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Property Rights and Judicial System

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Property Rights (PR) is a system that defines relative rights on scarce resources, that is to say somebody's rights in relation to the rights of anybody else. It cannot work without a judicial system, as law is inefficient without law enforcement. The judicial system is necessary to enforce PR by monopolizing the power of constraint which obliges everyone to accept PR distribution and PR consequences. But the judicial system plays other roles in the application of the PR system. It is the final place to define the conditions of use of property rights when there are different interpretations of them, and when opposite claims are advanced. So, the judicial system is a system of legitimate interpretation and distribution of the concrete effects of PR in a social context. The judicial system has two main types of effects on PR : efficiency effects and distribution – so, equity – effects. This is true in the three functions concerning the judicial system: the function of PR enforcement (part one), the function of PR interpretation (part two) and the function of PR definition (part three).

The PR enforcement

An efficiency perspective

The need of an enforcement apparatus

A PR system is an efficient way to regulate the use of scarce resources because it diminishes conflicts about uses and allows social cooperation instead of economic war. But a PR system without enforcement is no more efficient than no PR system. If the PR system is an efficient one, judicial enforcement is efficient. The point is easy to understand in a game presentation.

We use an evolutionary game approach because our problem is not only a problem of static equilibrium, but also a problem of evolution of strategic choices in a context of evolving conventions. This approach makes two interesting innovations in game theory. It requires players to have merely a weak rationality. They observe the earnings of the different strategies and choose the most profitable strategy; whereas in classical games they must conceive their strategic planning for the whole game. It introduces the possibility of random strategy moves, thus the possibility of mutations; and of strategies which become winning because of imitation. Dynamic study of the game uses a hypothesis according to which winning strategies are gradually preferred by the players. A replication mechanism associates variations in the proportion of players using one strategy and the gap between the earnings of this strategy and the average gain of the other strategies.

Suppose two persons or two groups facing PR effects (for instance the renting of a flat). The contract gives each one some rights and some obligations. If PR are not monitored and enforced, a strong incentive is to use rights and to refuse obligations, as

typical in free rider problems. If we use an evolutionary game, with pure or mix strategies (belonging to an axis from absolutely no respect -NR- to a strict respect -R- of PR organization), the payoffs are ordered such as $G(nr,R) > G(r,R) > G(nr,NR) > G(r,NR)$. $G(nr,R)$ represents the temptation, because the opportunistic behaviour gives the greatest payoff when the other player observes the law ; $G(r,R) > G(nr,NR)$ because observance of law leads to cooperation whose result is better than non-cooperative outcome ; $G(r,NR)$ is the least payoff for the player is the sucker. In all cases we have a game matrix as, in standard and normalized forms¹:

Game [A]							
		(2)				(2)	
		R	NR			R	NR
(1)	r	α, α	β, γ	(1)	r	$\alpha - \gamma = a_1$	0
	nr	γ, β	δ, δ		nr	0	$\delta - \beta = a_2$

with $\gamma > \alpha > \delta > \beta$, so $a_1 < 0$ and $a_2 > 0$ (1). The unique evolutionary stable equilibrium is a prisoners' dilemma equilibrium, nr-NR, sub-optimal. No mutant strategy can invade the game, the nr strategy being a dominant strategy (a standard replicator, with nr the proportion of players using nr, gives $dnr/dt = nr \cdot [a_2(1-nr)nr - a_1(1-nr)^2]$, always > 0).

A judicial system can be seen to rule the nr strategy out of the strategy space, so to impose a respect strategy and the associated high equilibrium r,R with the optimal outcome α, α . From an economic point of view, as Becker points out, the choice of players between r and nr strategies is a rational choice, based on costs and advantages (including nonmonetary ones, such as use of time or ethics values). Justice cannot get rid off nr strategies (or mix strategies including nr actions) but only make them costly. To enforce PR, justice is not a purely coercive machine (all criminals are not arrested and punished, crime is not eradicated), but, merely, an incentive mechanism.

A partial and unequal enforcement

If players are reasonable people, taking account of costs and advantages, enforcement of property rights needs efficient sanctions. In the new game:

Game [B]							
		(2)				(2)	
		R	NR			R	NR
(1)	r	α', α'	β', γ'	(1)	r	$\alpha' - \gamma' = a'_1$	0
	nr	γ', β'	δ', δ'		nr	0	$\delta' - \beta' = a'_2$

we need $a'_1 > 0$, $a'_2 < 0$, so $\alpha' > \gamma'$ and $\delta' > \beta'$ (2), to incite to observe law. A strict enforcement implies that condition (2) is true for all players and circumstances. The observation of reality shows us that this is not the case, some utility functions including,

in some circumstances, a very high estimation of no respect of the law (if I am dying of starvation, stealing a piece of bread has a very high value).

Also relevant is the optimal sanction [Polinsky and Shavell 2000,]. Infringement of PR must not only be condemned from moral considerations but also from an economic point of view, considering the incitative effects of a sentencing system. If infringements have unequal effects, they have to be unequally sanctioned. So, reasonable people choose a minor infringement over a more major one (when I park my car, I prefer to attack the rights of the deliveryman over those of handicapped people, not only for ethical reasons, but also for monetary reasons).

A third point is the cost of judicial property rights enforcement. Suppose that each player pays a tax of T to finance law enforcement. We introduce this social cost by substituting $\alpha'', \beta'', \gamma'', \delta''$ for $\alpha', \beta', \gamma', \delta'$ (with $\alpha'' = \alpha' - T$, and so on). Then the new cooperative outcome in game [C] may be, for the individual and the collective, inferior to the old non-cooperative outcome of game [A]. It is the case if $\alpha'' < \delta$.

