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## The market for extortions

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World Institute for Development Economics Research

Discussion Paper No. 2001/26

## **The Market for Extortions**

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### **Abstract**

We consider extortion gangs that are mafia-like in their protection of targets, but that are unlike the Mafia in their competition over targets. Does this type of organized crime pay? How are the returns to extortion affected by the number of competing extortionists and the violence they apply? Does the supply of extortions create the demand for protection that the groups live from? In order to answer such questions we analyse a model that focus on the trade-off between congestion and demand creation in the market for extortions.

Keywords: violence, extortion, economics of organized crime

JEL classification: D74, K00

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## 1 Introduction

Violent entrepreneurship plagues many developing and transitional economies. Investors cite crime as "the biggest deterrent to doing business in South Africa."<sup>1</sup> Some countries are trapped in escalating crime and violence that seriously hamper economic progress. In Latin America "[t]he spiral of violence has produced a spiral of spending on private security, which often contributes to more crime, as private armies turn into paramilitary squads" (the Economist 1996). The Russian economy in the 1990's is particularly rich in examples of parasitic extortionists, protection rackets, and criminal gangs that victimize and rob their targets.<sup>2</sup>

These groups are not necessarily committed to violence, which they apply only when it pays. Their power is based on deterrence - the use of force and threats against those who do not cooperate. The groups are rivals, a feature that stands in contrast to the dominant perception in economics of organized crime as monopoly organizations.

The role of monopoly or exclusivity in organized crime was strongly emphasized by Thomas Schelling in his seminal papers from 1967 and 1971. Organized extortionists select victims with little or no protection from law such as drug dealers, black-market firms, illegal gamblers and other criminals in the underworld. The essence of organized crime, according to Schelling, is to achieve a dominant position where "large criminal business firms provide a governmental structure to the underworld, helping to maintain peace, setting rules, arbitrating disputes, and enforcing disciplin, .." (Schelling 1967).

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<sup>1</sup>The Economist Intelligence Unit's South Africa country report for 1998.

<sup>2</sup>See e.g. the articles by Fituni, Galeotti, Volkov, and Radaev in Ledeneva and Kurkchian eds. (2000).

Schelling's perspective has had a deserved influence in the economics of organized crime as can be seen by the many contributions in the book edited by Fiorentini and Peltzman from 1995. Grossman's article, for instance provides a formalization of the mafia as an alternative to governmental provision of protection. Konrad and Skarpedas (1997, 1998) also extend Schelling's analysis by incorporating strategic elements in bilateral extortion games in order to explain refusals to pay, violence and destruction.

Not all organized criminal activities are organized crime in Schelling's sense. There are extortion gangs that are mafia-like in their protection of targets, but that are unlike the Mafia in their internal competition over targets. Thus organized crime takes several forms, ranging from the monolithic Italian Mafia with almost a complete monopoly control in its area, to the highly competitive groups that operated in Moscow and St.Petersburg in the early 1990's. We focus mainly on the latter type of organizations as we investigate how competition in the market for extortions may work differently from competition in ordinary markets.

In ordinary markets competition among producers protects customers and employees against unfair deals. If a producer charges too high prices or pay too low wages, there are other producers to go to. Thus the power of each producer in markets for outputs and inputs declines in the number of producers. This may not be so simple with competition among criminal suppliers of protection since they in part protect their targets against similar groups. On the one hand, these groups may provide beneficial services of protection and debt collection that the state apparatus fails to deliver. On the other hand, the problems that a group solves may to a large extent be created by its criminal competitors. The presence

of organized crime creates demand for protection among producers, a demand that the organized criminal groups themselves can cover. As observed in Russia “The first Racketeer groups were mainly engaged in physical protection from other such groups [...]” (Volkov 2000 p. 46).

By threatening to extort the target a criminal group typically asks for tributes in exchange for protection. What is the relationship between the rents that each criminal group can extract and the number of such extortion groups? Does organized crime pay in thin markets with few extortionists relative to the number of potential targets? Or, is the expected profitability of extortion higher in thick markets with many extortionists relative to potential targets? The answers to these questions are not obvious.

