International Criminal Court Deterrence and Optimal Enforcement of International Criminal Law

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September 2019
Working Paper

Abstract

Deterrence of international crimes is a crucial issue that took a new turn with the creation of the International Criminal Court (ICC) in 2002 in Rome. I propose an *a la* Becker analysis of international crimes and the optimal enforcement of international criminal law. First, I show that the sanction design induced by ratification of Rome Statute does not automatically generate an additional deterrent effect. Secondly, I propose a possible explanation of the heterogeneity of the effectiveness of sanctions implemented in international criminal law based on the heterogeneity of organizations that perpetuate international crimes. Finally, I show that in a context of optimal enforcement, it is always preferable to enforce at the national level because for the same level of public expenditure a higher level of deterrence is achieved.

JEL codes: K14, K33, K42

Keywords: Deterrence, International Criminal Law, International Criminal Court, International Crime

I thank and I am very grateful to Sophie Bienenstock, Nuno Garoupa, Pierre Kopp, Benjamin Monnery for their very valuable comments and encouragement.

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1 Introduction

1.1 International Crimes Features

Crime of genocide, war crimes and crimes against humanity constitute — in international criminal law — international crimes[1]. These crimes involve a range of individuals, either members of government organizations or rebel groups and whatever their forms, are composed of both executors and senior managers. The term "rebel group" is to be considered *lato sensu* and ranges from the most seriously structured group (*i.e* a serious competitor to the government) to the group that brings together a sum of opportunistic individuals. Despite this great heterogeneity, the common denominator for these groups is their ability to inflict a degree of violence that reaches the threshold for moving from crime to international crime.

The twentieth century was marked by particularly violent and atrocious international crimes. After World War II, the two lawyers Raphael Lemkin and Hersch Lauterpacht created the notions of the crime of genocide and crimes against humanity used as charges at the Nuremberg Trial (see on that topic Sands (2017)). From that moment on, individual criminal responsibility becomes the core of international criminal law. This was the starting point for the repression of international crimes, which are far from having disappeared and which represent more than ever a considerable challenge. In 2017 alone, the *Uppsala Conflict Data Program (UCDP)* recorded 1074 events all over the world in its GED database[2] of civilians killed intentionally by a government or rebel group, representing a total of 7720 deaths. Intentionally killing civilians is a war crime and a crime against humanity[3].

Beyond the quantitative information, these data inform on the diversity of government and rebel organizations that intentionally killed civilians to achieve various goals. For example, these crimes can be committed to implement a domestic political agenda when in the Philippines, according to the International Criminal Court[4] the government's anti-drug campaign reportedly led to thousands of civilian executions since July 2016 for drug use or trafficking by police forces. International crimes can be committed during or after elections, as it was the case in Côte d'Ivoire in 2010 and 2011 between the forces of the President in power Gbagbo and the forces of his main opponent Ouattara. This may also take place in a context of repression of a popular uprising against the regime in place as for Qaddafi in Libya in 2011. Concerning non-governmental organizations, the "Lord's Resistance Army" (LRA) in Uganda, the "Taliban" in Afghanistan, the "Revolutionary Armed Forces of Colombia" in Colombia, (FARC) or the

[1] For a detailed definition of this crimes, see Rome Statute Chapter II, Articles 5,6,7,8.
[2] On GED database: Sundberg and Melander (2013) and Croicu and Sundberg (2017)
[3] See Rome Statute Chapter II, Articles 5,6,7,8.
[4] See: `https://www.icc-cpi.int/philippines`

"Islamic State" (IS) mainly located in Iraq are examples among others of organizations that violate international criminal law to achieve their political or religious cause.

Deterring these crimes perpetrated by these organizations has therefore gradually become a priority objective of international criminal law and particularly of the International Criminal Court (ICC), which is currently at the heart of the enforcement of international criminal law. In this article, I propose a theoretical assessment of the deterrent capacity of this system of enforcement of international criminal law, taking into account the organizational aspect and the heterogeneity of organizations that commit international crimes.

1.2 The International Criminal Law System

Until the early 2000s, *ad hoc* and *ex post* international tribunals, such as The International Court for Former Yugoslavia and The International Criminal Tribunal for Rwanda, were a central means of the international community to repress international crimes.

In 2002, the creation of the International Criminal Court, the first permanent court in history, marked a turning point in the strategy of a repressive policy on international crimes, which is now based on two pillars. The first is that States develop their own legal tools to punish international crimes committed by their nationals and on their territory. The second is the extension of the ICC's influence through the ratification of the Rome Statute by as many States as possible so that the ICC has jurisdiction to punish these crimes in the event of failure by national courts[5]. Thus, from its inception, the ICC was conceived as a complementary repressive mechanism designed to act as a safety net when a State is unable or does not intend to act to punish international crimes committed on its territory or by its nationals. Compared to *ad hoc* international criminal tribunals that are created *a posteriori* and therefore cannot generate a deterrent effect, the ICC generates an *a priori* threat to senior officials that they must take into account when considering the possibility of committing an international crime. More specifically, with regard to the Rome Statute, the ICC has jurisdiction in the territory and towards the nationals of a country from the date of ratification of the Rome Statute by that country, without retroactivity. The ICC was conceived as a tool shared by the international community and may be seized of a situation of international crime by any State party to the Rome Statute, by a United Nations resolution or by the ICC prosecutor himself. Finally, the ICC, in the tradition of international tribunals since Nuremberg, has focused only on senior officials. To date, all the people prosecuted by the ICC are high-ranking political or military officials[6]. Consequently,