Game [A]				Game [C]			
(2)				(2)			
		R	NR			R	NR
(1)	r	α, α	β, γ	(1)	r	α'', α''	β'', γ''
	nr	γ, β	δ, δ		nr	γ'', β''	δ'', δ''

Enforcement of property rights is only a partial one, and this is related to judicial cost of enforcement. Enforcement is a costly operation and is all the truer as the goods are sets of characteristics. To define and protect all the PR would require the definition and the protection of each characteristic. PR monitoring and enforcement costs are a peculiar type of transaction costs: « Transaction costs are the costs of all resources required for transferring property rights from one economic agent to another. Transaction costs include the cost of making an exchange (i.e. discovering exchange opportunities, negotiating exchange, monitoring exchange, and enforcing it) and the cost of maintaining and protecting the institutional structure (i.e. the judiciary, police, and armed forces). » (Pejovitch [2001], p.xvii). The question of the cost has, itself, three components.

The first one is the choice of the social level of enforcement. If the PR enforcement has a social cost, an arbitration is necessary between the effect and the cost of protection, which explains why protection is never total. Some property rights will be enforced and some others not. And the variable between the two, the extent of enforcement, changes with enforcement cost and law respect advantages.

The second relates to the configuration of enforcement's instruments. For instance, for the software or the music files PR enforcement, a society may privilege public enforcement (courts sanction violations of rights) or private enforcement (producers introduce technical instruments as tools to efficiently protect their PR). The question is how to efficiently mix public enforcement (especially judicial enforcement) and private enforcement.

The last point is that the judicial enforcement costs are not only the direct ones (judges' salaries,). To sue someone in Court is costly. It implies monetary expenses and

transaction costs (time expense, psychological costs,). Optimal enforcement policies have to include this problem.

Substitutes

Justice changes earnings of r and nr strategies and, thus, increases PR observance. Some substitute means also have to be considered as norm producing apparatus: ideology, ethics, deontology, religion, customs, culture, social conventions,... They can induce conventions of PR respect in place of violation. They work, as in the substitution of game [B] to [A], by increasing earnings of the r strategy in relation to the nr strategy (to exclude someone from the group for rule infraction, to reward someone for loyalty, to reprove immoral actions, ...).

These norm systems may emerge from the repetition of inter-individual and group relations and are reinforced by it. Repetition, under different hypotheses on rational behaviours, allows the emergence of cooperation through reciprocity organization or reputation building [Hardin 1982, Kreps 1990, Fudenberg et Maskin 1990]. These self-organized processes were formulated in repeated games terms [Axelrod 1984] and in evolutionary games terms [Bicchieri, Jeffrey, Skyrms 1997].

In the line of Axelrod we can imagine that cooperative strategies emerge with the repetition of the game. Nevertheless, their ability to enforce property rights is doubtful. Repeated game theory has shown that strong and numerous conditions are necessary to support cooperation. Property rights will be “spontaneously” respected in small communities (as in a family or a bureau), with identified players, frequent plays, and the possibility of retaliatory measures. It is not true when players are numerous, changing, unknown, in favour of different ideologies and ethics,.. Moreover, in an evolutionary perspective, the unique evolutionary stable equilibrium is the dominant non-respect strategy. If any other strategy becomes the general one (for example the respect strategy), a player choosing a non-respect strategy has a greater payoff; then, he is mimicked by others. Many examples of progressive degradation of PR can be invoked. Historical perspective shows that while old societies, based on tradition, develop cooperative behaviours (for example through the means of gift relations), depending on whether they are small, closed, stable societies, with ideological enforcement (for example the taboo system), modern societies, large, open, unstable, with many fluctuating interactions, evolving norms, refinement and complexification of the PR system, need more explicit enforcement. In the same way the development of PR systems is accompanied by a development of judicial enforcement.

Enforcement as a public good and a club good

In enforcing PR, the judge produces a public good. Even if the sentence of a court is a particular and limited one, it contributes to socially reinforcing the weight of the PR system. It creates a working incentive system, which produces co-operation and wealth. Enforcement produces a public intermediary good (cooperation), which is the means of producing a public final good (to increase social wealth, to live in peace...). In addition to its static effect, enforcement has a dynamic effect, in increasing stability, predictability and credibility of PR, and then in giving a stable basis for expectations and a stable framework for investment. PR enforcement is an important means of reducing transaction costs.

As for the supplying of public goods, we meet a problem of free riding. If the cost of PR enforcement is generally higher than individual profit and lower than collective

profit, it implies a collective procedure, based on a constructivist project or on self-organization processes. According to the dispersion of individual utilities of enforcement for some types of PR (if I am a smoker, I have not a great preoccupation with the enforcement of anti-tobacco regulations), enforcement areas may vary. PR enforcement becomes a club good and many clubs can coexist. History shows many types of club justices as local or communitarian (fishermen) or temporary (merchant justices in the Middle Ages' Fairs) ones. Today, many private justices work and enforce some types of PR (for example to manage PR on credit cards). Other organizations include PR enforcement: the main one is the firm, as Alchian and Demsetz said, which is a local PR enforcement system. Evolution affects the efficient configuration of these clubs, their number, types and sizes. Complexification of PR system implies more sophisticated and specialized clubs.

PR enforcement can use private means of enforcement. Nevertheless, PR act as a system, so enforcement has to be a systemic one. Enforcement requires coherence; and the power of sanctioning deviating behaviours must be founded on legal and public legitimacy. So, every enforcement apparatus ultimately needs public enforcement. Moreover, this coherence must be particularly strong in market societies, to be able to induce cooperation inside competition.

Extension of competition

When competition becomes tighter, spontaneous observance of PR becomes less likely. Suppose we take a symmetrical game, with two equal firms. The observance of PR allows the execution of a contract, which gives a collective surplus of 10. If the two players choose the cooperative strategy (outcome r, R), each one gains 5 (a fair share of the surplus). No respect of PR increases the payoff (the cheat takes the whole surplus minus a cost of 2 -loss of reputation, organization cost of "cheating",...). In the outcome (nr, NR) , each one thus obtains a weaker result, 3 ($5-2$). If one is aggressive and the other not (outcomes nr, R and r, NR), the cheat, escaping his obligations, gains 8 ($10-2$) while the dupe nil.