Firstly, targets may be easier to find in thin markets than in thick ones. Thus competition among extortionists over targets may create congestion that drives expected profits towards zero. Secondly, when the number of extortionists is high relative to the number of targets, there are more crime to protect the targets from. As the supply of crime fuels the demand for protection, the pay for protection may be higher in thick than in thin markets. Thus from this perspective competition among extortionists can boost their profitability.

In order to capture the essence of the trade-off between congestion and demand creation in the market for extortions, we set up the simplest model we can think of. We are not only interested in how the value of protection is related to the numbers of targets relative to extortionists and how the competition for targets depends on how tight the market for crime is. Our attention is also devoted to the extent of brutality and violence. The brutality of an extorter demonstrates the capacity to steal from

the target if the firm refuses to cooperate, and to provide protection against other brutal intruders if the firm gives in. We show how the degree of violence affects the returns to crime. Assuming that organized crime emerges when it pays, the basic question is under what conditions it is most likely to consolidate.

## 2 The model

We start in a situation with  $N_L$  producers and  $N_X$  predators who are not yet matched. From this starting point we discuss how a market for extortions emerges and how it operates. The main features of the rise and early consolidation of this market can be captured by focusing on two periods, the present (period 1) and the future (period 2).  $\theta$  is the length of the second period relative to the first. If agents have a long horizon,  $\theta$  is large, while myopia implies a  $\theta$  close to zero.

First we consider how a predator who has approached a target firm can exploit this target depending on the perceived incidence of extortion in the future. He extorts the target firm to pay tribute in exchange for protection. How much can he ask for? What determines his power to exploit the target? How is his power related to the number of competing predators?

The capacity of the predator to harm the target is equal to  $C$ , which can be split in two components

$$C = C_D + C_S \tag{1}$$

Here  $C_D$  is the direct loss to the producer of being approached by a predator. It includes humiliation, destruction of property, and loss of business as the predator rushes in and displays his determination to extort the target. Thus,  $C_D$  is a pure

loss. The  $C_S$  component captures the capacity of the predator to steal from the target. The value of  $C_S$  depends on how vulnerable the target is to theft, which again may depend on the type of business. Typically, firms that have large cash flows or a considerable trading stock are most vulnerable. In Russia for example, enterprises in wholesale trade and retailing, catering and consumer services, finance and market services are particularly attractive targets (Radaev 2000).

The first predator may do better than just robbing the target and move on. He can offer to stay with the target firm and protect it against other criminals in the future. Predators may apply the godfather principle, *I'm gonna make him an offer he can't refuse*. By so doing they ask for the highest possible tribute for protection that the target will accept. Rejecting the offer has an expected cost of  $C_S + \theta p \tilde{C}$ , where  $p$  is the incidence of crime (the probability of getting a visit in period 2) and  $\tilde{C}$  the expected harm caused by other predators in the future. Accepting the offer implies that the target pays a tribute  $X$  which the extorter sets such that

$$X = C_S + \theta p \tilde{C} \tag{2}$$

where it is assumed that  $C_S$  is paid in the first period while  $\theta p \tilde{C}$  is paid in the second. In Russia such a protection deal is called a 'krysha'. Galeotti (2000 p. 36) describes it as follows: "A 'minimal' *krysha* might mean that the criminals themselves would not victimize or rob the client. A more advanced one would probably also extend to protecting the client business from other criminals." Thus, the godfather principle implies an advanced *krysha*. The immediate protection,  $C_S$ , is against the group's own stealing while the future protection is against predation by other groups as well.



From (2) we can derive the following observations:

**Result 1** *The amount of protection money increases with i) the incidence of crime in the future ii) other groups' destruction and stealing iii) the extorter's own capacity to steal  $C_S$ , but is iv) independent of the extorter's capacity to destruct.*

Once an extortionist has captured a target, it is in his interest that future competition for targets is high, since  $X$  is higher the higher is  $p$ . Thus, other criminals help to boost the profitability of organized crime. Part iv) of the proposition is only true as long as  $C_D$  is wasted before the extortionist makes his offer. If the threat of damaging  $C_D$  were credible when the target refuses the protection offer, the extortionist could reap  $X + C_D$  and no resources would be wasted.

