolen merchandise (President’s Commission on Law Enforcement and Administration of Justice, 1967). While some of these activities such as racketeering, protection, and extortion usually are monopolized to define property rights, many others including prostitution, smuggling, fencing, and narcotics importation involve substantial competition among downstream suppliers. Thus, while some organized crimes may involve monopolization, monopoly theory is unlikely to explain generally the activities of organized crime. Furthermore, while economists have tended to interpret organized crime’s use of violent business tactics as evidence of monopoly power, a competitive explanation may be that violent firms have a comparative advantage in illegal markets because victims of violence have no legal recourse (Becker, 1968). Finally, there is direct evidence of regular ethnic turnover in specific organized criminal markets, which is more consistent with fluid competition than static monopoly (National Advisory Committee on Criminal Justice Standards and Goals, 1976: 8–10).<sup>3</sup>

This paper develops an analytical framework in which transaction costs, rather than monopoly power, primarily determine the activities of organized criminal firms. The paper’s objective is to successfully predict which illegal services will be supplied through the market by specialized (*viz.* organized) criminal firms versus being self-supplied by downstream firms. Following Coase (1937) and Williamson (1971, 1979), I assume that firms seek to minimize their transaction costs—the sum of production plus organization costs—when choosing their scope of activities. The organized criminal firm enters only those markets in which its specialized supply of inputs to downstream criminal activities is more cost efficient than having a downstream firm self-supply. For example, consider a loan shark seeking protection from police. The loan shark may self-protect by bribing police directly to shield its business from scrutiny, or it may contract in the open market with an organized criminal firm that specializes in supplying protection from police.<sup>4</sup> While production costs will tend to be lower with market supply, this advantage may be offset by the organized criminal firm’s generally higher organizational costs. In general, therefore, the loan shark’s choice between self-protection and contracting out mandates a careful weighing of relative transaction costs.

An additional dimension that both the loan shark and the organized criminal firm must consider is the enforcement of illegal market transactions, since they cannot be enforced by third parties. The only effective contract between criminal firms there-

fore is a self-enforcing contract. Firms' reputational capital is a potential self-enforcement mechanism in illegal markets. Accordingly, I extend the model to explain how both relative transaction costs and reputational enforcement guide firms' choice of market supply or self-supply for illegal activities. The model highlights the influence of production scale economies, contracting frequency, and transaction specificity on transaction costs and enforcement. Because private verification of contractual performance is likely to be costly and imperfect in criminal markets, I explore also how uncertainty can constrain reputational enforcement. In this situation, criminal market transactions remain viable only when firms can explicitly monitor and punish infractions. Finally, I gauge the models' predictive power to explain key empirical regularities from the criminology literature on organized crime.

A transaction cost approach offers two important analytical strengths. First, its principles apply both to imperfect and perfect competition for illegal goods and services, in contrast to most previous analyses that have required the presence of market power. Second, the approach unifies seemingly disparate organized criminal objectives. While monopoly theories treat organized criminal extortion as distinct from the firm's specialized supply of inputs to downstream criminals (cf. Rubin, 1973; Schelling, 1967, 1971), both transactions are explained by cost minimization and contractual enforcement principles. Extortion can be interpreted as selling the avoidance of property damage or personal injury to the victim: the victim jointly minimizes its production plus organization costs to choose between a market transaction—paying extortion—and an internal transaction—self-protecting or self-insuring against the threatened violence.<sup>5</sup>

This paper is organized as follows. Section II summarizes a series of key empirical findings in the criminology literature on organized crime, providing a set of "stylized facts" that should be explained by a transaction cost model of crime. Section III models the choice between market supply and self-supply for illegal activities, using a theory of recurrent transactions in the absence of third-party contractual enforcement. Section IV develops predictions and compares them with the data. Section V concludes with a brief discussion of public policy toward organized crime.

## II. The Evidence on Organized Criminal Transactions

Economists and criminologists have identified several important empirical regularities in organized crime markets.<sup>6</sup> This section summarizes the major evidence that Section IV will use to gauge the predictive power of a transaction cost theory of organized crime.

1. Organized criminal firms specialize in extortion, bribery to ensure police inaction, financing for distribution and sale of contraband, and enforcement services.<sup>7</sup>
2. Organized criminal firms transact more frequently with "victimless" criminal trades than with "victimizing" trades.<sup>8</sup>
3. Organized criminal firms tend to transact more frequently in illegal than legal markets.<sup>9</sup>
4. Organized criminal firms tend to be more active during periods of depressed demand than during booms.<sup>10</sup>
5. Organized criminal firms transact more frequently with downstream suppliers of relatively simple, standardized goods and services than with suppliers of complex items.<sup>11</sup>

6. Organized criminal firms tend to provide protection from police scrutiny to brothels and escort services, but not to individual street prostitutes or pimps.<sup>12</sup>
7. Organized criminal firms tend to provide financing and protection for narcotics importers and wholesalers, but not for drug distributors or retailers.<sup>13</sup>
8. Organized criminal racketeering is more predominant in unionized than non-unionized labor markets.<sup>14</sup>
9. Organized criminals firms tend to provide protection and fencing services to large cargo theft rings but not to smaller thieves or burglars.<sup>15</sup>
10. Organized criminal firms police cartel agreements more frequently in decentralized industries with many small producers than in concentrated industries.<sup>16</sup>
11. In particular transactions—those involving racketeering and casinos—organized criminal firms tend to receive compensation as a lump sum or a fraction of downstream revenues. For transactions in other markets—bookmaking, loan sharking, pornography, and extortion of restaurants and bars—the organized criminal firm more usually receives compensation through input purchase requirements in which price exceeds marginal cost.<sup>17</sup>

### III. The Organization of Criminal Transactions

The central hypothesis developed in this section is that organized crime's activities will be guided primarily by the relative costs of completing illegal transactions within the market versus within a downstream firm. In the absence of third-party enforcement for criminal contracts, market transaction costs also must include the cost of self-enforcing an agreement between the organized criminal firm and its downstream transaction partner.<sup>18</sup> Firms' reputational capital can act as a self-enforcement mechanism to limit opportunism (Telser, 1980; Klein and Leffler, 1981; Kreps, 1990). In some cases, marketplace uncertainty may limit firms' ability to rely on reputation. In these cases explicit monitoring and punishment will be required to ensure compliance in market transactions.

Part A begins by introducing the basic transaction cost framework and highlights the role of production and organization costs in jointly determining downstream firms' choice between self-supply and market supply. Part B develops the importance of firms' expectations about opportunistic behavior in market transactions, and it identifies firms' reputations as one solution to this problem. Part C explores how explicit monitoring and punishment may be required to supplement reputational enforcement in uncertain market environments.