Game [D]		(2)	
		R	NR
(1)	r	5, 5	0, 8
	nr	8, 0	3, 3

The unique equilibrium, with dominant strategies, is strong but clearly sub-optimal. If the firms meet regularly, the repetition of the game pushes them to cooperate, i.e. to spontaneously respect PR. So, if the repeated game can lead to the repeated Nash equilibrium (nr_T, NR_T) with (3,3), it can also lead to the optimal repeated outcome (5,5) with the co-operative strategies (r_T, R_T) . The probability of this one depends on the weight of the incentive to cheat: to cheat brings back immediately 8 and 3 in each next

round; to continue to cooperate gives 5 in each round. With δ parameter of discount (value today of a unit of utility available in the following round, which can also represent or include the probability of the end of the game in the next period), there is cheating if $3 > 2(\delta + \delta^2 + \delta^3 + \dots + \delta^N + \dots)$, so for N sufficiently large only with $\delta < 3/5$. Rational players can thus organise a "spontaneous" co-operation by respecting PR, without judicial or any other external enforcement.

In Axelrod type situations, spontaneous respect of PR is likely² because, even if the interests are not necessarily parallel, the individuals are interested only in their individual payoff, and not in the others'. They are not "jealous". Player (1) obviously prefers outcome (5,3) to outcome (3,3) but is indifferent among outcome (5,3) and outcome (5,5). The partner profit is strictly immaterial to him. This assumption is appropriate in a smooth, peaceful competition, but irrelevant in a world of tight competition in unstable markets. To gain more than my competitors can be decisive in upcoming battles. Thus, I may prefer an outcome (2,0) to an outcome (3,3). However, the solutions of the game are very sensitive to the levels of the payoffs.

To consider that point, we propose three repeated games, with the same monetary payoffs (profits) but different utility functions, corresponding to three different models of behaviour, the "egocentric alternative", the "competitive alternative", and the "hyper-competitive alternative". We suppose that the profits previously used are monetary profits (3, 5, 8 billion euros) and that the models are characterized by the level of competition, expressed by the utility function $U(\cdot)$.

The first alternative is the repeated game [D], with the utility function $U_i = \pi_i$. The second one, the competitive alternative, is the repeated game [E] hereafter, with the utility function $U_i = \pi_i + (\pi_i - \pi_{-i})$:

Game [E]		(2)	
		R	NR
(1)	r	5, 5	-8, 16
	nr	16, -8	3, 3

The probability of the co-operative outcome is decreased. In the game [D] it is with $\delta > 3/5$, now it is only for $\delta > 11/13$. The hyper-competitive alternative is featured by the repeated game [F], with the utility function $U_i = \pi_i + (\pi_i - \pi_{-i})^2$ for $\pi_i \geq \pi_{-i}$
 $\pi_i - (\pi_i - \pi_{-i})^2$ for $\pi_i \leq \pi_{-i}$

Game [F]		(2)	
		R	NR
(1)	r	5, 5	-64, 72
	nr	72, -64	3, 3

The probability of the co-operative outcome is further decreased and stands up only for $\delta > 67/69$. Moreover, the more competitive the game, the more the discount parameter decreases, because any immediate profit is a competitive weapon which may push the competitor out of the game. In the same way, the more competitive the game, the more the probability of the end of the game grows, because of instability. The two elements tend to decrease the value of δ whereas the condition of co-operation becomes stronger.

Tight competition increases the risk incurred by co-operative players and, then, increases the use of opportunistic strategies with regard to the PR observance. Players fear to find themselves in the disastrous situations (r, NR) and (nr, R) and prefer the more secure but sub-optimal repeated outcome (nr_T, NR_T) . The repetition of the game reinforces this tendency, because the “repetition” is not, really, an identical repetition: the economic and competitive power of each player evolves, according to the results of the previous rounds. The dynamics of game enlarges the differences between the profits, which are used as additional weapons in competition, and may cause the elimination of some players. The introduction of additional players would make this threat even more poignant. The use of tit-for-tat or carrot and stick strategies is hardly probable. Then, the extension of competition needs a more explicit and powerful PR enforcement system, which explains the growing power of judicial systems.

An evolutionary games model appears more convenient for our purpose. Market globalisation generates fewer meetings between stable couples of players, well identified, knowing themselves, and more meetings between multiple changing, unknown partners, pertaining to different cultures, using unpredictable behaviours. When the globalisation will be mature, it is possible that new forms of PR spontaneous observance emerge, with a revival of cooperative behaviours. For the time being it is not the case.

This model allows us to consider a population of similar players brought to meet in a random way, two by two (contrarily to the preceding repeated play, in which two players, and two only, played the same game indefinitely). It consolidates our former conclusions on the weak probability of spontaneous cooperative outcomes. In the game [D], now taken as an evolutionary one, the unique evolutionary stable strategy is NR. Suppose an invasion: a part of the group now plays simultaneously R. If they often meet, they can compensate for their relative losses in the meetings (r, NR) -where they obtain 0 against 3 with nr-, with a surplus in the meetings (r, R) -where they obtain 5 whereas the other players obtain only 3 in the meetings (nr, NR) . Nevertheless, this never leads to an evolutionary stable equilibrium. In a configuration where every player chooses R, any deviation towards NR, is winning; and the replication mechanism aligns everyone on the unique evolutionary stable strategy NR : according to dynamics³: $dq_{NR}/dt = 3q_{NR}(1-q_{NR})$, where q_{NR} is the proportion of players playing the pure strategy NR. The games [E] and [F] lead to a faster alignment on the evolutionary stable strategy of PR non-observance, since the mechanism of replication becomes $dq_{NR}/dt = 11q_{NR}(1-q_{NR})$ in the second alternative, and $dq_{NR}/dt = 67q_{NR}(1-q_{NR})$ in the third.