[5]Preamble of Rome Statute, p 1: "Emphasizing that the International Criminal Court established under this Statute shall be complementary to national criminal jurisdictions"

[6]See details on all the cases of the ICC at : `https://www.icc-cpi.int/Pages/cases.aspx?ln=fr`

the characteristics of this system of international criminal law generate a particular sanction scheme that must be taken into consideration when studying the phenomenon of deterrence of international crimes.

1.3 Analyze the deterrence of international crimes

The purpose of this article is to apply an *a la* Becker (1968) analysis on the subject of deterrence in the particular context of international crimes. The particular nature of international crimes, which sometimes take place over a period of several months or years, leads me to clarify what is meant by "deterrence" in this paper. The term deterrence refers here to the notion of "general deterrence" used in the literature on international crimes also called *ex ante* deterrence, *i.e* the choice of individuals to engage in crime or not. Therefore, "specific deterrence" also called *ex post* deterrence which concerns the effect of prosecutions on the dynamics of ongoing crimes is not addressed in this paper (for more details on these concepts see Dancy (2018)).

More precisely, the ambition of this article is to shed light on three points. First, I am interested in individual incentives that differ between executors and senior managers. I provide some clarification on the design of the sanction generated by the ratification of the Rome Statute, which gives jurisdiction to the ICC to punish senior managers and I disentangle when the ratification produces an additional deterrent effect. Since the ICC does not have its own powers to enforce its decisions, the probability of sanctioning a senior manager by the ICC is always lower than the probability it sets and the ICC generates an additional deterrent effect on senior managers only when the ICC's expected sanction is higher than the national sanction incurred.

Second, I am interested in how these sanctions can affect the strategic decisions of an organization that uses executors and senior managers to perpetrate international crimes. I show that when a technological constraint is included in the organization's optimization program, sanctions can affect differently the number and optimal mix of executors and senior managers it recruits. This result suggests that, given the diversity of organizations, there would not be a single good strategy for optimally enforcing international criminal law.

Finally, I propose a comparative statics of the optimal enforcement of international criminal law at the national level and by the ICC. I show that, as long as the probability of cooperation and the probability of success in the implementation of ICC decisions by States are not certain, it is always optimal to enforce international criminal law at the national level because for the same level of public expenditure a higher level of deterrence is achieved. The two ways of enforcing international criminal law are compared in a context of maximizing social welfare and the issue

of strategic behavior between the two authorities is set aside in this framework. I also make the implicit assumption in this context that the national authority that enforces international criminal law is independent of the organization that perpetuates international crimes.

The model I propose is based on the structure of a model developed by Garoupa (2007) that focuses on the distribution of sanctions between a principal and agents in a context of organized crime of the *Mafia* type. The article is organized as follows: section 2 review relevant works on deterrence of international crimes, in section 3 the model is developed and propositions are formulated, section 4 concludes.

2 Literature

The deterrent effect of the ICC has been analysed in a very heterogeneous way in recent years and almost exclusively by scholars in law and political science. I divide this literature into three categories: a first group that provides arguments and theoretical discussion, a second group that has produced quantitative work to find empirical evidence, and a third group that has applied theoretical models of game theory. Philips (2016) reviews the theoretical discussions and empirical evidence provided by the literature about the deterrent effect of ICC.

The theoretical discussions highlighted many valuable features, particularly on the ICC. Mullins and Rothe (2010) points out that international crimes require organizations that are able to allocate their resources to achieve a goal. This particularly elaborate level of organization suggests sufficient rationality for individuals to be sensitive to deterrence. For Sang-Hyun (2013) the *ex ante* presence of the ICC provides hope for a deterrent effect that could be improved with better complementarity with national jurisdictions, better State cooperation and greater resources allocated to the ICC. However, before the ICC was set up, Wippman (1999) highlighted that the important parameter for generating deterrence is the probability of punishment and that it is unlikely that international courts will significantly increase the probability of punishment because of its limited resources and therefore of a limited number of individuals being prosecuted. Moreover, he argues that the endogeneity of the ratification of the Rome Statute undermines deterrence since it is likely that the ICC does not have jurisdiction in countries where international crimes are most likely to occur. For Ku and Nzelibe (2006) given the low severity of the sanctions it imposes, it is unlikely that the ICC will produce any marginal deterrent effect, particularly on rebel leaders who already risk the death penalty by national courts if caught. Cronin-Furman (2013) argues that ICC can induce a specific deterrent effect on senior managers but not a general effect on all individuals. She also suggests a heterogeneity in the distribution of the benefit derived by leaders and that a higher level of deterrence would

be achieved by focusing on less important leaders who derive lower benefit from international crimes than the most important leaders.