Observe also that  $p$  is the perceived incidence of crime and that  $\tilde{C}$  is the perceived capacity to harm by other groups. All extorters have a common interest to exaggerate the size of  $\tilde{C}$  and  $p$ . Often they are helped by the press. In Russia for instance, "the media stories about 'brutal' and 'omnipotent' bandit groups only help sustain high-risk expectations and support the reputation of such groups" (Volkov 2000 p. 50). In the model an assumption about perceived crime being exaggerated contributes to the main claim of this paper. Thus to err on the safe side we from now on assume that agents have correct predictions. Hence, when all extortionists are alike,  $\tilde{C}$  is equal to  $C$ .

Moreover, each criminal group is supposed to have capacity to visit one producer in each period. The expected income  $Q_1$  extracted by the predators in period 1 is thus

$$Q_1 = pN_L C_S \tag{3}$$

Each producer has a revenue  $Y$  per unit of time. The net revenue to all producers in period one  $I_1$  is thus

$$I_1 = N_L Y - p N_L (C_S + C_D) \quad (4)$$

The total waste is therefore  $p N_L C_D$  while  $p N_L C_S$  is income transferred from producers to predators.

When i) all predators have the same probability ( $1/N_L$ ) of approaching a specific producer and ii) the number of both producers and predators is large, the expected number of visits to each producer is  $m = N_X/N_L$ , where the number of visits is Poisson distributed. The probability of receiving at least one extorter, and thus becoming a protected client in period one, is

$$p = 1 - e^{-m} \quad (5)$$

Therefore, in the start of period 2 a fraction  $p$  of the producers have a protection deal and are paying protection money. Hence, only a fraction  $(1 - p)$  of the producers are available for the roaming predators. If one of them finds a vacant producer he destroys  $C_D$  and gets a protection deal worth at least  $\theta C_S$ . If the predator shows up at one of the  $p N_L$  firms that has a protection deal, he receives nothing. Instead he experiences a clash with the protecting gang. In period 2 the predators therefore extract

$$Q_2 = p N_L \theta (C_S + C_D) + p (1 - p) N_L \theta C_S \quad (6)$$

$pN_L$  producers pay protection money  $\theta C$  while  $p(1-p)N_L$  of the producers that are not already protected, get a visit and pays protection money  $\theta C_S$  to the predators.

The income of the producers in period 2 is total gross revenues minus protection money and expected damage.

$$I_2 = N_L \theta Y - p N_L \theta (C_S + C_D) - p(1-p) N_L \theta (C_S + C_D) \quad (7)$$

The expected returns of a criminal group is simply found by adding up the total expected income in period 1 and 2 and dividing by the number of predators. Hence, the expected profit from entering into predation is

$$\Pi_X = \frac{Q_1 + Q_2}{N_X} = \frac{p}{m} [(1 + \theta) C_S + p \theta C_D] \quad (8)$$

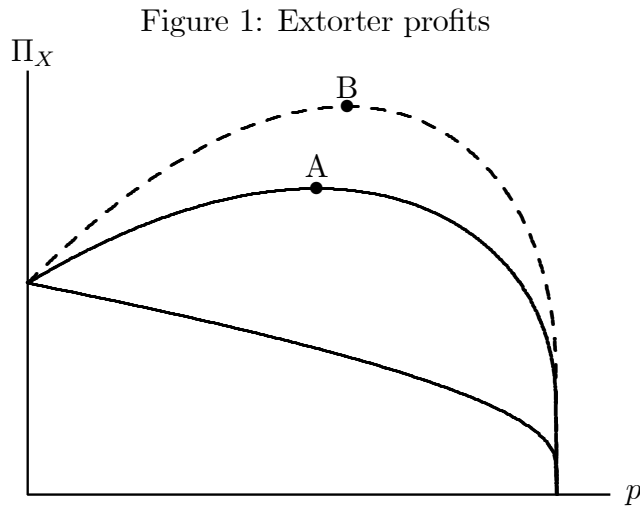
>From the expression in (8) several features emerge. First, note that  $p/m$  can be interpreted as the fraction of successful predators in the first period and is thus a measure of congestion. When there is only one predator,  $p$  is close to zero while  $p/m$  is close to one. As the number of predators increases,  $p/m$  decreases to zero, as  $m$  goes to infinity and  $p$  goes to one.<sup>3</sup> When there are few criminals,  $p$  is close to zero, and the profit of extortion is close to  $(1 + \theta) C_S$  - the criminal groups only protect the targets against their own stealing. With a higher number of criminal groups, congestion sets in, as  $p$  increases and  $p/m$  declines. At the same time the willingness to pay for protection, as captured by the term  $p \theta C_D$ , rises. The presence