#### *A. The Transaction Cost Model*

Recall the loan shark who seeks to minimize transaction costs when choosing between self-protecting against police detection and contracting with an organized criminal firm for protection. Analyzing criminal transactions through the same lens as non-criminal transactions, I summarize the loan shark's options in Figure 1, which is based on Williamson's (1986) analysis of the determinants of market versus within-firm transactions. Figure 1 demonstrates how relative transaction costs for an input like protection vary between market supply and self-supply as that input becomes more specific to a downstream firm. The horizontal axis measures the specificity ( $k$ ) of protection to the loan shark's business, and the vertical axis measures the cost of

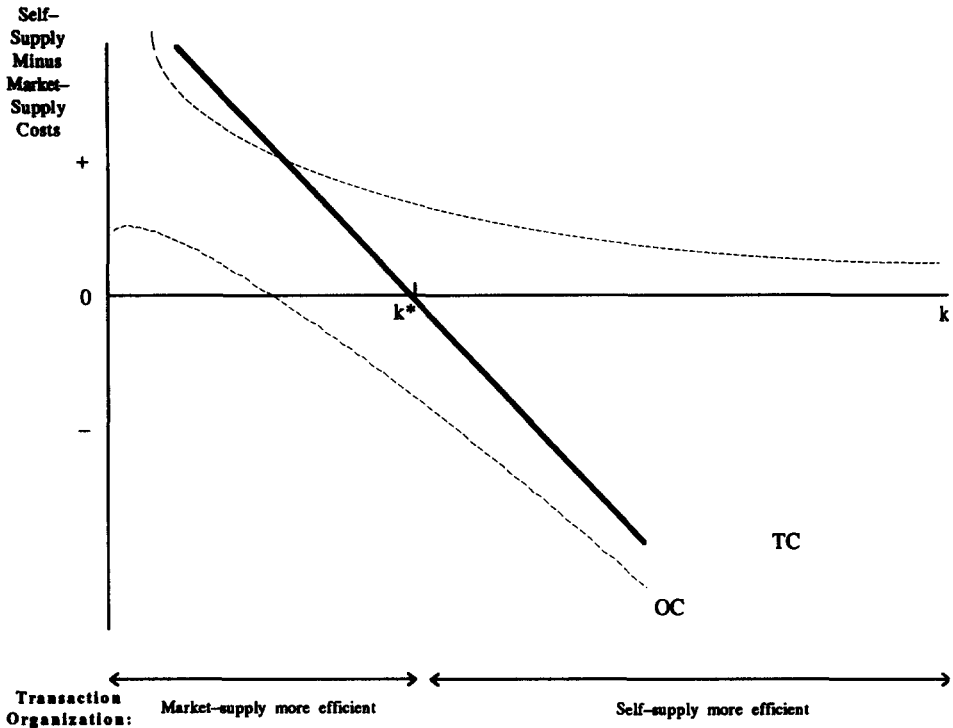


FIG. 1. The relative cost of self-supplied and market-supplied criminal inputs.

supplying protection internally versus through the market. Figure 1 will show that for inputs below a threshold level of specificity ( $k^*$ ) the transaction cost of self-supply will exceed that for market supply, and therefore the organized criminal firm will provide those inputs in the market. For inputs above this threshold level, self-supply will be more cost effective and therefore the organized criminal firm will be inactive in those markets. Finally, the discussion will make clear how transacting parties' uncertainty about contractual performance will influence the relative costs of market and self-supply.

To show how relative transaction costs change as input specificity changes, I decompose relative transaction costs (TC) into two components: relative production costs (PC) and relative organization costs (OC) (Fig. 1). A production cost advantage always favors organized criminal supply of an input, because the specialized criminal firm more fully exploits economies of scale and scope and operates under stronger cost control incentives.<sup>19</sup> For example, unlike an individual loan shark, the organized criminal firm can spread fixed bribery expenditures across multiple markets to lower its average cost of supplying protection. Additional cost advantages come from the organized criminal firm's ability to exploit external economies when cultivating relations with the police and to establish property rights over the return from its bribery investments (Schelling, 1967: 65–66).<sup>20</sup> The organized criminal firm's production cost advantage is summarized by the curve PC, which always lies above the horizontal axis. When input specificity  $k$  rises, the organized criminal firm's cost savings from production scale economies diminish. For example, if rotating police

patrols are replaced by having one officer assigned to monitor each loan shark, then protection becomes a specific input to the loan shark's business. As input specificity rises, economies of scale, scope, and externalities decline in importance, which reduces the organized criminal firm's cost advantage over self-supply. This implies that the curve PC will be downward sloping.

Transaction costs also include the costs of organizing actions within the market or inside the firm. Organizational costs arise from the need to arrange and order individual tasks, to coordinate across those tasks, and to adapt to contingencies. The organized criminal firm's organizational cost advantage is confined to supplying relatively nonspecific inputs. Thus, the curve OC is downward sloping and eventually crosses below the horizontal axis. Two factors account for this. First, compared to the loan shark, the market generally will be less flexible and slower to adapt to unexpected events when inputs are specific and few supply alternatives exist in the market. For example, if new police patrols are unexpectedly added, a loan shark may respond faster by self-protecting (e.g., by limiting its public visibility) than by relying on the organized criminal firm to intercede on its behalf.

Second, as inputs grow more specific, trading partners become mutually dependent, and this raises the risk of opportunistic behavior or strategic manipulation of contract terms in market transactions (Klein et al., 1978). Opportunism could take the form of the organized criminal firm undersupplying protection, or demanding additional payment to continue shielding the loan shark from police scrutiny, following an unexpected change in the policing environment. At any given level of input specificity, the greater is the loan shark's expectation that the organized criminal firm will respond opportunistically to unforeseen events, the more the loan shark will tend to prefer self-protection. Therefore, the curve OC shifts downward as the expectation of opportunism rises, which reduces the range of market transactions. The possibility that the loan shark may behave opportunistically, for example, by understating its receipts to evade payment for protection services, also would shift the curve OC downward because the organized criminal firm must raise the supply price for protection to reflect its higher expected costs of doing business with the loan shark.

The loan shark's choice between self-protecting and purchasing protection is guided by its relative total transaction cost TC, which is given by the sum of PC and OC and the likelihood of opportunistic behavior, which determines the position of the curve OC. Figure 1 defines a critical level of input specificity,  $k^*$ , below which market supply is preferred and above which internal supply is preferred. Determining the likelihood of opportunism requires a more detailed analysis of the present gains and future costs of opportunistic behavior.