On the empirical side, the suspicion of endogeneity is particularly high when it comes to measuring the deterrent effect of international criminal law and the number of works is still limited. Jo and Simmons (2016) produced the first quantitative work using panel data models to test the hypothesis of the deterrent effect of ICC. Their results suggest that the ICC significantly deters governments but not rebel organizations. Appel (2018) using difference-in-differences estimation observes a significant reduction in human rights violations by governments after ratification of the Rome Statute. Due to the strong suspicion of endogeneity of this process, Lecorps and Monnery (2019) rely on panel data models with interactive fixed effects, instead of more common models with country-fixed effects or country-specific linear trends. Empirical results show no evidence of a deterrent effect of the ICC jurisdiction on governments, but some evidence of deterrence among non-governmental groups

The common point of the work that has applied game theory to the deterrence of international criminal law is that it focuses only on the individual decision of a leader. Sutter (2006) considers the effect of the ICC on the incentives of a ruling leader. In his view, it is unlikely that the ICC will generate a general deterrent effect (*ex ante*) because it does not have its own means of enforcing and the severity of its sanctions is relatively low compared to national sanctions. In the case of a leader who has already committed crimes, the ICC increases the incentive to hold on to power and potentially commit other crimes for that purpose. Gilligan (2006) shows in a sequential game that even without direct enforcement power, the ICC can have a deterrent effect by making credible the decision to deny asylum to a dictator for a foreign country. In this case, if his probability of remaining in power is low enough, a dictator may find it optimal to surrender to the ICC rather than take the risk of being dismissed and punished more at the national level. Ali (2014) considers the effect of the ICC on the incentives of both the ruling group and a rebel group. She finds that the ICC reduces the incentive to engage in crime for "weak" rebel groups and also for the ruling group under certain conditions. Ritter and Wolford (2012) are interested in the lack of enforcement power of international courts in a game between a suspect and a court that has the possibility of offering *ex ante* negotiation to a suspect against his surrender. Negotiation makes it possible to bring more suspects to the benches of a court but at the cost of a reduction in the expected sanction and therefore deterrence. The ICC, which does not practice this kind of *ex ante* negotiation with suspects, is therefore in a position to generate a relatively high deterrent effect.

3 The model: a principal-agent framework applied to international crime organizations

3.1 Framework of the game

As in international criminal law both executors and senior managers are numerous and their individual responsibility is engaged, they are represented as agents of an organization (the principal) that recruits them to commit international crimes. It is assumed that the organization needs both types of agents to commit international crimes and that all individuals are risk neutral. Senior managers who design and order operations and executors who execute the decisions taken. The structure and resolution form of the game is the same as Garoupa (2007) with an additional step concerning the choice of nature to determine whether it is the national court that enforces or the ICC.

At stage 0 the nature sets the international community standard $\underline{s}$ that determines the minimum level of expected sanction for senior manager for international criminal law to be enforced by national courts. At stage 1, given this standard, in some countries international criminal law is enforced by national courts and in others by the ICC. At stage 2, the principal (the organization) chooses the number and combination of each type of agent. At stage 3 a monitoring game takes place between the principal, the agents and the law enforcement agency (either national court or either ICC). The information is perfect and we solve the game by backward induction.

3.2 Agents: expected utilities and sanctions

The utility function of an executor who considers the possibility of engaging in an organization that perpetuates international crimes is such that:

$$U_e = y_e - b_e - s_{ne} \tag{1}$$

Where y_e is the salary that the organization pays to the executor, b_e is the disutility that the executor receives from working for the organization. One can imagine that this parameter of disutility represents the degree of adherence of the executor to the "cause" that motivates the organization to commit such crimes. When b_e is low (high) the executor strongly (weakly) adheres to the cause defended by the organization and this parameter varies among the population according to a uniform distribution such that $b_e \in [0, 1]$. The executor also incurs s_{ne}, the expected sanction for an executor who engages in an organization that perpetuates international crimes. This sanction is a combination of the probability of being sanctioned by his national

court $p_{ne}(c_e)$ (with $p_{ne}(c_e)' > 0$ and $p_{ne}(c_e)'' < 0$) and the severity of the sanction f_{ne} such as: $s_{ne} = p_{ne}(c_e).f_{ne}$. The national authority enforcing international criminal law allocates its resources c between executors and senior managers so that $c = c_e + c_r$. When the ICC enforces, it only punishes the senior managers and therefore $c = c_r$. Therefore, the sanction that executors risk is limited to the sanction implemented by their national courts.