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<sup>3</sup>Note that from the definition of  $p$  it follows that  $\lim_{p \rightarrow 0} p/m = 1$ , that  $\lim_{p \rightarrow 0} \frac{\partial (p/m)}{\partial p} = -1/2$ , and that  $\lim_{p \rightarrow 1} p/m = 0$ . The lower line in Figure 1 can serve as an illustration of  $p/m$  as a function of  $p$ . The curve illustrates  $p/m(1 + \theta) C_S$  and has thus the same shape as  $p/m$ .

of other criminal gangs represents a negative externality due to congestion and a positive externality due to the extraction of an extra premium from protection. Thus each target becomes more heavily exploited, but the competition among potential exploiters is more intense.

The case with congestion only is illustrated by the lower solid line in Figure 1.



This curve illustrates the case when there is no violence ( $C_D$  equal to zero) and where the criminals only steal. Here only the negative congestion externality is in play. As the criminals get violent,  $C_D$  becomes positive. One example is captured by the upper solid line. Here the positive externality dominates for small values of  $p$ . Therefore the profits to the criminals increase as the number of criminals increases. Eventually when the criminal intensity is high, the congestion starts to bite,  $p/m$  goes to zero reducing the expected profit from entering into crime down to zero. It follows from (8) that the condition for the  $\Pi_X$  to have such a hump is that

$$\frac{\partial \Pi_X}{\partial p} > 0 \text{ (with } p = 0) \Rightarrow \frac{C_D}{C_S} > \frac{1 + \theta}{2\theta} \quad (9)$$

Hence, when a sufficiently large share of the cost associated with predation is in

the form of damage due to violence the positive externality dominates for small  $p$ . The inequality is likely to hold when i)  $\theta$  is high; the producers have high weight on the future and when ii)  $C_D$  is big; the criminals are violent. There is a positive externality between criminals due to protection based on fear. This externality dominates the congestion effect when the criminals are sufficiently violent and when the producers are not too short-sighted and the crime rates are not too high.

In Figure 1 the predator's profit reaches its maximum in the point A. To the left of A it is in the interest of the predators to increase the number of other predators. The willingness to pay for protection increases as the probability of being visited by a predator is higher. Thus, in thin markets (with few predators) it is easy for each of them to find a target to exploit. But the target firm can refuse to cooperate since the chance of being approached by another predator if it get rid of the present one is small. In a thicker market (with many predators) it is more difficult to find an idle target to exploit, but a target firm has little to gain from refusing to cooperate with the predator. Hence, we have:

**Result 2** *When targets are difficult to find they are easy to exploit. Conversely, when targets are easy to find they are difficult to exploit.*

The predators's profit also increases the more violent the other predators are. Increased violence,  $C_D$  up, is seen as the upward shift to the dashed line in Figure 1. The increased violence increases the profit to the predators, not due to own violence but due to protection against other criminals's violence. As the violence increases, the strength of the protection externality increases and the optimal number of criminals, as measured by  $p$ , increases from A to B. Hence, it will be in the interest

of the existing criminals to stimulate to increasing crime and violence. This insight can be formulated as follows:

**Result 3** *There is a crime dividend of destruction in the sense that the income of criminals increases as their use of violence goes up. The crime dividend does not originate from the extortionist's own violence, but from the potential violence of other groups against his target.*

While violence directed towards producers increases the returns from crime, violence between criminal groups is a different issue. To see how, note that in period 1, there are  $pN_L$  incidences of violence and destruction towards producers. In period 2 the incidence of violence against producers is down to  $p(1-p)N_L$  as only a fraction  $(1-p)$  of the producers are without protection. A mirror image of the reduction in violence experienced by producers is an increase in the number of clashes between extortionists. The number of clashes is determined by the number of visits where there is already an extortionist present. In period 1 the probability of visiting a vacant target is  $p/m$  and therefore  $(1-p/m)N_X$  visits end in a clash between two extortionists. In period 2 the probability of visiting a vacant target is down to  $p(1-p)/m$  and there are therefore  $(1-p(1-p)/m)N_X$  clashes between extortionists. While destructions are more intense in the first period than in the second, clashes between criminals are more intense in the second than in the first. This is summarized in the following:

**Result 4** *Establishing a market for extortion implies the highest incidence of violence towards businesses in the early stage. Over time the incidence of intra-extortionist clashes rises.*

Incorporating the cost of intra-extortionist clashes obviously reduces the returns to crime. However, the extortionists have strong incentives to make these costs as small as possible by generally respecting each other's territory.