An equity perspective

Enforcement lovers and enforcement adverse people

Judicial enforcement does not represent a standard public good, as it allows the distribution of effective rights, powers and wealth to be modified. Some individuals or groups may win with a strong enforcement of PR (obviously the owners); and some others with a weak enforcement (the robbers). Instead of a symmetrical game, as the previous game, with parallel interests, consider game [G], characterized by non-symmetrical distributions in the symmetric outcomes (the cost of the loss of reputation is always 2 ; in the r,R outcome, player (2) is favoured in the share of mutual surplus ; and in nr,NR outcome, it is player (1) ; for instance (1) is more clever in illegal conditions, and (2) in legal ones):

Game [G]		(2)	
		R	NR
(1)	r	3, 7	0, 8
	nr	8, 0	5, 1

Equilibrium in dominant strategies is (nr,NR ; 5,1). Judicial enforcement reverses the result, when one player does not respect PR, while the other respects them. That leads to game [H]:

Game [H]		(2)	
		R	NR
(1)	r	3, 7	8, 0
	nr	0, 8	5, 1

Equilibrium becomes (r,R ; 3,7). The collective surplus is increased; but while the player (2) is in a better situation, the player (1) is in a worse one. In this case, enforcement is not a common wish and needs an authority decision. Posner contests this point of view, saying that individuals are ready to accept a Common law based on wealth maximization; for they have significant probabilities, in the long run, to profit from it, even if the particular application of the rule penalizes them at a given time. Nevertheless, there can be a permanent separation between a law-enforcement interested group and a law-enforcement adverse group, that requires public enforcement power (see mafias' problems).

Another way to combine distribution effects and acceptance of regulatory control can be used, into an exchange framework. Player (2) can propose to player (1) to enforce PR, in order to increase social wealth, while modifying the shares. The non-cooperative outcome of game [G] works as threat value (5,1). So, every solution [r,R] with a redistribution of the type $(5 + a, 1 + 2 - a)$ with $0 < a < 2$ is acceptable and efficient. One can, for example, interpret in these terms the institutionalisation of the feudal chore.

Unequal enforcement

Since justice enforces PR, opportunistic behaviours are involved. Individuals want a strong enforcement of their PR and a weak enforcement of their legal obligations. As a

driver I prefer a weak enforcement of the highway code, but as a pedestrian I want a strong control. If individuals have moving positions in the PR system, being sometimes a driver and sometimes a pedestrian, there are minimal consequences. On the other hand, if the places in the division of labour and the roles in the social organization are permanent and rigid, the consequences are more significant. Judicial strategies emerge and compete with one another. As being in a world of scarcity, justice can only use limited resources. Enforcement of PR is never perfect. Justice has to decide priorities: to strictly enforce people protection, or ownership, or fiscal duties, or minor protection, or anti-sexism laws; to weakly enforce highway code, or fiscal evasion, or prostitution prohibition, or financial delinquency. It can be more accurate when enforcing the workers' PR, or the PR of managers, or the PR of ownerships; or when deciding to enforce the PR of consumers over the PR of producers, and so on. Individuals and groups propose different priorities for judicial working. These strategies do not necessarily result from complex calculations. They can primarily result in opposing existing legislation, be it lax or rigorous. Moreover, they oppose projects to redefine judicial priorities. These strategies express the defence of immediate interests but may be the result of clever constructions. Some interest groups will be able to format them in a more coherent and more presentable way, and to lobby in the social field. Judicial strategies, relating to the "imperfect" character of the justice system and judicial enforcement, are not mainly the inescapable ransom of imperfect human nature; but are the effect of scarcity's economic constraints.

That can also lead to substitutions between modifying the law and modifying the law's enforcement. For instance, the "society" will prefer no sanctioning of the personal consumption of marijuana, without amending the law, instead of modifying it. So legal policies and strategies are accompanied by enforcement policies and strategies. In some areas of new PR (tobacco regulation, sexist or racist practices, rights of the handicapped people, prisoners' rights...) struggles for legal intervention are only the first round. The second round involves struggling to enforce these regulations; an international comparison clearly highlights the point that highway code enforcement is very different according to countries, even for countries with a similar level of development.

Our modeling showed that PR enforcement, from an economic point of view, implies two different logics, efficiency logic and equity logic. Judicial enforcement is an incentive by modifying the parameters of economic calculation, by reducing the effects of uncertainty on PR. It increases the social welfare. At the same time, distribution of wealth effects depends on the configuration of an imperfect and unequal PR enforcement. Justice is simultaneously producing efficiency effects and distribution effects.

The PR judicial interpretation

PR systems not only need enforcement, but also interpretation, to become concrete incentives and allocation systems. Justice appears as a referee, among the opposite pretensions. Different players claim their entitlement to do something and dispute other players' rights to do it.

The domain of judicial interpretation

The interpretation of the facts

The judge must connect the PR's legal system with the facts related to the case. His or her first work is to draw up an assessment of the facts. The judge is the "neutral" and "independent" referee, between the parties. He must establish the "truth", to produce the legitimate reading of the facts, whereas the parties propose different versions according to their interests, their opportunism, even their bad faith.

The divergences between pretensions are also related to cognitive reasons. If we substitute the idea of limited or procedural rationality, for that of substantive rationality, with maximization, the individuals seek, rather than the strict maximization of objective functions (to earn the most possible money, to obtain the maximum compensation..), an average, subjective, level of result (to obtain "justice" that is a reasonable compensation..). They use procedures, often organisational ones (the individual must decide as a member of an organization, a company, a family...), conventions, references to norms, thinking frameworks, "points of view". So, different people, using different thinking frameworks, may build different versions of the same reality. Contemporary sociology shows that the social contexts influence the behaviours and lead to "habitus", interiorised forms of behaviour, related to the social status of the individuals (the litigant will not have the same type of behaviour and of arbitration between costs and advantages, if he is a professional litigant, such as the lawyer of an insurance company, compared to the occasional litigant). Rationalities become socio-historically situated rationalities.

At the same time, the referee does not generally limit himself or herself to an "objective" observation of facts (which corresponds more to the logic of the expert); instead he provides a specific interpretation of them, he defines responsibilities and torts : is the damage and the PR violation intentional, or not?