### *B. Opportunism and Reputation*

To explore how the possibility of opportunistic behavior affects how criminal inputs are supplied, I specify explicitly the loan shark's and organized criminal firm's returns from behaving faithfully versus opportunistically when they transact in the market. These returns are summarized in Figure 2. I assume initially that the loan shark and organized criminal firm can observe and verify each other's actions. (Part C relaxes this assumption.) At the beginning of a period, the loan shark decides whether to self-protect or contract out for protection. Without loss of generality, if the loan shark self-protects both it and the organized criminal firm receive returns of

		<b>Organized Criminal Firm</b>	
		Faithful	Opportunistic
<b>Loanshark</b>	Faithful	$(\delta_1, \delta_1)$	$(-\delta_3, \delta_1 + \delta_2)$
<b>Contract-out</b>	Opportunistic	$(\delta_1 + \delta_2, -\delta_3)$	$(-\delta_3 + \delta_4, -\delta_3 + \delta_4)$
		<b>Self-Protect</b> $(0, 0)$	

**Assumptions:** (i)  $\delta_1, \delta_2, \delta_3,$  and  $\delta_4 > 0$

(ii)  $\delta_1 + \delta_3 > \delta_2$

(iii)  $-\delta_3 + \delta_4 < 0$

FIG. 2. Organizational choice and opportunism.

zero. (The loan shark's return in this case includes expected losses from future retribution—physical injury or losses from arson—should the organized criminal firm punish self-protectors.) If the loan shark instead buys protection, the returns are contingent upon behavior in the second half of the period. If both parties behave faithfully—the organized criminal firm provides the contracted level of protection at the agreed fee and the loan shark correctly reports its receipts—then each receives a return of  $\delta_1$ , sharing the transaction cost saving from market contracting.<sup>21</sup> If either acts opportunistically—the organized criminal firm undersupplies protection or the loan shark understates its receipts—the cheater receives a marginal gain of  $\delta_2$  while the victim suffers a gross loss of  $\delta_3$ . The victim's total loss  $\delta_3$  may exceed the opportunist's financial gain  $\delta_2$  because of adverse reputational effects that make the victim a more likely target for future opportunism. If both parties act opportunistically, I assume that they each receive a return of  $-\delta_3 + \delta_4 < 0$ .

Three features of the returns matrix are noteworthy. First, regardless of its own behavior, a victim of opportunism is worse off than if it had never entered the market. The victim incurs a loss of  $-\delta_3$  if it does not respond in kind, and a marginally smaller loss of  $-\delta_3 + \delta_4$  if it responds opportunistically. Because both returns are assumed to be negative, being a victim of opportunism always imposes a net loss as compared with self-supply (which earns a zero return). Second, if a cheating firm can avoid detection or if cheating cannot be punished effectively, firms will prefer to act opportunistically. This is implied by the conditions that  $\delta_1 + \delta_2 > \delta_1$  and  $-\delta_3 +$

$\delta_4 > -\delta_3$ , which state that there is a positive return to undetected or unpunished opportunism. Finally, the sum of the returns from market transactions is largest when both sides refrain from opportunism. This is implied by the condition that  $\delta_1 > \delta_2 - \delta_3$ , which states that the transaction cost savings from market supply exceed the perpetrator's return from opportunism net of costs suffered by the victim.

The final two conditions establish a standard prisoner's dilemma. If the transaction occurs just once, therefore, only the (Opportunistic, Opportunistic) outcome is feasible. Each party recognizes that it is better to behave opportunistically if it expects the other to do likewise, and neither party can credibly commit to refrain from opportunism. Anticipating this, neither the loan shark nor the organized criminal firm will enter the market. The potential cost savings from market transactions therefore will be forfeited.

Recurrent transactions over an uncertain horizon may restrain short-run opportunism incentives. Denote by  $p$  the (constant) probability that the loan shark will demand protection in any given period. For now, I assume that parties can detect opportunism after one period and will punish it by withdrawing permanently from the market. (More stringent punishments, such as future retribution or violence, can be reflected in a reduced value for  $\delta_2$ , which is the marginal return from acting opportunistically.<sup>22</sup>) The expected return to behaving faithfully forever is

$$\delta_1 \sum_{t=1}^{\infty} p^t, \quad (1)$$

while the expected return from behaving opportunistically in period  $(\tau + 1)$ , and being punished thereafter, is

$$\sum_{t=1}^{\tau} \delta_1 p^t + (\delta_1 + \delta_2) p^{\tau+1}. \quad (2)$$

Subtracting (2) from (1) yields the expected marginal return from faithful behavior in period  $(\tau + 1)$ ,

$$\frac{\delta_1 p^{\tau+2}}{(1-p)} - \delta_2 p^{\tau+1}. \quad (3)$$

A necessary and sufficient condition for each party to refrain from opportunism is that the expression in (3) be positive (Telser, 1980). Rearranging terms, this implies that the region of efficient market organization now extends to all transactions satisfying

$$\delta_2/\delta_1 < p/(1-p). \quad (4)$$

The left-hand side of (4) indicates that market transactions will tend to be preferred the larger are the cost savings from contracting out (the larger is  $\delta_1$ ), and the higher is the expected future punishment for retribution (the smaller is  $\delta_2$ ).<sup>23</sup> Recall that  $\delta_1$  decreases while  $\delta_2$  increases with input specificity,  $k$ . Thus, the ratio  $\delta_2/\delta_1$  is an increasing function of input specificity. The condition in (4) therefore will tend to be violated for highly specific inputs. Stated differently, the organized criminal firm is less likely to transact with inputs where extreme specificity creates potential hold-up



problems, as discussed by Klein et al. (1978). Conversely, for low values of  $\delta_2/\delta_1$ , market contracts are more likely to be self-enforcing. In terms of Figure 1, a larger value of  $\delta_1$  and a smaller value of  $\delta_2$  shift the relative organization cost curve OC rightward and thus also shift the relative transaction cost curve TC rightward. The result is to raise  $k^*$  and therefore to expand the range of criminal inputs that are more cheaply supplied through the market.

The right hand term in (4) also has intuitive meaning. It can be shown that the term  $p/(1-p)$  equals the expected horizon for market transactions.<sup>24</sup> The condition in (4) therefore implies that the loan shark is more likely to contract for protection from the organized criminal firm the longer are both of their horizons. In terms of Figure 1, a longer expected horizon shifts rightward the relative organization cost curve OC, and the curve TC shifts with it, so that  $k^*$  rises. Hence, a longer expected horizon expands the range of criminal inputs that are more cheaply supplied through the market.