As already commented upon, the damage  $C_D$  that the extortionist himself causes, is a loss for the producer, but a lost opportunity of rent extraction by the extortionist. If the extortionist has an established reputation of brutality such that he could convince his target that  $C_D$  would be destroyed only if the target refuses to cooperate, he could increase the protection money by the same amount. To build up such a reputation takes time. A shorter route, however, is to franchise the name of a well-known group. By so doing the extortionist become part of a more or less loose association that has a self-interest in maintaining its already established reputation. This phenomenon is in fact observed in Russia: "The older the group and the higher its reputation embodied in its name, the more stable the mechanism of rent received by the leader by franchizing their name and the less the amount of actual violence required[...]" (Volkov 2000 p.54). The case can be summarized as follows:

**Result 5** *A partnership of extortionists can raise the profit per member by taking advantage of increasing returns in reputation building, and thus increase rent extraction from their targets.*

A partnership among extortionists may also solve part of the congestion problem among criminal groups. If the loose cooperation implies more information about which groups that protect which targets, the number of clashes between groups is reduced and the search for unprotected targets in the second period can become more efficient. Such an improved matching implies that an unprotected target faces a higher probability of a visit in the second period and therefore protection is more

needed. Extortionists can take advantage of this by asking for more protection money. As a consequence the expected profitability of crime goes up. First of all the targets willingness to pay for protection rises and the exploitation of each increases. Secondly, when matching is more efficient, a higher number of the potential targets become in fact exploited as fewer producers get away without a visit. Hence, both the number of exploited targets and the intensity of the exploitation of each increase, as summarized below:

**Result 6** *The extortion mechanism does not entail a conflict between extensive and intensive rent appropriation. Better information on the location of protected and nonprotected targets implies that extortionists obtain a larger share of a larger pie as the exploitation of targets becomes both more extensive and more intensive.*

Thus, the easier it is to identify targets without protection, the larger the pool of exploited targets becomes and the higher the price of protection.

### 3 In the longer run

So far the numbers of extortionists  $N_X$  and of potential targets  $N_L$  have been considered given. When we allow entry and exit, the crucial question is whether criminal rent appropriation is more or less profitable than legal production activities which, we assume, is open to entry. The market for extortions can only consolidate if there exists situations where  $p$  is positive for  $\Pi_X \geq \Pi_L$  implying that crime pays. Thus we now compare the profitability across activities.

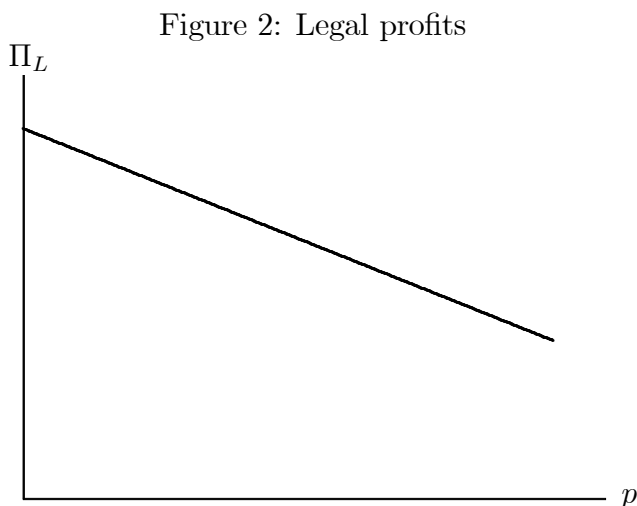
By adding up the producer income and dividing by the number of producers it



follows that the expected profit from entering into production is

$$\Pi_L = \frac{I_1 + I_2}{N_L} = (1 + \theta)(Y - pC) \quad (10)$$

The relationship between  $\Pi_L$  and  $p$  is illustrated in Figure 2. The profit curve starts



out in  $(1 - \theta)Y$  when there is no extortion and goes to  $(1 + \theta)(Y - C)$  when all of  $C_S$  is lost due to stealing and all of  $C_D$  is lost due to damage. The  $\Pi_L$ -curve in Figure 2 should be combined with the hump-shaped curve of  $\Pi_X$  in Figure 1. As functions of  $p$  the two profit curves either have no, one or two intersections as illustrated in Figures 3, 4 and 5.