To build this interpretation, judges are the real and active producers. They base their findings on a specific mode of reading reality; they give more or less importance to such or such a type of consideration, to a social logic, a psychological logic, or an economic one. Spatial comparisons show that, in the same legal area of jurisprudence regulation, the same attacks against PR are not judged in the same manner and are not equally sanctioned. Moreover, the judge is not always a public judge. In some cases, conflicting-parties agree on the choice of a specific referee to have a specific reading of the facts ; for instance firms will ask a private referee or a professional one to intervene, because they expect a decision from him based on economic criteria, whereas they fear that the public judge minimizes them.

The legal interpretation

Law cannot be a perfect and complete system. It cannot define all the legal rights and duties in every concrete situation, according to every type of contract. And, among the PR legal system, some are very precise (PR of shareholders) but some are vaguer ("human rights", privacy PR, ...). Williamson distinguishes three types of law, corresponding to his three great types of economic institutions:

- "classical law" for the market; the law strictly defines and records the conditions of an instantaneous market transaction, and, thus, is simple and indisputable.

- "neo-classical law" for the contract, the hybrid form between market and hierarchy; it organizes a longer relation than the market one (see the industrial co-

operation contract or the franchising commercial contract). It constitutes no more than a partial framework, because nobody can anticipate all the future nature states.

-“evolutionary law” for the hierarchy; it organizes a framework to manage changes (such as labour legislation, which allows modifying the job description of workers or their earnings, under some conditions).

So, we see that the legal system, from an economic point of view, enforces and implements a broad spectrum of property rights. At one extreme, we have precise PR, whose implementation has been envisaged by the parties (for instance, they signed, together, a contract; thus the role of the legal institution is to oblige them to respect the contract). At the other end of the spectrum, there are general rights, whose concrete consequences are not well defined (responsibility law, for example, defines only general duties: to behave like a good father of a family, without saying precisely what that implies in every circumstance). Generally, the law does not envisage all the specific cases but establishes principles, general rules. So, the legal institutions, to enforce PR, are not inclined to point out their obvious consequences. In many cases they must interpret general principles and then draw a solution for a particular case. The degree of interpretation is variable, larger when it is about the application of a general PR, weaker but nevertheless not nil, when it is about the interpretation of a precise PR (the contract did not envisage everything; or it is necessary to appreciate the good faith of the parties,..).

Justice, by interpreting rights and duties coming from contracts and PR system, decides on individual situations instead of these individuals, battling for supremacy on their own. Thus, individuals accept a self-limitation of their personal freedom to benefit from public, general, and legitimate, enforcement power of the justice system. Moreover, they accept a more important abandonment of freedom by giving the legal apparatus the capacity to interpret the law. Why?

Why a judicial interpretation?

Three kinds of answers are developed in economic analysis. In the first case, the Rational Choice approach, judicial interpretation derives from a rational, maximising choice to minimise transaction costs. The second case is mainly the institutionalist approach, where individuals are under a public power, because they are members of a collective system, the society, which has some specific interests, beyond private interests. In the third case, the Austrian approach, the judge’s interpretation is an organizational effect of self-evolving processes, which characterise inter-individual relations in an open society.

The judicial interpretation as transaction cost minimization

Transaction costs make the construction of a system of complete contracts impossible. The judicial system, through legitimate interpretation, is thus, again, efficient by reducing the social costs of transaction; specialization of the judge and economies of scale in the construction of a corps of specialised interpreters go in the same direction as transaction costs reduction. And this reduction is more or less strong, depending on whether they are precise or general PR. Cooter and Ulen, in the same way as Williamson, oppose the legal theory of contract, which refers to an area where transaction costs are weak, and the legal theory of responsibility, which covers an area where transaction costs are high. Whereas, in the first case, the interpretative role of the justice is limited (it must interpret the contractual wishes and agreements of the contractors), in the second case, the interpretative role is much more significant. This approach also enables us to explain the

absence of monopoly of the judicial system in this role of law interpreter. In the event of litigation, the parties can agree on a compromise (the lawyers of the two firms establish a private agreement), or call upon a third person (a mediator). The choice of the procedures will be guided by the comparison of transaction costs.

The judicial interpretation as rules' formulation in an open society

In the Hayekian approach, rules are thought as incomplete (all states of nature are not anticipated) and imperfect (conditions can contradict themselves), because they are necessarily abstract rules. No rule or condition fits the infinite number of possible situations; their adaptation to a particular situation is not immediate. Hayek refuses any legal scale of sanctions, any standard solution; which would deny the specificity of the cases, and the need to appreciate the comparative responsibilities. So, the judge is in an eminent position to interpret the PR system.

The judicial functioning results from a spontaneous self-organized process, with attempts and errors, and progressive selection. It does not consciously maximize the welfare but makes more, by managing ignorance. Individuals are ignorant for three reasons:

- some information is missing before the action, for the future is always partly unknowable;
- some individuals may not know that some types of information exist;
- some pieces of information, tacit ones regarding codified ones, are not transmissible or are only partially transmissible.

In that context, the judicial system allows socialization of the individuals, by transforming a spontaneous disorder into a self-organized order. Thus, the emergence of rules, through a spontaneous self-organized process, and their judicial consecration by the judge, allows uncertainty to be managed and reduced. Individuals can rest upon rules, which carry information and found the routines. Co-operation is helped by these rules, although they do not result from a calculation or a maximization. On the contrary, they are general and abstract rules, not finalized rules. That guarantees their social efficiency and enables them to play the role of general and stable references for individual action.

The judge tells the rules by formulating the social implicit rules on property. So, the judicial formulation and interpretation is a central point for society. Rules generally emerge from complex self-organized processes in an implicit form. The primary role of the judge is to make the implicit rules explicit, to clarify them, so that everyone can know them and profit from them. In this way, the judge fulfills a function of information transmission of similar importance to that of the walrasian "crier". The judge formulates the implicit rules but does not really produce the rule because he (or she) is held by the tradition, the legal inheritance, under the threat of losing his legitimacy, and he is guided by that tradition.

