Effects of the Third Party Enforcement Errors

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Motivation

- Depersonalized exchanges (on D.North) with third-party enforcement as a way for Pareto-improvement of outcomes

- Optimal deterrence (on G.Becker) by the means of sanctions for rules violators (in the light of errors of II type) within the framework of strategic interaction

- The problem of I errors in economic exchanges within the context of strategic interaction of players requires special attention

- Enforcer as a discriminating monopolist with own interests (McGuire, Olson, North)

The aim

- To identify not only distributive but also coordination effects of economic exchanges (strategic interaction between players) with third party enforcement and enactment errors of both I and II types

Tasks

- Effects of I&II types errors in third-party enforcement within the context of strategic interaction of participants of economic exchanges

- Errors of I&II types within the context of rules enactment and enforcement interrelations

Effects of I&II types errors in third-party enforcement within the context of strategic interaction of participants of economic exchanges

Basic definitions and assumptions on errors in enforcement

Errors of I type in enforcement:
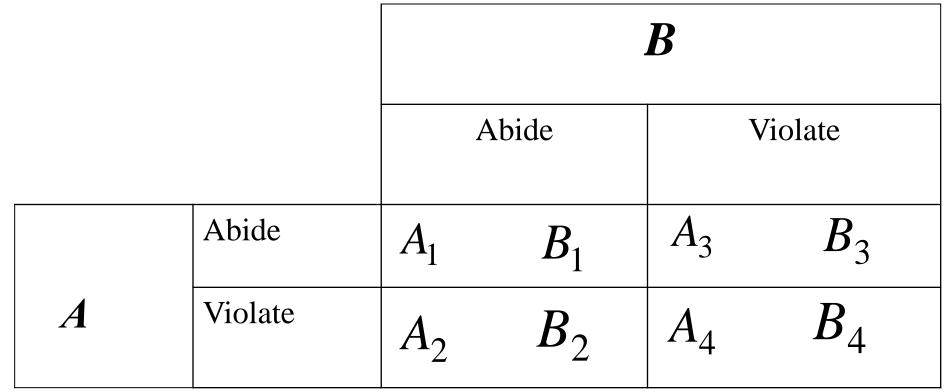
- *Strong form: prosecution of innocent*

- Weak form: excessively hard prosecution for rules violation

Errors of I type in enforcement:

- *Strong form: non-prosecution of rules violator,*

- Weak form: too law sanctions for violations

Pay-off matrix for «Prisoners' dilemma» game

$$A_3 > A_1 > A_4 > A_2 \qquad B_2 > B_1 > B_4 > B_3$$

Nash equilibrium $(A_4; B_4)$ Pareto-non-optimal

		B	
		Abide	Violate
A	Abide	$A_1 \qquad B_1$	$A_3 \qquad B_3$
	Violate	$A_2 \qquad B_2$	$A_4 \qquad B_4$

The new game parameters - 1

- T – cost of third-party enforcement for players (A&B)
- Equal distribution of the service cost burden among players
- Y – sanctions for rules (rights – both absolute and relative) violation
- Z – restoration of rules (rights) violated? compensations

Pay-off matrix with new parameters

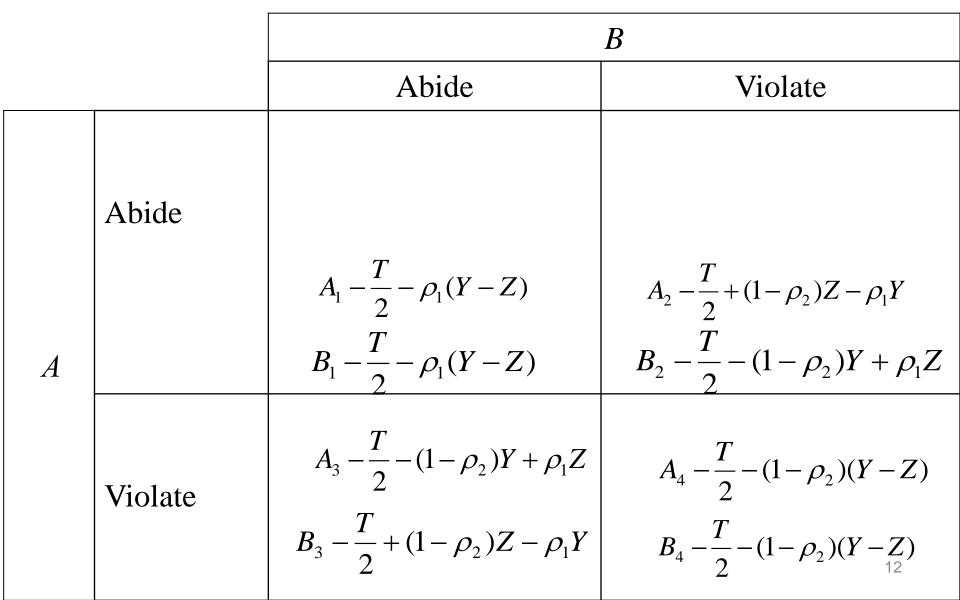|		B	
		Abide	Violate
A	Abide	$A_1 - \dfrac{T}{2} \qquad B_1 - \dfrac{T}{2}$	$A_2 - \dfrac{T}{2} + Z \qquad B_2 - \dfrac{T}{2} - Y$
	Violate	$A_3 - \dfrac{T}{2} - Y \quad B_3 - \dfrac{T}{2} + Z$	$A_4 - \dfrac{T}{2} - Y + Z \quad B_4 - \dfrac{T}{2} - Y + Z$