Our simple set-up in the model does not easily lend itself to a dynamic analysis. (A more elaborate dynamics of a related model, however, is explored in Mehlum, Moene and Torvik (2000)). Here we simply assume that if income in production is higher than in predation, the tendency would be that production expands relative to predation, while if the opposite is the case illegal activity may be more tempting. Thus when expected income in production is higher than in predation, the number of producers is likely to increase relative to the number of predators. As a consequence,

the probability  $p$  of being captured by a criminal gang falls. Conversely, if the income in production falls short of the income in illegal activities, the number of criminals is likely to increase relative to the number of producers, implying that  $p$  rises.

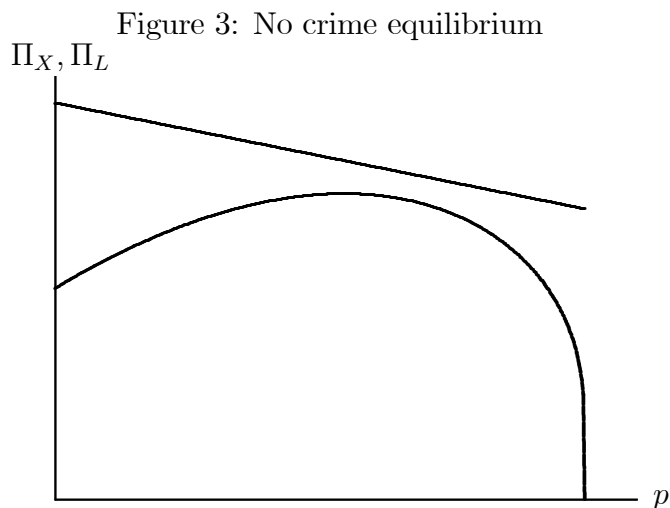


Figure 3 shows the case where the expected income curve for producers is above the expected income curve for predators for all  $p$ . Then, it is most profitable to enter as a producer, and the only stable situation is the one where all potential entrepreneurs choose to be productive ( $p = 0$ ). In this equilibrium there is no extortion, and each entrepreneurs' income is determined by his productivity captured in the value of  $Y$ . Thus property rights are secure and productivity determines income.

Figure 4 shows the case where income from entering into predation is higher than from entering into production when there are no predators from before ( $p = 0$ ). In this case the no predation equilibrium is not possible, as it is too tempting to enter illegal activity when nobody else has chosen this line of business. Thus we end up with extortion that undermines the profitability of production.

Figure 5 shows the case where the profit curve for producers starts out above the extorters' profit curve, but where they eventually cross twice. Thus, when there

Figure 4: Crime equilibrium

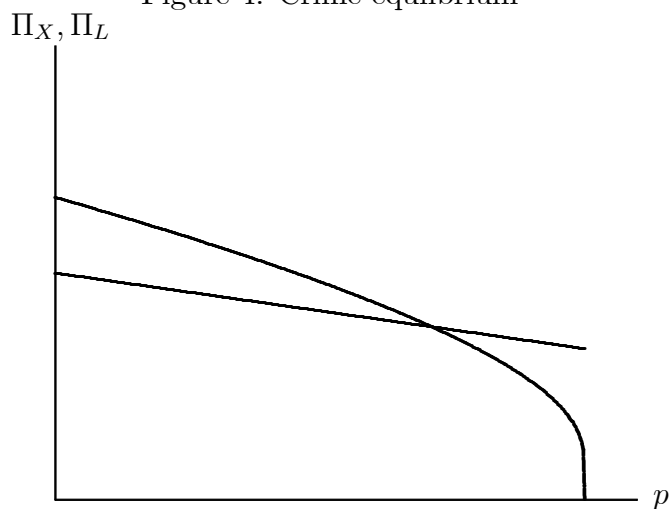
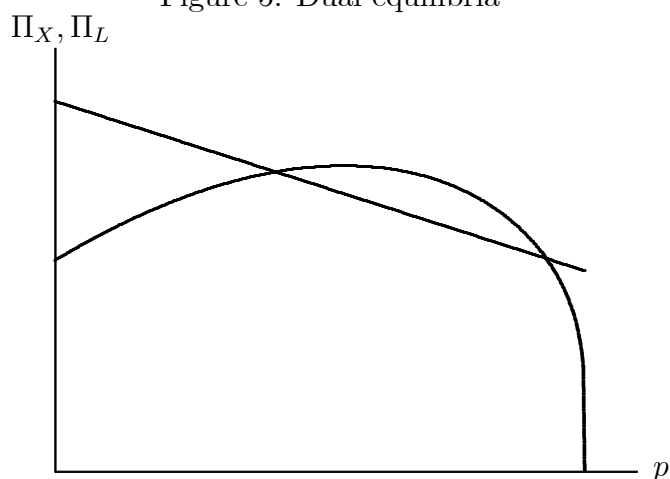