A longer horizon encourages firms to rely on reputational capital to enforce contracts (Telser, 1980; Klein and Leffler, 1981). Organized criminal firms have taken several actions, including developing a corporate culture and diversifying across markets, to lengthen their horizons and thereby bolster the value of their reputational investments which, in turn, reduces their transaction costs. First, the firm's use of intermarriage, screening of members, and ethnic bonding establishes a "corporate culture" to assist the transfer of reputational capital through time in the absence of formal equity markets (Abadinsky, 1981: 8–10; Ianni, 1972: 19; Kreps, 1990: 124–31). The firm's corporate culture lengthens its expected horizon, which raises its incentive to invest in reputation. Second, the organized criminal firm's tendency to diversify across markets allows it to pool incentive constraints across individual market transactions (Rubin, 1973: 164–65; Telser, 1980: 41–42). Pooling lowers the firm's cost of commitment in any single transaction, again magnifying the incentive to invest in reputation.

The downstream firm may lengthen its expected horizon in ways different from those of the organized criminal firm. For example, a loan shark's incentive to make reputational investments will be limited by the absence of a "corporate culture" or formal asset markets to assist transfers of reputational capital. Despite this, the loan shark may extend its expected horizon through efforts to reduce its probability of police detection and its turnover rate. Large, diversified downstream criminals also may exploit economies of scale and scope in developing reputations that can help to enforce market transactions by lowering the likelihood of opportunism.

### *C. The Need for Monitoring under Uncertainty*

Introducing uncertainty into transaction enforcement affects firms' contracting choices. The preceding section minimized the role of uncertainty by assuming that transacting parties costlessly and correctly observe each other's actions. In situations where third party enforcement is unavailable, however, private verification of contractual performance is likely to be costly and hence incomplete. When compliance is costly to verify, reputational investments are less capable of supporting market organization without supplementary monitoring (Williamson, 1991: 167; Kreps, 1990: 105). Transaction complexity, lags in communication of past performance, and delays in punishment also weaken reputation-based enforcement under uncertainty (Williamson, 1991: 168). This final section indicates how uncertainty influences the likelihood and terms of market transactions.

To analyze the effects of uncertainty on the organization of crime, I use a model that introduces a random element or "noise" into the organized criminal firm's monitoring of the loan shark. (A symmetric analysis can be developed for the loan shark's monitoring incentives.) Suppose that the loan shark agrees to pay the organized criminal firm a share  $0 < s < 1$  of its profits from lending. Let  $L_a$  denote the actual number of loans made by the loan shark and let  $L_r \leq L_a$  be the number reported to the organized criminal firm, who cannot directly observe  $L_a$ . Instead, the organized criminal firm observes its total payment for supplying protection,  $P$ , which depends on both  $L_r$  and a random profitability shock  $\theta$ :

$$P = s\theta L_r \quad (5)$$

where  $\theta$  is drawn from a known, cumulative distribution  $F(\theta)$  with mean one. Variations in default rates, collection costs, and other random factors introduce noise via  $\theta$  into the monitoring process to weaken the correlation between  $P$  and  $L_a$ . The organized criminal firm's problem is to distinguish between lower-than-expected payments attributable to adverse random shocks ( $\theta < 1$ ) and those due to underreporting by the loan shark ( $L_r < L_a$ ). Green and Porter (1984) model a corresponding problem faced by colluding firms with uncertain demand. Modifying their analysis defines an enforcement strategy based on a trigger rule to infer probabilistically whether the loan shark has acted opportunistically.

I derive the organized criminal firm's trigger strategy in the Appendix. Here, I outline its structure and analyze its effect on the firm's decision to supply protection. A trigger strategy defines a triplet  $\{s, \bar{P}, T\}$  of profit share  $s$ , the trigger payment  $\bar{P}$ , and a punishment period  $T$ . If the loan shark's payment  $P$  falls short of  $\bar{P}$ , the organized criminal firm deems this outcome to be sufficiently improbable unless the loan shark underreported. As punishment, the criminal firm withdraws from the market for  $(T - 1)$  periods, after which it returns to supply protection. As before, more stringent punishments such as future retribution (physical injury or arson damage) could be incorporated easily into the model by altering the returns matrix in Figure 2 to reflect a reduced return to opportunism and/or self-protection. None of the qualitative results would be affected by this change.<sup>25</sup>

The trigger strategy poses the following trade-offs. An increase in the contracted profit share  $s$  raises the organized criminal firm's potential market return, yet it also raises the loan shark's incentive to underreport. An increase in the trigger payment  $\bar{P}$  raises the probability of detecting opportunism, but does so at the expense of increasing the frequency of incorrectly withdrawing from the market. Finally, a reduction in  $T$  shortens the costly punishment phase but also lowers the loan shark's incentive to behave faithfully. The organized criminal firm minimizes its expected transaction costs by choosing a triplet  $\{s, \bar{P}, T\}$  to balance these counteracting incentives.

By creating the need to rely on trigger strategies, the introduction of uncertainty unambiguously raises the relative cost of market transactions. While in equilibrium opportunism is discouraged, any payment below  $\bar{P}$  must be punished to maintain the trigger strategy's credibility. Because the trigger strategy involves periodic reversions to the relatively more costly option of self-protecting, this raises the average cost of market supply. In terms of Figure 1, organization costs increase in the market and therefore the curves OC and TC shift downward. The threshold level of input specificity  $k^*$  falls, and therefore the range of illegal inputs that are more efficiently

supplied by the organized criminal firm narrows. To lessen this cost, the criminal firm may adopt contract terms to assist in metering or monitoring the loan shark's behavior. The firm's incentive to meter is proportional to the level of transaction uncertainty, providing an additional testable implication of how transaction terms will vary with the difficulty of monitoring in criminal markets.

#### IV. Drawing Predictions and Explaining the Evidence

Section III explained how relative transaction costs guide the choice between market supply and self-supply, highlighted the role played by firms' expectations of opportunism in market transactions, and finally explored how uncertainty can limit firms' ability to rely upon reputational capital to deter opportunistic behavior. In this section, I translate these general conclusions into specific predictions about the markets supplied by the organized criminal firm. I develop four central propositions: the organized criminal firm is more likely to participate in activities where (i) production cost savings from vertical specialization are greater, (ii) the scope for opportunism created by input specificity is smaller, (iii) firms' horizons are longer, and (iv) markets are more certain. I then gauge the models' predictive power to explain the empirical regularities summarized in Section II.

##### *A. Economies of Large-Scale Production*

**PROPOSITION 1:** *Downstream firms will be more likely to transact with the organized criminal firm, ceteris paribus, the greater is its production cost advantage relative to internal supply.*

Identifying the source of the organized criminal firm's production cost advantage can assist in explaining its pattern of supplying protection from police, violent enforcement, and cartel policing.