Comments

- Third-party enforcer is a tool for Nash equilibrium Pareto-improvement under depersonalized exchanges

- Services effectiveness of non-discriminating enforcer doesn't mean Pareto-efficiency (or even improvement) within the new game structure by default

- The context of initial game does matter for qualification of subsequent game modofocations (Competition on Bertrand vs. Collusion ≠ Rules (rights) abiding vs. unenforced rules (rights)).

The new game parameters - 2

Errors of non-discrimination enforcer:

- ρ_1 – probability of errors of I-st type
- ρ_2 – probability of errors of II-nd type

Pay-off matrix with non-zero probabilities of errors of I & II types

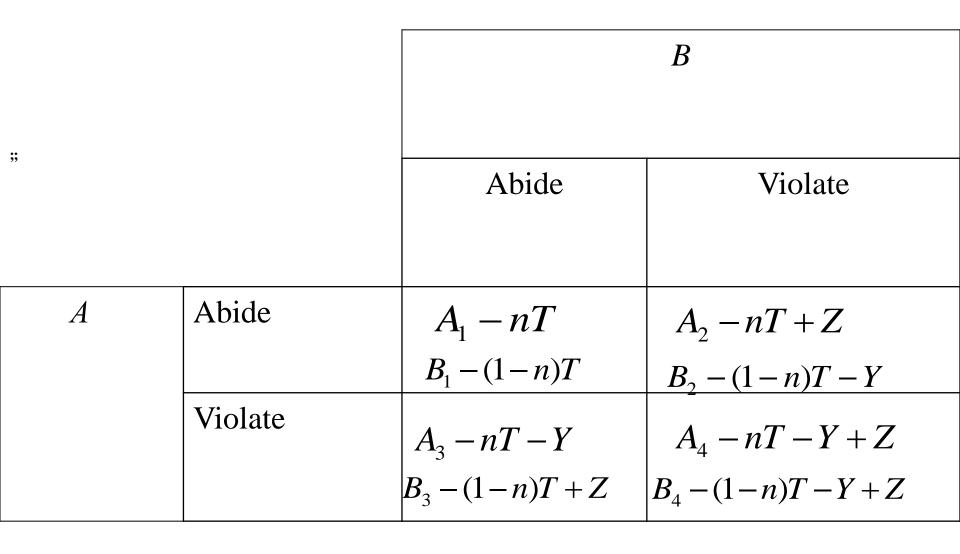|		B	
		Abide	Violate
A	Abide	$A_1 - \dfrac{T}{2} - \rho_1(Y - Z)$ $B_1 - \dfrac{T}{2} - \rho_1(Y - Z)$	$A_2 - \dfrac{T}{2} + (1 - \rho_2)Z - \rho_1 Y$ $B_2 - \dfrac{T}{2} - (1 - \rho_2)Y + \rho_1 Z$
	Violate	$A_3 - \dfrac{T}{2} - (1 - \rho_2)Y + \rho_1 Z$ $B_3 - \dfrac{T}{2} + (1 - \rho_2)Z - \rho_1 Y$	$A_4 - \dfrac{T}{2} - (1 - \rho_2)(Y - Z)$ $B_4 - \dfrac{T}{2} - (1 - \rho_2)(Y - Z)$