For a senior manager, the consequences of engaging in an organization that perpetuates international crimes are different from those of an executor. If his country has ratified the Rome Statute, he risks being sanctioned either by his country's national courts or by the International Criminal Court. The expected utility for a senior manager to engage in an organization that perpetuates international crimes is:

$$U_r = y_r - b_r - s_r \tag{2}$$

Where y_r is the salary that the organization pays to the senior manager, b_r is the senior manager's disutility in working for the organization. As with executor, this parameter could be interpreted as a degree of support for the organization's cause. When b_r is low (high), the senior manager strongly (low) supports the organization's cause and this parameter varies among the population according to a uniform distribution such as $b_r \in [0, 1]$. The expected sanction design faced by a senior manager can be written as follows:

$$s_r = \begin{cases} s_{nr} & \text{if } s_{nr} \geq \underline{s} \\ s_{ir} & \text{otherwhise} \end{cases} \tag{3}$$

Where, $\underline{s}$ is the standard of the international community below which it is considered that the ICC must enforces the international criminal law, s_{nr} is the expected sanction for the senior manager when national court enforces which is a combination of the probability of being sanctioned $p_{nr}(c_r)$ (with $p_{nr}(c_r)' > 0$ and $p_{nr}(c_r)'' < 0$) and the severity of the sanction f_{nr}. This threshold $\underline{s}$ represents the mechanism of complementarity between the ICC and States when the latter do not have the capacity or willingness to prosecute [7]. The expected sanction for a senior manager when the ICC enforces s_{ir} is a combination of the probability of being sanctioned by the ICC $p_{ir}(c_r)$ (with $p_{ir}(c_r)' > 0$ and $p_{ir}(c_r)'' < 0$) and the severity of the sanction f_{ir}. Of course, when a country has not ratified the Rome Statute, the ICC does not have jurisdiction, in other words, $s_{ir} = 0$ and the national court always enforces $s_r = s_{nr}$.

[7] See Chapter II, Article 17 of Rome Statute

Several comments can already be made on the sanction design for a senior manager represents by the Equation 3. First, to remove any ambiguity regarding the deterrent effect of the ICC, the expected sanction implemented by the national court and the ICC do not add up. The ICC is a safety net in the event of defection of national jurisdiction. Second, if there is impunity at the national level (*i.e*, if $s_{nr} = 0$), deterrence of senior managers is higher in a country where the ICC has jurisdiction than in a country where it does not.

Figure 1: Statics comparative of the four possibilities

	$s_{nr} < \underline{s}$	$s_{nr} \geq \underline{s}$
$s_{nr} < s_{ir}$	ICC enforces + ↑ deterrence	National court enforces + no ↑ deterrence
$s_{nr} > s_{ir}$	ICC enforces + no ↑ deterrence	National court enforces + no ↑ deterrence

Finally, table in Figure 1 shows that the only configuration in which the ICC generates a larger deterrent effect than the sanction expected by the national court is the upper left corner of the table. In this configuration, the expected national sanction is below the international community's tolerance threshold, $\underline{s}$ and the ICC's expected sanction is higher than the expected sanction at the national level (*i.e* $s_{ir} - s_{nr} > 0$). Indeed, the threshold set by the international community does not guarantee *a priori* that the expected sanction set by the ICC is higher than the expected sanction set at the national level.

Let us now consider the probability of being sanctioned by the ICC for a senior manager. As the ICC does not have its own police forces, it must rely both on the cooperation of States and their police forces to implement its decisions [8]. This means that the probability of being sanctioned by the ICC for a senior manager can be written:

$$p_{ir}(c_r) = p_c.p_s.p_{icc}(c_r) \tag{4}$$

or

$$p_{icc}(c_r) = \frac{p_{ir}(c_r)}{p_c.p_s} \tag{5}$$

Where, p_c is the probability of State cooperation with the ICC, p_s the probability of success in capturing a senior manager, $p_{icc}(c_r)$ the probability of sanction sets by the ICC. More specifically, p_s can be considered as a parameter that measures the overall quality of institutions in the state such as the quality of police forces and the level of corruption. It is easy to see that when

[8]See Chapter IX of Rome Statute.

p_c and p_s are equal to 1, the probability of sanction sets by the ICC is equal to the probability of being actually sanctioned by the ICC. However, as long as the probability of cooperation and the probability of success in capturing the senior manager are lower than 1, the probability for a senior manager to be sanctioned by the lCC is lower than the probability set by the ICC.

Moreover, if there was a need to do so, the ICC's intervention rules make the assumption that p_c and p_s are equal to 1 very unlikely to be credible. First, if the ICC enforces because the State is unable to do so itself, it is plausible that the probability that the State will succeed in catching the senior manager with its police forces (p_s) is not only lower than 1 but also relatively low. Second, if the State does not have the will to enforce international criminal law, it is plausible that the probability of cooperating with the ICC (p_c) is not only less than 1 but also relatively low. On this point, two very recent examples seem to support this idea. Both Burundi and the Philippines announced their withdrawal from the ICC after opening a preliminary examination on international crimes allegedly committed in these two countries by the governments in power [9].