The interpreting role of the judge is also limited; the judge, being under the rule, has to comply with it. He must not set his mind on producing a new rule or a finalized, so arbitrary, rule. By interpreting the PR, the judge reinforces their stability and makes the future courts' decisions more foreseeable; thus, avoiding excessive recourse to the courts.

Judicial interpretation of PR problems has a second important effect, that of allowing rules to evolve. The judge is confronted with problems which are insolvable in the

existing legal system. By exerting pressure to modify the existing rule in the context of other laws which have been handed down by tradition a change in the rule can be made while preserving the coherence of the legal order.

The judicial interpretation as means of a collective organization

In the institutionalist perspective, three main ideas are put forward to analyse the judicial interpretation of PR.

- The first one starts with the multiplicity of social logics in our societies. In the economic field there is a market logic and a no-market logic (hierarchical allocation of resources, cooperative systems, networks, for instance). In the other fields there are other logics: communitarian or domestic (family) logics, political logics, and so on. And, occasionally, these logics influence economic areas. Moreover, modern societies, especially since the American and French Revolutions, are republican political societies. They define individuals as citizens and give them political rights, independently of their market rights; for instance rights to enjoy privacy, to think, to manifest, to vote, to move,...(Barrère [2001]).⁴ The logic of these PR is different to that of economic PR. Some personal PR are inalienable (I cannot sell my organs or my freedom or my deputy function). Republican logic thus introduces political and ethical principles, which distinguish political freedom and freedom to contract. The judge must control the application of the principle of the autonomy of a decision and prohibits “contracts” or “exchanges” such as “slave/slave trader” ones, or prostitute-upholder, minor-paedophile. So, the judge must interpret the facts and the law with regard to different principles and has to combine individual interests and collective interest preoccupations⁵.
- The second point concerns the abstract character of the modern legal rule. Law is based on general principles (“legal principles”, “constitutional principles”,...) and must be specified and interpreted, in order to be applied to each particular case. The judge doesn’t only have to point out the law or the existing distribution of PR, or to apply a whole range of tariffs (robbery is worth the amputation of the hand..), but he also has to produce an original solution, considering the personalities and the circumstances, according to general principles.
- The third point is that the legal system, and especially the PR system, is a system of relative rights (who has which rights, but also, which rights override which other rights), a system of relative capacities to act (who can force what, and up to what point), a system of relative powers, of relative responsibilities (which party perpetrated the damage, which party should receive damage compensation). So, justice is mainly concerned with dispute resolution. It must decide between competing interests (Mercurio and Medema [1997], p.115). As in the Hayekian framework, legal rules, and specially the PR system, constitute, with the market, the two main institutions to organise inter-individuals’ relations. But institutionalist thinking highlights the diversity and the opposition of individuals’ interests, representations and projects. If the market expresses competition, it includes a selection mechanism by willingness to pay, although law uses another mechanism, according to political logic and ethical criteria. So, a rule is not only a coordination mechanism, but also a social compromise; an organization of relative rights and powers.

The judicial definition of PR

It would seem strange that the judicial system is seen as a place to define PR. And for many economists this seems dangerous, and they refuse this kind of intervention or seek to limit it at a minimum level. Nevertheless, judicial systems contribute to define the contents and the perimeter of PR. They do this by defining individual and social norms. This intervention is, probably, more important in European countries, where there is an old public intervention tradition, than in the USA, more important in Civil Law countries than in Common Law countries, more important in some law areas (medical responsibility, intellectual property, anti-competitive practices) than in others.

The first point refers to the judicial intervention, not only in its role as a communicator of laws but also in its role as a provider of justice. The second point introduces the controversy between the two main views of judicial intervention to define effects and contents of PR system. The narrow preference is explained in point 3 and the large in point 4.

To say what is Just

The judge produces lawful sentences but “just” sentences, defining not only what is legal but also what is just. The judge is not a legal scholar, but rather a creative producer; for the “just” sentence has not, always, already been written in the law. Sometimes, he produces a decision whereas many other ones are possible. This is obvious in criminal law. The Law envisages a range of sanctions. The Judge and/or the Jury decide among these possibilities, according to conditions, adjust penance to fault. Sometimes, this is also true in civil law. It is true for compensating sentences. The problem of oil-tankers disasters is an example. There is no standard for sanctions; no objective and indisputable amount for damages which will exactly compensates the injured parties. The judge must make an evaluation, using different valuation systems, and different judges or Courts may fix different amounts. No one can use indisputable norms or conventions. That rises, firstly, from the lack of explicit markets for such damages and, secondly, from the absence of a clear pre-existing delimitation of who is entitled to be considered as a victim. For what amount will the disutility of oil wastes on the Ocean be compensated? And will that take into account contaminated birds? History shows that the logic of these decisions may alter ; and not only according to changes in market prices.

The judge evaluates the rights and the claims; arbitrates between conflicting claims and opposed PR; delineates the perimeter of each PR, exactly what actions are authorised by the PR and to what limit; balances damages and compensations. Justice embraces the symbol of the glaive (to impose law) the symbol of the balance (to determine what is Just). By doing this, it intervenes much more directly in social working than by enforcing and interpreting PR. The legal institution holds then the legal monopoly, being the last authority for determining the concrete PR consequences, in respect to the existing law system.

In so doing, the judge introduces a new process of allocation and valuation, before and alongside the market process. To say the Just, according to the PR system, implies two judicial functions:

- The judge defines the precise powers, rights and obligations given to the parties by their PR, in situations where there are opposite claims regarding these means. He says who has the right to do what with what things in what circumstances. Does the tenant have the right to require the owner to maintain the building in which the flat exists, in

which cases, up to what limits? The judge introduces a judicial concrete entitlement that is a judicial allocation of precise rights.