Threshold for improvement

Probabilities of I & II errors types are zero:

$$(A_1 + B_1) - (A_4 + B_4) = T$$
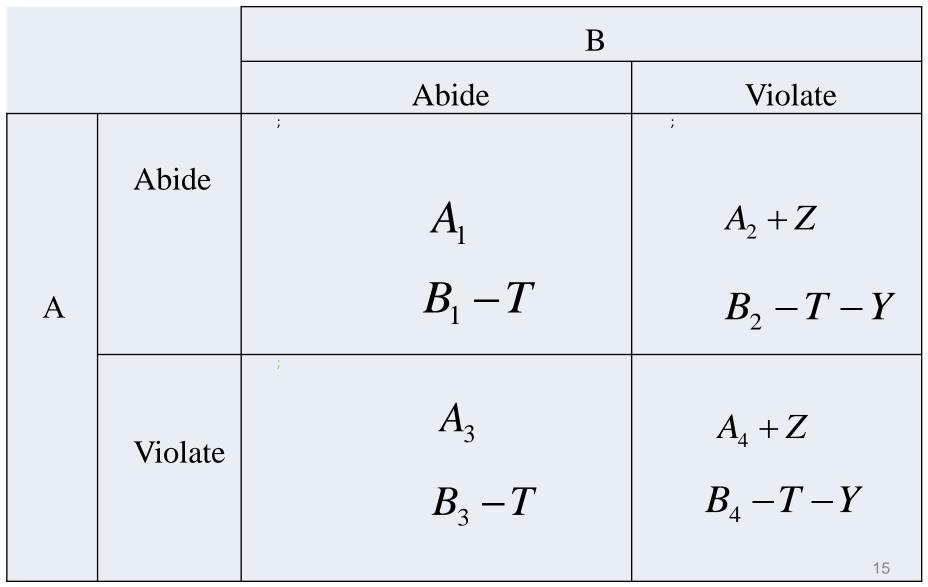
Probabilities of I & II errors types are above zero:

$$(A_1 + B_1) - (A_4 + B_4) = T + 2\rho_1(Y - Z)$$

Discriminating enforcer (n≠0,5)

		B	
		Abide	Violate
A	Abide	$A_1 - nT$ $B_1 - (1-n)T$	$A_2 - nT + Z$ $B_2 - (1-n)T - Y$
	Violate	$A_3 - nT - Y$ $B_3 - (1-n)T + Z$	$A_4 - nT - Y + Z$ $B_4 - (1-n)T - Y + Z$

«Everything is for friends, the law is for others»

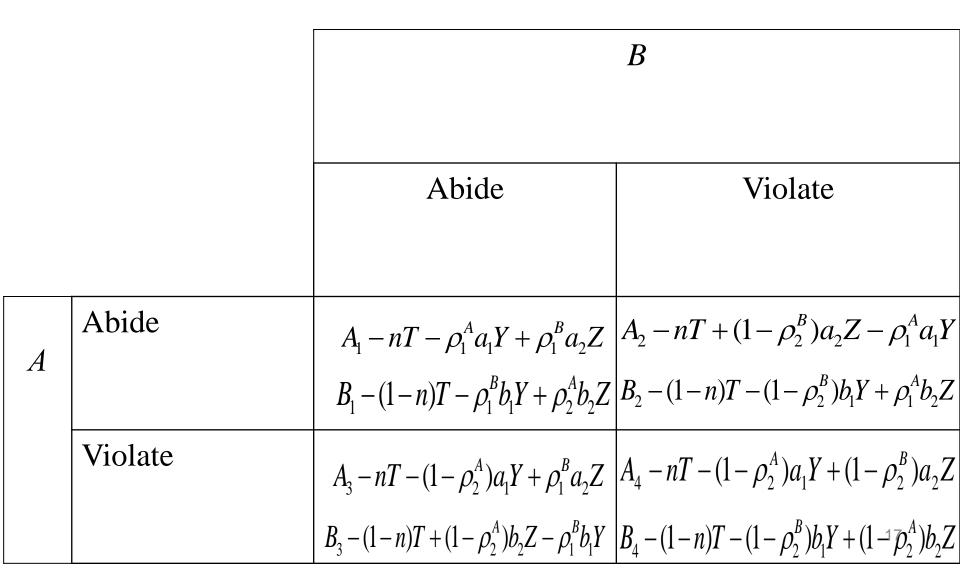|		B	
		Abide	Violate
A	Abide	A_1 $B_1 - T$	$A_2 + Z$ $B_2 - T - Y$
	Violate	A_3 $B_3 - T$	$A_4 + Z$ $B_4 - T - Y$

Variants of consequences

1. Restoration of rules absence/universal violation as in initial game. It is possible if sanctions are not high as compared with pay-off for discriminated party(ies).