Proposition 1: *the ICC generates a larger deterrent effect than national jurisdiction if and only if: ($s_{nr} < \underline{s}$) and ($s_{ir} - s_{nr} > 0$) ; and the probability of being sanctioned by the ICC for a senior official is lower than the probability set by the ICC.*

The opportunity cost of executors and senior managers is normalized to zero. The principal maximizes his profit under participation constraints of the agents who participate if:

$$U_e \geq 0 \tag{6}$$

and

$$U_r \geq 0 \tag{7}$$

Because the information is perfect, the agents' salaries equal the expected costs such as:

$$y_e = s_e + b_e \tag{8}$$

and

$$y_r = s_r + b_r \tag{9}$$

Equations 8 and 9 indicate that all agents "have a price" for which they are willing to engage in

[9] For Burundi situation, see: `https://www.icc-cpi.int/burundi` and for Philippines see: `https://www.icc-cpi.int/Pages/item.aspx?name=pr1371`

the criminal organization. This price varies according to the degree of adherence to the "cause of the organization" b_e for executors and b_r for senior managers.

3.3 Organization strategy

The objective of the principal (either a government or a rebel group) is to maximize his profit. The organization is not willing to hire all agents but only those who have a sufficiently high degree of support for its cause (*i.e*, executors who have a sufficiently low b_e and senior managers who have a sufficiently low b_r). Recall that according to equations 8 and 9, the agents' salary is always an increasing function of the disutility triggered by the illegal activity. We define the maximum level of disutility an organization can afford as $\bar{b}_e$ and $\bar{b}_r$ respectively for an executor and for a senior manager. Since the agents are distributed uniformly, n_e the number of executors and n_r the number of senior managers hired by the organization is given by $\bar{b}_e$ and $\bar{b}_r$ respectively ($n_e = \int_0^{\bar{b}_e}$ and $n_r = \int_0^{\bar{b}_r}$). As mentioned in the introduction above, international criminal law is based on individual criminal responsibility with the idea of holding individuals accountable for their actions. A government or a rebel group is never sanctioned directly in international criminal law. The costs for the organization in the configuration of international crimes are indirect and correspond to the price of the executors and senior officials, which increases with the level of sanctions applied to them. Nevertheless, even if the organisation is not directly sanctioned, it seems intuitive to think that the number and combination of agents it recruits depends not only on the price but also on what it can achieve (*i.e* the gain) with them. Since organizations that commit international crimes are extremely heterogeneous, it is likely that the gain they derive from a number and combination of executors and senior officials will vary from one organization to another. To take this into account, we assume that the organization is constrained by its technology, which varies from one organization to another. We can then define the organization's problem as a problem of minimizing costs under technological constraint such as:

$$\text{Min } C = \int_0^{\bar{b}_e} s_e + b_e \; db_e + \int_0^{\bar{b}_r} s_r + b_r \; db_r = n_e[s_e + \frac{n_e}{2}] + n_r[s_r + \frac{n_r}{2}] \tag{10}$$

$$F(n_e, n_r) = g \quad (\lambda) \tag{C}$$

The organization is constrained by its production technology $F(n_e, n_r)$, which may differ from one organization to another. The parameter g represents the organization's gain for a

combination of n_e executors and n_r senior managers [10]. By integrating the constraint C, the minimization problem of the organization becomes:

$$L(n_e, n_r, \lambda) = \ n_e[s_e + \frac{n_e}{2}] + n_r[s_r + \frac{n_r}{2}] - \lambda[F(n_e, n_r) - g] \tag{11}$$

The organization determines the optimal pair $\{n_e^*(c_e, f_e), n_r^*(c_r, f_r)\}$ it hires and the first order conditions are[11]:

$$\frac{\partial L(n_e, n_r, \lambda)}{\partial n_e} = 0 \iff n_e = \lambda \frac{\partial F(n_e, n_r)}{\partial n_e} - s_e \tag{12}$$

$$\frac{\partial L(n_e, n_r, \lambda)}{\partial n_r} = 0 \iff n_r = \lambda \frac{\partial F(n_e, n_r)}{\partial n_r} - s_r \tag{13}$$

From Equations 12 and 13 we see that the organization determines the optimal amount of executors and senior managers it recruits by comparing marginal gain and marginal cost. For both types of agents, when the expected sanction increases, the number of agents recruited by the organisation decreases, all other things being equal. If it is the ICC that enforces, it only sanctions senior officials and in this case, $s_r = s_{ir}$ and $s_e = 0$. On the contrary, if it is the national court that enforces, $s_r = s_{nr}$ and $s_e = s_{ne}$ and therefore *ceteris paribus* fewer executors are engaged by the organization when the national court enforces rather than the ICC.