First, Proposition 1 implies that the organized criminal firm should supply protection from police more frequently to "victimless" criminal trades. The prostitute, loan shark, and bookmaker require public visibility to practice their trade. In principle, these businesses could self-protect from police scrutiny by reducing their overall visibility. While this would lower the criminal's probability of police detection, it also would limit visibility among the criminal's potential clientele. The organized criminal firm, which bribes police to lessen police scrutiny of downstream criminals, does not sacrifice their public visibility and therefore it can produce protection for less than the cost of self-supply. The organized criminal firm's opportunity to exploit scale and scope economies when cultivating relations with the police, by pooling fixed bribery expenses across multiple victimless criminal markets, will increase further the firm's production cost advantage. In contrast, among victimizing criminal trades such as burglary, an individual criminal who self-protects against police scrutiny by lowering his visibility receives a positive by-product: reduced visibility among his victims. The organized criminal firm's production cost advantage in supplying protection therefore should be smaller for victimizing than for victimless criminals. This conclusion helps to explain why organized criminal firms transact more frequently with the victimless criminal trades of prostitution, pornography, narcotics, bookmaking, and loan-sharking, and less frequently with the victimizing trades of burglary, theft, and embezzlement (Observation 2).

Second, the organized criminal firm should supply violent enforcement more frequently to illegal trades. An illicit business has little legal recourse against extortion by the organized criminal firm, in contrast to the legitimate business owner, who may rely partially upon the police and courts for protection. Stated differently, the state partially defrays the production cost of self-protecting for the legitimate business firm but not for the illicit business owner. It follows that illicit trades will tend to find self-protecting against threats of violence relatively more costly than paying extortion to the organized criminal firm. By similar reasoning, it will be relatively less costly for the loan shark than for the legitimate moneylender to hire the organized criminal firm to forcefully collect outstanding debts. The state partially subsidizes the legitimate moneylender's production costs for collecting debts by making these obligations enforceable in court. By contrast, debts incurred from gambling, which are more likely to be financed by illegitimate moneylenders, are not enforceable in court and therefore the loan shark must bear the full production cost for debt collection. The organized criminal firm therefore will tend to be a more attractive alternative to self-collection for the loan shark than for the legitimate lender.

These observations may explain why organized criminal firms transact more frequently with illegal trades (Observation 3).<sup>26</sup> They may explain also why organized crime typically withdraws from illicit activities when they are legalized. For example, organized criminal protection of liquor wholesalers fell precipitously after the repeal of Prohibition, transactions with bookmakers declined following legalization of off-track betting, and protection of New York City's brothels subsided following relaxation of penalties for solicitation and procurement offenses in 1967. In contrast, introduction of state usury laws in the period 1910–1920 significantly increased organized criminal activity in illicit credit markets.<sup>27</sup> Legalization of downstream markets diminishes the organized criminal firm's comparative advantage by raising its relative production costs of supplying protection, debt collection, or violence.<sup>28</sup>

Third, an additional service that organized criminal firms supply is the policing of industry cartels. The potential gains from collusion are greater in markets with particular characteristics, including an inelastic demand for the good, little product differentiation across sellers, and few alternative sources of supply for purchasers. In some industries that are susceptible to collusion, barriers to entry are sufficiently high and sellers are sufficiently few in number to overcome the problems of monitoring, free-riding, and entry that threaten cartels' stability. In these industries, we may expect cartels to self-police. In cartels with low entry barriers and large memberships, by contrast, the cost of self-supplying policing is apt to be quite high, as Reuter (1987) notes. It is in this class of colluding industries that the organized criminal firm will tend to have a lower relative cost of policing by dint of its stock of reputational capital for using violent methods of enforcement. Consistent with this prediction, organized criminal firms have tended to police cartels in industries such as waste removal and garment trucking, where low capital requirements and small average firm size raise self-policing costs. The prediction also is consistent with the seeming absence of organized criminal activity in more concentrated, capital-intensive industries where self-policing costs would be lower (Observation 10).<sup>29</sup> Transaction cost theory also predicts that demand for external cartel enforcement services should rise during periods of depressed demand, when self-policed cartels are more susceptible to breakdown.<sup>30</sup> This prediction may explain why "[t]he Depression's extraordinarily deep and rapid decline intensified the incentive for collusive services" from organized crime (Observation 4).<sup>31</sup>

### B. Transaction Specificity

PROPOSITION 2: *Organized criminal firms should be observed to transact in relatively non-specific inputs.*

Evidence on input specificity is gleaned indirectly by examining the extent of economies of scale and the potential for opportunism in a particular transaction.

The criminology literature identifies financing, bribery to secure protection, enforcement, and extortion as among the primary inputs transacted by the organized criminal firm (Observation 1). Consistent with Proposition 2, each input is relatively nonspecific to purchasers inasmuch as the market offers significant economies of scale in production from exploiting indivisibilities, internalizing external costs, and pooling risk. Indivisibilities from overlapping jurisdictions and enforcement authority create production economies in bribery.<sup>32</sup> A large firm's ability to internalize external costs from violence creates production scale economies in extortion and enforcement services that recommend centralization.<sup>33</sup> Finally, risk pooling provides the major source of production scale economies in financing illegal downstream activities.<sup>34</sup>

Financing, bribery, enforcement and (protection from) extortion also offer little scope for opportunism by the organized criminal firm. Each service has short-run supply alternatives in the event that the organized criminal firm behaves opportunistically. None is characterized by the asset specificity that Williamson (1986: 159) links to possible opportunism: site specificity, physical asset specificity, human capital specificity, or dedicated asset specificity. By contrast, many services that are not transacted by the organized criminal firm do involve a high degree of specificity and potential for opportunism. Extreme specificity may partially explain, for example, why the organized criminal firm does not supply customers to brothels and does not directly control outstanding debt accounts for loan sharks and bookmakers.

### C. Transaction Frequency

PROPOSITION 3: *Downstream firms will be more likely to transact with the organized criminal firm, ceteris paribus, the longer are the parties' expected transaction horizons.*

Several specific predictions follow.

First, organized criminal firms should transact more frequently with downstream businesses having lower turnover rates. Lower turnover lengthens the expected horizon of market transactions and makes short-run opportunism less profitable. Lower turnover and arrest rates among prostitutes employed by brothels and escort services, as compared with street prostitutes, thus may explain why organized crime tends to protect only the former (Observation 6). (A notable exception is brothels in rural Nevada where, after legalization of prostitution, organized criminal firms withdrew from the market.<sup>35</sup> This is consistent with Proposition 1.) Similar reasoning also may explain why organized crime finances and protects narcotics importing and wholesaling, yet tends to shy away from its retail distribution (Observation 7). Turnover rates and risks of detection are higher at the retail stage, where transactions are more numerous and more visible to law enforcers.<sup>36</sup> In addition, organized crime provides protection and fencing services to large cargo theft rings, but not to individual thieves or burglars (Observation 9). Larger-scale theft rings have longer ho-

horizons than the infrequent or small-scale thief, which lowers their cost of enforcing market transactions with the organized criminal firm.