- The judge replaces the individuals, the inter-individual exchange or the market process ; to evaluate and compare rights and duties, to determine implicit prices (how much is an aggression “worth”, for the victim – compensation - and for the culprit - sorrow -, how much is a damage “worth”, that is what are their implicit “prices”). The judge introduces a process of legal valuation into a world governed by market processes of valuation.

The judge intervenes in the inter-individual relations but does not exercise arbitrary power. Firstly because he or she acts inside the legal PR framework, under legal and constitutional principles. Secondly, because regulatory mechanisms, like the possibility of appeal to higher courts, the hierarchical organisation of judicial systems, have emerged to avoid arbitrary decisions. Nevertheless, how to justify the use of judicial PR allocation and valuation processes remains a question.

“Miller et al. v. Schoene” and Buchanan v. Samuels

“Miller et al. v. Schoene is a case which involves red cedar and apple trees and their respective owners; and cedar rust, a plant disease whose first phase is spent while the fungus resides upon its host, the chiefly ornamental red cedar tree, which is not harmed by the cedar rust. The fungus does have a severely adverse effect upon the apple tree during a second phase, attacking its leaves and fruit. The legislature of the state of Virginia in 1914 passed a statute which empowered the state entomologist to investigate and, if necessary, condemn and destroy without compensation certain red cedar trees within a two-mile radius of an apple orchard. Miller et al., plaintiffs in error in the instant case, unsuccessfully brought suit in state courts, and sued to reverse the decision of the Supreme Court of Appeals in Virginia. The arguments for the plaintiffs in error were basically simple and direct, as well as of profound heuristic value. Their main contention was that the legislature was, unconstitutionally in their view, attempting to take or destroy their property to the advantage of the apple orchard owners.” (Samuels, p.436-37 ; quoted by Buchanan in Pejovitch [2001], p.363).

The Samuels’ s opinion

According to him, the court “had to make a judgment as to which owner would be visited with injury and which protected” (Samuels, p.438-39; quoted by Buchanan in Pejovitch [2001], p.363), so it has to choose between two conflicting claimants, to necessarily choose between PR, a priori legitimate. For that choice the market and exchange system must be substituted by the judicial system.

The Buchanan’s reply

Buchanan interprets the problem in terms of externalities and proposes a solution based on internalisation by the exchange of these externalities. There is a prevailing PR system and a new interdependence. These PR are well defined. If not, -“the structure of rights may, of course, contain ambiguities and possibly alternative definitions”, the courts have to “lay down the precise limits of allowable actions by the parties in question”, but “the courts are locating the limits that exist in the law ; they are not, and they must not be seen to be, defining new limits or changing the pre-existing ones” (Buchanan, in Pejovitch [2001], p.365).

Once the PR have been well defined, mutual agreement may internalise the externality as in the standard Coasian framework. It is only in the presence of “certain narrowly defined conditions” (for instance some free-rider obstruction) that transaction costs might give an efficiency basis for resorting to collective or state action. But, Buchanan adds, “there is no role for judiciary” (id., p.370), only for the legislative process: “The judicial role should have been limited strictly to a determination as to the constitutionality of legislative action, and this should not have included any attempt at making a judgment as to the economic efficiency or inefficiency or to the equity or inequity of the legislative choice actually made” (id., p.373).

A narrow judicial intervention as a complement of market process

Transaction costs may imply judicial intervention to define PR

As seen before, in some situations, judicial intervention is necessary to make rights clear. The imprecision of PR is related to transaction costs. To define PR is an essential precondition for the market running but it is costly; there are “primary entitlements costs” (Papandreou [1997]). In a world without uncertainty, the individuals, under a veil of ignorance, could ex ante envisage all the possible bundles of PR and the concrete situations in which to apply them and negotiate the implementations. But, with uncertainty, these costs could be enormous to obtain a perfectly PR system and contracts are incomplete. Thus, when these PR are imprecise, but when they get a higher value, other transaction costs will be incurred to define their exact limits. Then, as Buchanan and Posner said, the judge can be an efficient way to precise the PR.

This reason may explain a growing intervention of judicial systems. As Lancaster showed, goods are bundles of characteristics. If we conceive PR in the same way, not as a single thing, but as a bundle of different (and, for a part, unpredictable) rights on different uses of the resource, which is the object of the PR, the definition of PR is a more complex operation.

For Hayek judicial intervention is inevitable in an uncertain world (nobody could imagine oil extraction when defining PR on land in the 18th century), but this intervention has to be limited by its inscription in the tradition.

To limit the judicial intervention on PR definition and to favour previously existing PR

For Buchanan, the judiciary must not “inject its own standards of value measurement in determining the constitutionality of the legislation” (id., p.374). Judiciary’s activism has to be rejected to the advantage of the respect of previously existing rights: “There is an explicit prejudice in favour of previously existing rights, not because this structure possesses some intrinsic ethical attributes, and not because change itself is undesirable, but for the much more elementary reason that only such a prejudice offers incentives for the emergence of voluntarily negotiated settlements among the parties themselves” (id., p. 375). So, he adds:” The object of never-ending research by loosely coordinated judges acting independently is to find the law, to locate and redefine the structure of individual right, not ab initio, but in existing social-institutional arrangements”⁶. Hayek, as we saw, has a similar position.

The Coasian analysis views a new conflict between claimants as a conflict about the use of a scarce resource related to a new externality (often linked to technical progress which gives more value to unexploited resources). With low transaction costs, a precise entitlement allows an exchange allocation of PR on the resource. The free exchange internalises the externality and the efficient outcome is found. Once the PR entitlement

has been well defined, the judicial system must be withdrawn in favour of the exchange or of the market. The judge has to give a ruling on entitlement in these cases only when transaction costs are high.

To limit the judicial valuation

The intrusion of the judge in interindividual relations must be limited in two ways: by giving all that is possible to the market and the exchange valuations (instead of setting standards of pollution one will create a market of pollution rights) ; by basing the judicial evaluation on the logic of free transactions which express individual preferences.