On the gain side of the equations 12 and 13, we see that the marginal gain depends on the form of the organization's technology. Suppose, for example, that the organization is rigid in its operation, therefore its technology can be as follows:

$$F(n_e, n_r) = min\{\frac{n_e}{\alpha}, \frac{n_r}{\kappa}\} = g \tag{14}$$

In this case, the executors and the senior managers are perfectly complementary. This configuration is graphically represented in Figure 2. The g gain can only be achieved by a specific combination of executors and senior managers. It is the kind of organization whose functioning is based on a very precise balance between executors and senior managers. In this configuration we have:

$$\frac{\partial F(n_e, n_r)}{\partial n_e} = \begin{cases} \frac{1}{\alpha} & \text{if } \frac{n_e}{\alpha} \leq \frac{n_r}{\kappa} \\ 0 & \text{otherwhise} \end{cases} \tag{15}$$

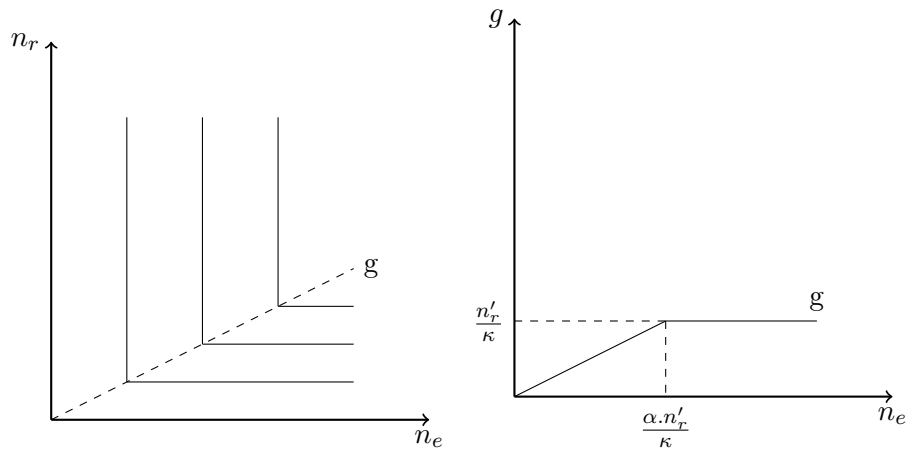
[10] Constant returns to scale are assumed.
[11] See Appendix A the Lagrangian admits a minimum.

$$\frac{\partial F(n_e, n_r)}{\partial n_r} = \begin{cases} \frac{1}{\kappa} & \text{if } \frac{n_r}{\kappa} \leq \frac{n_e}{\alpha} \\ 0 & \text{otherwhise} \end{cases} \tag{16}$$

Therefore, the optimal strategy of the organization must satisfy $\frac{n_e}{\alpha} = \frac{n_r}{\kappa} = g$ and if the number of senior managers is constrained to a level n'_r, then the organization must set $n_e = \frac{n'_r.\alpha}{\kappa}$. In other words, in this configuration when the authority enforcing international criminal law and increases the expected sanction for senior managers, the organization reaction is to reduces both the number of senior officials but also mechanically the number of executors it hires.

Finally, let us suppose a numerical application in which the organization's technology requires that to obtain $g = 1$, the organization must combine 8 executors and 2 senior managers and that the organization has 24 executors and 6 senior managers. Its gain is therefore $Min\{\frac{24}{8}, \frac{6}{2}\} = 3$. Thus, with one less executor the organization's gain becomes: $Min\{\frac{23}{8}, \frac{6}{2}\} = 2,875$, while with one less senior manager the organization's gain becomes: $Min\{\frac{24}{8}, \frac{5}{2}\} = 2,5$. Therefore, we see that in this specific configuration of perfectly complementary agents, at equal cost it is preferable to strike the type of agent that has the lowest technical coefficient. In the configuration of international crimes, it is very likely that it is the senior managers. So it is possible that when the ICC enforces and sanctions only senior managers, it also reduces the number of executors recruited by the organization.

Figure 2: Rigid organization, with perfectly complementary agents



If we now assume that the technology of the organization is in the form:

$$F(n_e, n_r) = n_e^{\alpha}.n_r^{\kappa} = g \tag{17}$$

In this case, the organization is relatively flexible in its organizational mode and can substitute executors for senior managers (and *vice versa*) to keep a constant level of gain g. The rate at which the organization can substitute its agents to keep a constant level of gain is given by:

$$\frac{\partial F(n_e, n_r)}{\partial n_e} = \alpha.n_e^{\alpha-1}.n_r^{\kappa} \tag{18}$$

$$\frac{\partial F(n_e, n_r)}{\partial n_r} = \kappa.n_e^{\alpha}.n_r^{\kappa-1} \tag{19}$$

Thus, the marginal rate of technical substitution is:

$$MRTS_{n_r,n_e} = \frac{\frac{\partial F(n_e,n_r)}{\partial n_e}}{\frac{\partial F(n_e,n_r)}{\partial n_r}} = \frac{\alpha}{\kappa}.\frac{n_r}{n_e} \tag{20}$$