Second, as Section III noted, longer firm horizons increase the incentive to invest in reputation to assist the enforcement of illegal transactions. It follows that the organized criminal firm should be more likely to supply downstream firms that have made large, nonsalvageable reputational investments that hold these firms hostage to long-term contractual performance. The threatened loss of a continued return on its reputational investments discourages opportunism and thus lowers the cost of market-supplied criminal inputs. This prediction provides additional reasoning why organized crime provides protection from police to brothels and escort services, yet not to individual street prostitutes or pimps (Observation 6). Relative to street prostitutes and pimps who have quite short horizons, brothels and escort services devote greater resources to developing reputational goodwill among their clientele, cultivating markets, and providing protection to their employees.<sup>37</sup> The prediction also may explain organized crime's tendency to assist drug importing but not retail transactions (Observation 7). Narcotics importers make large nonsalvageable investments, such as establishing foreign supply networks, which are not present in decentralized retail drug markets.<sup>38</sup> Finally, the prediction may explain why organized criminal extortion is centered in unionized labor markets where large, nonsalvageable reputational investments can guarantee performance (payment of extortion) (Observation 8).

#### *D. Uncertainty*

Section III identified how increased uncertainty and difficulty in monitoring others' actions raise the relative cost of enforcing market transactions.<sup>39</sup> To mitigate these effects, firms may adopt contract terms that assist monitoring.

**PROPOSITION 4:** *Greater transaction uncertainty will tend to reduce organized criminal activity. When market transacting remains preferred, however, contract terms should be adopted to assist metering.*

Several predictions follow.

First, organized criminal firms will tend to transact more frequently when monitoring costs are lower. This may explain organized crime's tendency to transact in "victimless" criminal markets where suppliers of illicit goods and services require visibility among their potential clientele, which also lowers the organized criminal firm's monitoring costs (Observation 2). The prediction also may explain why organized crime transacts with downstream suppliers of relatively simple and standardized goods and services—prostitution and loan-sharking but not embezzlement or securities fraud; restaurants and laundromats but not banks or insurance companies—where specialized knowledge of the business is not required for effective monitoring (Observation 5).

Second, the organized criminal firm will tailor its contract terms to assist monitoring in relatively more uncertain environments. This can explain variation in the compensation methods adopted by organized criminal firms. Legal businesses such as restaurants and bars with highly variable income streams generally pay extortion through input purchase requirements for liquor, linen services, and vending machines.<sup>40</sup> This form of compensation allows the organized criminal firm to meter downstream revenues more accurately and thus better ensure compliance with the terms of the extortion demands. Organized criminal firms also tend to select com-

compensation terms to assist metering demand in illegal businesses whose relatively small nonsalvageable investments would hinder self-enforcing illegal market transactions. For example, the loan shark borrows capital directly from the organized criminal firm, pornography distributors are typically required to rent organized crime-supplied projectors or use organized crime-controlled labs to process film, and in early bookmaking markets, the leasing of a wire service to transmit race results to the bookmaker was the most common payment method (Observation 11).<sup>41</sup> Each compensation scheme relies upon a purchase requirement, mandating price above marginal cost, to assist metering downstream demand to prevent underreporting of firms' income.<sup>42</sup> By contrast, organized criminal firms typically receive lump-sum or direct money-skimming compensation in racketeering and casino gambling.<sup>43</sup> Nonsalvageable assets tend to be larger in these trades, thus reducing the organized criminal firm's need to monitor explicitly rather than rely on reputations or the threat of asset forfeiture to assure performance.

## V. Conclusion

This paper has addressed why particular illegal activities are carried out within the firm while others are supplied through the market by an organized criminal firm. The existing literature's emphasis upon monopoly control is inconsistent with much of the empirical evidence on organized crime. To explain patterns in organized crime activity, this paper developed a competing hypothesis of cost minimization: a firm chooses between supplying illegal inputs internally and purchasing them in the market to minimize its costs of criminal transactions. The paper identified four transaction cost characteristics—production scale economies, contracting frequency, transaction specificity, and uncertainty—to explain empirical regularities in the activities of organized criminal firms. Questions relating to ownership and control and internal organization in organized criminal enterprises also could be analyzed fruitfully within the transaction cost framework developed in the paper.

The transaction cost framework also offers insight into evaluating public policy toward organized crime. Decriminalizing victimless crimes is a frequently proposed reform to deter organized criminal activity. Transaction cost theory predicts and the available empirical evidence supports the hypothesis that organized criminal firms will tend to supply protection to victimless criminal trades. As explained in Section IV.A, the organized criminal firm enjoys a relative production cost advantage (over self-supply) because it lowers the downstream victimless criminal's visibility to police without sacrificing its visibility among potential clients. If prostitution and bookmaking were legalized, purveyors of these victimless crimes would find that their relative cost of self-supplying illegal inputs had fallen. A transaction cost theory therefore predicts that decriminalization should reduce the demand for organized crime-supplied inputs and lead to increased self-supply among smaller criminal enterprises or "disorganized crime."

Schelling (1967) and Buchanan (1973) have noted that, compared to the large-scale organized criminal firm, disorganized criminals have a smaller incentive to internalize external costs (or by-products of crime) such as violence and the oversupply of social "bads" such as prostitution and gambling. Thus, decriminalization actually might increase the total supply of violence and other "bads" by substituting supply away from organized crime and toward disorganized criminals. Whether decriminalization would increase or decrease aggregate criminal activity is an em-

pirical question. More generally, transaction cost theory highlights how policies to raise the cost of business among organized criminal firms may simply alter the organizational form (market versus internal transactions) of crime while having little impact on its net supply.

### Appendix: The Organized Criminal Firm's Trigger Strategy

The organized criminal firm may adopt a trigger strategy, based on Green and Porter (1984), to enforce market contracts when it cannot directly observe a downstream firm's performance. Following the notation in Section III.C, define  $L_a$  as the actual number of loans made by the loan shark,  $L_r$  as the reported number ( $L_r \leq L_a$ ),  $s$  as the organized criminal firm's contracted share of loan sharking profits, and  $P$  as the payment for protection.  $P$  is calculated as  $s\theta L_r$ , where  $\theta$  is a random profitability shock with known cumulative distribution function  $F(\theta)$  and mean one. A trigger strategy is defined by a triplet  $\{s, \bar{P}, T\}$  of profit share  $s$ , the trigger payment  $\bar{P}$ , and a punishment period  $T$ .