2. Rules violation by "friends" and rules abiding by "others". Sanctions are high for those who are prosecuted

Discrimination on cost of services, sanctions, compensations and errors probabilities

		B	
		Abide	Violate
A	Abide	$A_1 - nT - \rho_1^A a_1 Y + \rho_1^B a_2 Z$ $B_1 - (1-n)T - \rho_1^B b_1 Y + \rho_2^A b_2 Z$	$A_2 - nT + (1-\rho_2^B)a_2 Z - \rho_1^A a_1 Y$ $B_2 - (1-n)T - (1-\rho_2^B)b_1 Y + \rho_1^A b_2 Z$
	Violate	$A_3 - nT - (1-\rho_2^A)a_1 Y + \rho_1^B a_2 Z$ $B_3 - (1-n)T + (1-\rho_2^A)b_2 Z - \rho_1^B b_1 Y$	$A_4 - nT - (1-\rho_2^A)a_1 Y + (1-\rho_2^B)a_2 Z$ $B_4 - (1-n)T - (1-\rho_2^B)b_1 Y + (1-\rho_2^A)b_2 Z$

Conclusions - 1

- Price of enforcer services does matter from the perspective of "comparative statics" with initial Pareto-inefficient Nash solution

- Conclusion ambiquity – the issue of comparability of two cases (with third-party enforcer and whithout) from the perspective of players evaluations.

- The service on rules (rights) enforcement is composite and consists of (1) deterrence based on credible threat of violator prosecution, (2) restoration of the rule (rights) violated.

Conclusions - 2

- Enforcement errors of I & II types influence both benefits distribution (including enforcer) and equilibrium features.

- Errors of type I is especially important due to effects of higher enforcement cost.

- The harder error of I the narrower limits for welfare increase, and weaker deterring sanctions effects

Errors of I&II types within the context of rules enactment and enforcement interrelations

Errors in rules enactment

Error of I type:

- Strong form: enactment of prohibition or restrictions where unnecessary

- Weak form: to hard prohibition or restriction

Error of II type:

- Strong form: no prohibition or restrictions where ones are necessary

- Weak form: to easy prohibitions or restrictions

Errors of I & II types in enactment and enforcement: the map

		Enforcement		
		No errors	I	**II**
Enactment	No errors	1.1	1.2.	**1.3.**
	I	2.1.	2.2.	**2.3.**
	II	**3.1.**	**3.2.**	**3.3.**

Some effects of various interrelations of errors in enactment and enforcement

- Consequences of errors in enactment may be amplified by errors in rules enforcement.

- Consequences of errors in enactment may be compensated by errors in rules enforcement.

- But in both cases the common result is bad institutions

- Various errors combinations may influence both distributive and coordination results of economic exchanges.

- While enforcement errors are qualified as such within the framework "the rule-reglamented action", enactment errors as such are related to estimates of opportunities for Pareto-improvement, correspondence to Kaldor-Hicks or Kalrdor-Hicks-Zerbe criteria.

Errors of I & II types within the context of market failure remedies

		Policy	
		Deregulation	Regulation
Market failures	Avoidable	Deregulation remedies (increase of the market perfectness as a mechanism of economic agents coordination)	Sustaining/establishment of regulation (excessive administrative barriers, price regulation, the ban of particular types of economic activities) – **errors of the I type**
	Unavoidable	Deregulation under unavoidable market failures (increase of market imperfections, for example, due to total cease of inspections) –**errors of the II type**	Sustaining/establishment of regulation under unavoidable market failures (as in case of cartels producing price fixing, market sharing etc

Errors of I & II types in enforcement within the context of interplay "enforcement-enactment"

		Action (non-action) in relation to rules enacted	
		Abiding	**Violation**
Action (non-action) evaluation by enforcer	A* (no violation recognized)	The action in accordance with rules enacted is recognized lawful/The action, recognized as rules abiding, is in fact abiding	**Violation of rules is recognized as a rule abiding action (error of II type)/ /The action recognized as rule abiding in fact is rule violating**
	V* (violation recognized)	**The action in accordance with rules enacted is recognized as violation (error of I type)/The action, recognized as rules violation, is in fact abiding**	**The action violating rules enacted is recognized as unlawful/The action, recognized as rules violating, is in fact violating**

Thank you!