Figure 3: Flexible organization, with substitutes agents

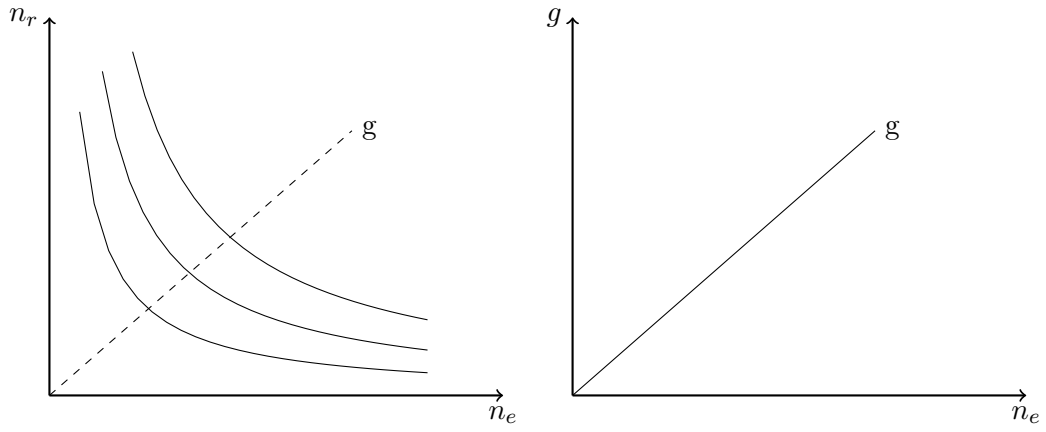


Figure 3 shows the configuration graphically. In this case, a strategy of a law enforcement authority to sanction only one type of agent leads the organization to substitute the agent that becomes relatively more expensive for the agent that becomes relatively less expensive to maintain a constant level of gain. In other words, this indicates that even when a very high sanction is imposed on senior managers, the organization's level of gain may not be affected. The organization adapts its strategy by hiring more executors to keep a constant gain. To reduce the organisation's gain, in this case and therefore the number of agents it recruits, it is necessary to punish both the executors and the senior managers. One could imagine that this type of configuration corresponds to more diffuse organizations that can carry out their activities and

achieve their objectives in different ways. In any case, through these two examples, we can see that the form of the organization influences its recruitment strategy and therefore indirectly the optimal repressive policy to be pursued.

Proposition 2: *When organizations are constrained by their technology, the effects of the same sanction on an organization's recruitment strategy may vary from one organization to another. A sanction only applied to senior managers (which corresponds to the strategy of the ICC) may lead the organization to reduce the number of executors it recruits or to substitute senior managers to hire more executors.*

This proposition highlights the difficulty of implementing an optimal sanction scheme in international criminal law given the diversity of organizations likely to commit international crimes.

While it would be unwise to draw any generalized interpretation from these results, it nevertheless seems interesting to intuitively discuss the contexts in which they may apply. Technology with perfectly complementary executors and senior managers seems particularly credible in the case of a government organization whose main tool is the army to commit international crimes. Indeed, the functioning of an army can be based on a very precise balance between executors and senior managers to carry out actions. Therefore, in the event that some of the army's senior managers are deterred by the punishment they risk by engaging in international crime, the right balance between senior managers and executors is altered. In this case, the strategy of increasing the number of executors could lead to zero marginal gain if at the same time there are not enough senior managers willing to take the risk of planning operations and directing these executors.

Conversely, for a rebel organization, it is more likely that technology with substitute factors will be credible. The latter is not constrained by a tool that requires precise balances such as a government with its army. Indeed, by seeing that it becomes particularly costly to recruit senior managers, the rebel organization can radically change its recruitment strategy to keep a constant gain by moving to a strategy with very few senior managers strongly convinced by the organization's cause and many executors who are very free in their actions, *i.e* who do not require strict supervision to act.

3.4 Optimal enforcement of international criminal law

Welfare and optimal repressive policy can now be considered. As mentioned above, when $s_{nr} \geq \underline{s}$ the national authority enforces and when $s_{nr} < \underline{s}$ the ICC enforces. We compare the case where

both authorities enforce international criminal law in an optimal way. The national authority implementing the law has four tools at its disposal: the severity of the sanction for the executors f_e, the severity of the sanction for the senior managers f_r, the level of public expenditure devoted to the executors c_e and the level of public expenditure devoted to the senior managers c_r. The latter decides on the distribution of its resources $c = c_e + c_r$ devoted to the sanctioning of executors and senior managers. In the case where the ICC enforces, it only sanctions senior managers and therefore has only the policies f_r and c_r ($c_r = c$). Therefore, in both cases, the welfare function is the same and the only difference is that $c_e = 0$ when the ICC enforces.

$$W = \int_0^{\bar{b}_e} g_e - h_e - b_e \; db_e + \int_0^{\bar{b}_r} g_r - h_r - b_r \; db_r - c_e - c_r \tag{21}$$

$$W = \bar{n}_e.[g_e - h_e - \frac{\bar{n}_e}{2}] \; + \bar{n}_r.[g_r - h_r - \frac{\bar{n}_r}{2}] - c_e - c_r \tag{22}$$