The transaction cost-minimizing trigger strategy is determined as follows. The trigger payment  $\bar{P}$  implicitly defines the probability that the organized criminal firm withdraws from the market,  $\bar{q}$ . If no underreporting occurs, the organized criminal firm would withdraw only when the payment  $P < \bar{P}$  or  $s\theta L_a < \bar{P}$  or  $\theta < \bar{P}/sL_a$ . Hence

$$\bar{q} = F\left(\frac{\bar{P}}{sL_a}\right). \quad (\text{A.1})$$

While the equilibrium trigger strategy successfully deters opportunism, a sufficiently small (adverse) shock  $\theta < 1$  could cause  $P < \bar{P}$ . Thus, the probability  $\bar{q}$  will in general be positive.

The return matrix in Figure 2 defines the loan shark's expected return to market transacting as

$$V = \delta_1 + (1 - \bar{q})\rho V + \bar{q}(0[\rho + \rho^2 + \dots + \rho^{T-1}] + \rho^T V), \quad (\text{A.2})$$

where  $\rho$  is the one-period discount factor. The firm's expected return comprises three parts: (i) its first-period return when the loan shark refrains from opportunism  $\delta_1$ , (ii) the present value return beginning next period  $\rho V$ , discounted by the probability  $(1 - \bar{q})$  that market contracting continues, and (iii) the return when the trigger is exceeded—zero for  $(T - 1)$  periods and  $V$  henceforth—multiplied by the probability of this event,  $\bar{q}$ . Collecting terms in (A.2) yields

$$V = \frac{\delta_1}{(1 - \rho) + \bar{q}(\rho - \rho^T)} \quad (\text{A.3})$$

which is the organized criminal firm's appropriately discounted single-period return from market contracting when it deters opportunism. Notice that for all  $\bar{q} > 0$ , the expected return  $V$  is strictly less than  $\delta_1/(1 - \rho)$ , which is the present value return when monitoring is costless. This reflects the additional cost of market transacting created by uncertainty.

The loan shark refrains from opportunism if and only if it cannot raise its expected return by underreporting its loans. The one-period return to opportunism is  $\delta_2$ . The penalty for cheating, measured in terms of the present value of foregone future returns, equals the appropriately discounted difference between the loan



shark's return from faithful market transacting ( $\delta_1 + \delta_2$ ) and self-protecting (zero), which is

$$\rho(\delta_1 + \delta_2)(1 + \rho(1 - q) + \rho^2(1 - q)^2 + \rho^3(1 - q)^3 + \dots) = \frac{\rho(\delta_1 + \delta_2)}{1 - \rho(1 - q)}$$

where  $q = F(\bar{P}/sL_r)$  is the probability that the loan shark shirks (i.e.,  $L_r < L_a$ ) and is caught. This penalty is multiplied by the increase in the probability that the loanshark concludes shirking has occurred,  $(q - \bar{q})$ , as the loanshark switches from faithful to opportunistic behavior. Therefore, the no-shirking condition is

$$\delta_2 \leq (q - \bar{q}) \frac{\rho(\delta_1 + \delta_2)}{1 - \rho(1 - \pi)} \quad (\text{A.4})$$

To minimize its expected transaction cost, the organized criminal firm maximizes its expected return from equation (A.3) by choice of the triplet  $\{s, \bar{q}, T\}$ —or equivalently,  $\{s, \bar{P}, T\}$ —subject to the loan shark's incentive constraint in (A.4).

### Notes

1. Schelling's definition has been adopted by most economists, including Rubin (1973), Anderson (1973), and Reuter (1985, 1987). Criterion (i) excludes legitimate firms that engage in illegal activity (e.g., fraud) that is ancillary to their regular line of business. Criteria (ii) and (iii) exclude criminals that organize, such as burglars operating in a group, yet which usually are not highly specialized vertically and lack formal enforcement and governance structures. Schelling's definition is significantly more restrictive than the expansive legal standard for racketeering applied under the Racketeer Influenced and Corrupt Organizations (RICO) statute. A 1983 Supreme Court decision, *Rusello v. United States* (104 SCt 296), held that a firm need not be formally linked with organized crime (as defined in the text) to be subject to RICO scrutiny. This paper will not directly address the debate on what should constitute "organized crime" under RICO. Instead, its objective is to analyze and explain the organization of criminal enterprises of the sort described by Schelling (1967, 1971).
2. More recent theoretical analyses of organized crime also stress monopoly or cartel aspects, including Fiorentini (forthcoming), who analyzes criminal cartels' impact on illegal commodity output and market externalities, and Polo (forthcoming) and Skaperdas and Syropoulos (forthcoming), who analyze monopolistic control over coercion.
3. Henceforth cited as NAC (1976). Reuter (1983: 11–12) also offers evidence against organized criminal firms having (perfect) cartel or monopoly power in bookmaking markets, while Moore (1986: 53) generally disputes the monopoly interpretation of organized crime. Anderson (forthcoming) regards the state as an active competitor to organized crime for control over economic transactions.
4. As a third option, the organized criminal firm may vertically integrate downstream into loan sharking. I restrict attention to upstream vertical integration for two reasons. First, while the distinction between upstream and downstream integration introduces interesting internal control issues, the paper's focus lies in identifying the conditions under which transaction cost minimization leads firms to substitute between market and internal organization. Within this framework, upstream and downstream integration may be analyzed symmetrically. Second, empirical evidence on organized criminal firms' integration into downstream industries is less well documented than is the evidence on upstream integration and market contracting.
5. Demsetz (1972) discussed at greater length the illusory distinction between extortion and monopoly supply of positively valued services.