Figure 5: Dual equilibria



are few predators and many producers ( $p$  is low), the profits from entering as a producer is higher than the profits from predation. As long as the legal profit curve is above the profit curve for illegal activities,  $p$  falls towards  $p = 0$ . As Figure 5 shows, however, at higher initial level of predators relative to producers (a higher  $p$ ) profits from extortion becomes higher than profits from production. In this range, crime is sustained by the profit motive and  $p$  tends towards the level determined by the second intersection between the two curves.

Which of the Figures 3, 4, and 5 that apply depend on the level of revenues in production  $Y$  compared to the costs of extortion  $C$ . Obviously both  $C_D$  and  $C_S$

may be positively related to  $Y$ , but most likely at a decreasing rate, implying that a ten per cent increase in  $Y$  leads to a less than ten per cent increase in the cost of extortions. When this is the case we can show the following based on Figures 3, 4 and 5:

**Result 7** *i) A low productivity of producers invites extortion, while ii) a high productivity discourages this kind of rent appropriation. iii) At intermediate levels of productivity an initially thin market for extortions vanishes over time, while an initially thicker market for extortions can be sustained.*

To see this we compare  $\Pi_X = (p/m)[(1 + \theta)C_S + p\theta C_D]$  to  $\Pi_L = (1 + \theta)(Y - pC)$ .

Case i) follows when  $\Pi_L < \Pi_X$  for  $p = 0$ , which holds when  $Y < C_S$ . Thus case i), shown in Figure 4, requires larger costs of extortions than legal revenues in each private business.

Case ii) follows when  $\Pi_L > \Pi_X$  for all  $p$  which holds when  $Y > (p/m)[(m + 1)C_S + (m + p\frac{\theta}{1+\theta})C_D]$  for all  $p$ . This case is shown in Figure 3.

Case iii) holds when neither of the two conditions in cases i) and ii) are fulfilled, which is true when  $C_S < Y < (p/m)[(m + 1)C_S + (m + p\frac{\theta}{1+\theta})C_D]$  (for some  $p$ ). This case is shown in Figure 5.

As seen  $Y$  is lowest in case i), highest in case ii) and takes an intermediate value in case iii).

It follows from result 7 that if the country is poor enough the market for extortions become consolidated irrespective of initial conditions. Thus this is an example why poor countries not only are poor because they have a low productivity. A low productivity in legal businesses makes crime relatively more profitable. As

the relative number of extortionists increases, the profitability of both activities declines. This is a vicious circle of poverty and extortions. Also middle income countries may experience high extortion rates, but only if they start out with a high level of organized crime. Rich countries, however, can easily become extortion free irrespective of starting point according to the mechanism of the model.

#### **4 Concluding remark**

Competitive crime may pay. As we have demonstrated the pay-off to rival extortionists may increase in the number of competing gangs. The gangs can reap a dividend of destruction as their average incomes may rise with the violence they apply. To the extent that these gangs require scare leadership talents that can also be used in productive activities, the conditions in poor countries provide the most serious temptations for part of these talents to be wasted on organized crime.

Competitive mafia organizations, however, may be more easily combated than a monopoly Mafia. One simple, and maybe naive, way to reduce the extortion problem would be to allow the gangs to form their own legal security companies that can provide protection without extortion. Yet this seems to be the tendency in Russia.

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