The welfare includes the organization's marginal gains g_e for executors and g_r for senior managers. The social damage caused by the organization is represented by $h_e > 0$ and $h_r > 0$ respectively the social damage caused by each executor and each senior manager that the organization engages. Both gains and damages are multiplied by the number of executors and senior managers. The first order conditions are therefore:

$$\frac{\partial W}{\partial c_e} = \bar{n}_e(c_e)'.[g_e - h_e] - \frac{\bar{n}_e^2(c_e)'}{2} - 1 = 0 \tag{23}$$

$$\frac{\partial W}{\partial f_e} = \bar{n}_e(f_e)'.[g_e - h_e] - \frac{\bar{n}_e^2(f_e)'}{2} = 0 \tag{24}$$

$$\frac{\partial W}{\partial c_r} = \bar{n}_r(c_r)'.[g_r - h_r] - \frac{\bar{n}_r^2(c_r)'}{2} - 1 = 0 \tag{25}$$

$$\frac{\partial W}{\partial f_r} = \bar{n}_r(f_r)'.[g_r - h_r] - \frac{\bar{n}_r^2(f_r)'}{2} = 0 \tag{26}$$

First, from Equations 23 to 26 we see whether the policy is implemented by a national authority or by the ICC, the standard result of the Becker model holds since increasing the probability of sanction is costly, it is always preferable to increase the severity of sanction to the maximum point. Consequently, the national authority sets $f_e^* = F_e$ and $f_r^* = F_r$ and the ICC $f_r^* = F_r$ and complement the severity of the sanctions with an optimal amount of public expenditure.

We also see that the national authority must arbitrate in the distribution of its expenses between c_e and c_r taking into account the organization's technology as we have seen previously but also the level of net social damage induced by each type of agent. Indeed, it is possible that the level of net social damage induced by an executor and a senior manager may be different and this is an element to be taken into account in the allocation of resources. The ICC does not have this kind of arbitration to carry out since it only sanctions senior officials.

The major difference between the national authority and the ICC is that the effectiveness of ICC public expenditure is likely to be undermined by the probability of the State's cooperation p_c and the probability that it will succeed in implementing ICC decisions p_s. As mentioned above, at least one of them is likely to be less than 1 specifically in the configuration where the ICC enforces.

Proposition 3: *In a context where authorities are enforcing optimally and as long as* $p_{nr}(c_r) > p_{ir}(c_r)$ *it is always preferable to enforce international criminal law at the national level because for the same level of public expenditure* c_r*, more senior managers are deterred.*

The latter proposition therefore seems to support the idea enshrined in the preamble to the Rome Statute:

Recalling that it is the duty of every State to exercise its criminal jurisdiction over those responsible for international crimes.

4 Conclusion

Seventeen years after its establishment in Rome in 2002, the main goal of this paper was to make a contribution to unraveling the contribution of the International Criminal Court to the deterrence of international crimes. Undoubtedly, the ICC is probably the most important achievements of international criminal law and has generated a lot of hope including that of increasing deterrence. Through this paper I have tried to help clarify the conditions under which the ICC generates an additional deterrent effect compared to national sanctions. As the Rome Statute states, the purpose of the ICC is not to replace the role of national courts but to be a safety net in the event of their failure.

Moreover, unlike previous work on the subject, the analysis takes into account the organizational aspect and the diversity of organizations likely to commit international crimes. The inclusion of this component highlights that the analysis of individual incentives is not sufficient in the case of international crimes since even if a large proportion of individuals are deterred,

it is quite possible that the organization may not be significantly affected.

Finally, these results seem to support the idea that the ICC is moving in the right direction by making the development of national jurisdictions a priority alongside the development of its influence around the world. Indeed, national courts because they can directly enforce their decisions and because they have a wider choice of enforcement tools seem to be in the best position to enforce international criminal law and effectively deter international crimes. Nevertheless, if this paper sheds light on part of the problem of deterrence of international crimes, any strategic behavior in the enforcement of international criminal law is ignored. I consider that it is either the national authority that enforces or the ICC and that each authority does so in an optimal way, ignoring any possibility of strategic behavior between the national authority and the ICC. I also consider that the national authority and the criminal organisation are independent, although this may not be the case, particularly when it is members of a government who are implicated. A promising next step in the study of the enforcement of international criminal law could consider these two elements and study their effect on deterrence.

Appendix A

Calculation of the determinant of the Hessian matrix:

$$\begin{pmatrix} \frac{\delta^2 L}{\delta n_e^2} & \frac{\delta^2 L}{\delta n_e \delta n_r} \\ \frac{\delta^2 L}{\delta n_r \delta n_e} & \frac{\delta^2 L}{\delta n_r^2} \end{pmatrix}$$

$$\Leftrightarrow \begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}$$

Therefore,

$$Det = \frac{\delta^2 L}{\delta n_e^2} \times \frac{\delta^2 L}{\delta n_r^2} - (\frac{\delta^2 L}{\delta n_r \delta n_e})^2 = 1 > 0$$

And

$$\frac{\delta^2 L}{\delta n_e^2} > 0$$

$\Rightarrow L$ **admits a minimum**.

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