6. Anderson (1979) documents the operations of an organized criminal family in Philadelphia, Reuter (1987) constructs detailed case studies of organized crime in New York and New Jersey's commercial waste hauling industries, and Reuter (1983) provides a detailed account of organized crime's links to bookmaking, numbers, and loan-sharking.
7. NAC (1976: 7–15).
8. NAC (1976: 218) and Abadinsky (1981: 120–122, 137–140, 148–150).
9. Philcox (1978: 11), NAC (1976: 221, 243), Abadinsky (1981: 138–139), and Reuter (1983: 3).
10. Reuter (1987: 3, 70).
11. Block (1991: 2–3) and Reuter (1987: 7).
12. Abadinsky (1981: 137–139) and NAC (1976: 225).
13. Philcox (1978: 45–46), NAC (1976: 222), and Bequai (1979: 135–136).
14. Abadinsky (1981: 152) and NAC (1976: 12).
15. Bequai (1979: 71–74).
16. Reuter (1987: 6–7) and Reuter (1985: 57–60).
17. Abadinsky (1981: 128–130, 137–138), Bequai (1979: 61, 110), Anderson (1979: 85–86), and NAC (1976: 226).
18. Gambetta and Reuter (forthcoming) also examine conditions under which collusion in illegal markets can be sustained without explicit contracts among the parties.
19. More generally, Reuter (1983: 130) identifies several reasons why downstream criminals usually will be too small to fully exploit economies of scale. These reasons include the firm's incentive to disperse its activities in time and space to avoid police detection, its difficulty in obtaining external financing due to the lack of auditable financial records and feasible collateral arrangements, and the fact that providing information to customers—which could raise demand for the firm's services—also could be used to blackmail the firm.
20. While an individual loan shark could expand its scale to exploit external economies in the supply of protection, expansion would raise the firm's average cost in its decreasing returns functions. When this rise in average cost is sufficiently large, market-supplied protection dominates self-protection.
21. For notational simplicity, the returns matrix in Figure 2, is symmetric so that the gains from market organization are shared equally and each party can inflict equivalent losses on the other through opportunism. The shared cost savings  $\delta_1$  are given by half the vertical distance between the curve TC and the horizontal axis in Figure 1. In general, we might expect the organized criminal firm to be more skilled at behaving opportunistically or punishing opportunism by downstream firms. While the exact returns in Figure 2 would change in this case, the qualitative conclusions of the analysis would continue to hold in the sense that specific inputs would be less likely to be supplied by the organized criminal firm.
22. When  $\delta_2$  becomes sufficiently small, the risk of opportunism disappears and market transactions will always dominate within-firm transactions. Enforcing such stringent punishments, however, may require that the organized criminal firm incur significant costs itself, which will tend to lower the potential transaction cost savings from market contracting, given by  $\delta_1$ . In general, the combined effect of changes in  $\delta_1$  and  $\delta_2$  on contracting choice will be ambiguous.
23. The remaining parameters  $\delta_3$  and  $\delta_4$  implicitly affect the likelihood of self-enforcement. Given  $p$  and the constraint that  $\delta_1 + \delta_3 > \delta_2$ , a minimum value for  $\delta_1$  and maximum value for  $\delta_2$  imply a minimum for  $\delta_3$ . The constraint  $-\delta_3 + \delta_4 < 0$  also implies a maximum for  $\delta_4$ , given  $\delta_3$ . In words: market transactions between the organized criminal firm and the loan shark are more likely to be self-enforcing, the larger the loss suffered by a victim of opportunism ( $\delta_3$ ) and the smaller the marginal return to responding in kind to opportunism ( $\delta_4$ ).
24. Let  $E$  denote the expectations operator and  $T$  denote the (uncertain) final period of market transactions. The expected value of  $T$  is then given by

$$E(T) = \sum_{T=0}^{\infty} p^T T (1 - p). \quad (i)$$

Thus,

$$p E(T) = p \sum_{T=0}^{\infty} p^T T (1-p) = \sum_{T=0}^{\infty} p^{T+1} T (1-p) \quad (\text{ii})$$

Subtracting (ii) from (i) and simplifying yields

$$(1-p) E(T) = \sum_{T=1}^{\infty} p^T (1-p) = \frac{p}{(1-p)} (1-p) = p. \quad (\text{iii})$$

It then follows that

$$E(T) = p/(1-p). \quad (\text{iv})$$

25. See also the discussion, *infra*, in note 22.
26. Lott and Roberts (1989: 407) apply similar reasoning in their analysis of one- and two-sided enforcement in illegal transactions.
27. Philcox (1978: 11), NAC (1976: 221, 243), and Abadinsky (1981: 148).
28. Gambling, which was legalized in Nevada in 1931, traditionally has been associated with organized criminal firms' involvement. Unfortunately, quite little is known about the extent of organized crime's involvement prior to the 1930s, and therefore it is difficult to draw conclusions about the impact of legalization. It is known, however, that when Nevada changed its laws in 1969 to permit corporate ownership of casinos—an act that reduced organized criminal firms' ability to rely on violent enforcement—organized crime's involvement in the skimming of casino earnings declined. Reuter (1987: 64–65, 67) argues that this and other “[s]tructural changes in the [Nevada] casino industry are probably reducing racketeer involvement.”
29. Organized crime frequently is observed to transact in unionized labor markets [Observation 8], in spite of the apparently high entry barriers created by monopolization of labor inputs. Economists usually have attributed organized crime's presence to the union's government-sanctioned monopoly power, which creates cartel or monopoly rents that the organized criminal firm then extorts. Rubin (1973: 160), for example, adopts this interpretation. Given the incompatibility of the standard monopoly interpretation with many empirical facts about organized crime, it is preferable to examine whether the transaction cost theory can explain organized crime's involvement in unionized labor markets. Section C offers an explanation based on unions' reputational capital, which transaction cost theory indicates will assist enforcement of criminal market transactions.
30. Green and Porter (1984) predict that cartel agreements will be less stable during downturns when colluding firms mistake low prices due to depressed demand as reflecting cheating by other members. The cartel's trigger strategy requires a temporary dissolution of the cartel in this case. Bittingmayer (1985: 86, n. 12) draws a related implication from Telser's (1980) analysis of self-enforcing agreements. If some cartel members are likely to have exited from the industry when the next trough is reached, then the expected horizon over which the potential colluders can cooperate is shortened. Telser's (1980: 41) theory implies that this will reduce cartel stability during the current downturn.
31. Reuter (1987: 3).
32. Anderson (1973: 170).
33. Schelling (1967: 65–66).
34. Rubin (1973: 156).
35. NAC (1976: 243).
36. Reuter et al. (1990: 14–15), NAC (1976: 222), and Rottenberg (1968: 79). Reuter et al. (1990: 14–15) argue: “Risks for a dealer are . . . determined primarily by the number of transactions rather than the quantity of drugs sold per transaction. Thus, the lower-level participants (selling smaller quantities) incur more risks per unity weight.” Rottenberg (1968: 79) also argues that the risks of detection are smaller for the importer than for the retailer of narcotics.
37. Reynolds (1986: 126). As examples, reputational goodwill may be developed by brothels and

escort services through efforts to lower customers' risk of disease or theft by prostitutes, investments may be made to cultivate particular markets such as conventioners, and protection to prostitute employees may be supplied by verifying the creditworthiness and personal characteristics of potential customers.

38. Abadinsky (1981: 145).
39. The enhanced value of adaptability under increased uncertainty also will tend to favor internal organization, as indicated in Section III (see Williamson, 1971).
40. Anderson (1979: 85–86).
41. Bequai (1979: 110), NAC (1976: 226), Pennsylvania Crime Commission (1980: 118), and Abadinsky (1981: 128–30).
42. The cost of monitoring is reflected in the distortion that above-marginal cost pricing creates.
43. Abadinsky (1981: 137) and Bequai (1979: 61).

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