A large judicial intervention as an alternative to the market process

Perfect Property Rights (PPR) System and Imperfect Property Rights (IPR) System

A PR is a relation between persons about scarce resources. It defines the monopoly perimeter of the resource's uses that the holder of the PR can have, and, conversely, all the uses prohibited for other people (I can smoke my cigarettes, and my neighbour cannot steal them or cannot prevent me from smoking in my house). A perfectly defined PR would be a clear definition of all the uses that the holder is empowered to make in every state of nature. Formally, a PR system is a complex of relations between three sets:

- a set of title holders $\{H_i\}$, $i = 1, \dots, n$
- a set of resources $\{R_j\}$, $j = 1, \dots, m$
- a set of actions that is particular uses of each resource $\{A_{jk}\}$, $j = 1, \dots, m$; $k = 1, \dots, z$. For instance, the uses of my car are going to work, going on holidays, carrying luggage, to be lent to a friend, and so on.

A perfectly defined PR system implies that each action concerning each resource is entitled to the right of someone without discussion and with all the consequences of these actions in any state of nature. It implies an injective application: $H_i \rightarrow A_{jk}$, $\forall i, j, k$. Nevertheless, the existing PR systems are sets defined by an injective application $H_i \rightarrow R_j$, but not including a complete definition of the relations $R_j * A_{jk}$. No system of PR can be a perfect one, not because of imperfect human nature or some kind of natural imperfection but for economic reasons. The sets A_{jk} , sets of all the possible uses of goods in any situation, are unknown. A perfect PR system can only exist in a world without uncertainty, in a world with complete contracts, that is in a world without transaction or coordination costs. And a world without transaction costs is a world without free market; as Keynes said, a world without uncertainty signifies a cooperative economy and not a monetary and market economy. A PPR system also signifies a world without rivalry costs: everyone has precise and undisputed powers on the resources.

In the real world, PR are not relations between the property rights holders and the actions but between the holders and things, goods, resources. In many cases, the relation $R_j * A_{jk}$ is not problematic and the application $H_i \rightarrow R_j$ is enough to define the application $H_i \rightarrow A_{jk}$ (there is no discussion whether I can lend my car to my sister instead of lending it to my brother, except if I know that she does not have a driving licence). This transfer from the entitlement to goods to the entitlement to actions is given by law and/or conventions⁷, customs, ... The legal principles of ownership, for instance, defines many authorized uses of the owned good, but not all of them. In some cases, there are changes in the set A_{jk} or in the effects of its elements and $H_i \rightarrow R_j$ is not enough anymore. The role of the law is to consider these changes and we might think that law would solve any economic change implying problems of PR definition. It is not true because the law is,

mainly, a general and abstract rule and not a peculiar and concrete one. Transaction costs would make this operation extremely costly and, economically, impossible. From this point of view, the two degrees system of PR definition –the legal degree, which is more general and the more specific judicial degree, - is probably an efficient one.

To define entitlements and capacities for concrete actions

A Judicial system has to say: “according to your PR you are entitled to execute this action” or “although hold PR you are not entitled to execute it”. In many cases, A_{jk} has effects on several agents and can be related to different resources (R_j) or different holders (H_i). I am entitled to use my car in the street but if, the same day, the New York marathon needs the way, there is a conflict. A same support, R_j , the street, is able to support opposite actions, A_{jk} , marathon and car traffic. The action A_{jk} to smoke and so to pollute the air is related to different potential holders of PR on clean air, H_i , H_j ,.... A PR is generally a relative power, power for one agent and constraint for another one. It is very difficult to organise a system of PR, that’s to say to combine everyone’s rights⁸, to establish where the right of somebody finishes and where somebody else’s right begins: obviously, it is prohibited to make noise during the night in order to respect rights to sleep ; but what is the standard definition of « noise » ? Is it 60 decibels or 80 or... Is it the same in Las Vegas and in a Maine village? In summer and in winter, on Saturday and on other days? and so on. To recognise children’s rights is a recent movement, but how does one combine children’s and parents’ rights? Combining a priori the legal actions, A_{jk} , of everyone, is unimaginable, because of the transaction costs or because we are in a radical uncertainty world.

The judge determines the boundaries for the sets of legal actions linked to PR defined on R_j , he defines the relation $R_j * A_{jk}$. For that judgment, equity criteria must be introduced, because the judge, in most countries –may be in all- has to dispense justice, to say the Just, so to use efficiency criteria and equity criteria.

Judicial intervention to precise relative entitlements is appealed by the opposing claims of some potential holder. Somebody claims to be authorized to do something and somebody else claims the contrary. And there is no evidence in the law, no clear method of resolving this sort of conflict in the law. So, neither the law, nor the market can resolve the conflict ; judicial intervention is necessary and inescapable. As seen in the case of Miller et al. v. Schoene, the judge must necessarily choose between PR, a priori legitimate: “decide which party would have what capacity to coerce another” (Samuels, [1971], p.439). As opposed to the Buchanan’s argument, the prevailing PR system is not that precise. Are the landowners really entitled to plant dangerous trees, a capacity that had not been envisaged by the lawmakers?

Consider another interesting and more recent case. In France, the Court of Marseille, authorized in March 2001, two hundred squatters to remain for a year, because they had suffered from "collective deficiencies as regards to social housing", even if the occupation of a building "without right nor title" violates the right of the ownership and constitutes "an obviously illicit disorder"⁹. Is that a violation of individual preferences? It does not seem so because it pronounces a decision in a “legal vacuum”: no legal text nor jurisprudence gives the answer to the question, how to combine different and opposite claims, different and opposite PR, in this situation.

From an institutionalist point of view, this function of the judge must be accepted. Judicial decision is the last means of cutting the conflict between PR holders and those who dispute their rights. The conflict between the parties can only be untied with the

intervention of a third party, the judge, the official and legitimated producer of just decisions. He is the only one to be entitled by the law to that function. Justice is the institution which makes PR active. Instead of leaving them in a formal state it organizes a system of relative concrete PR, a configuration of relative capacities to act, that is to say a system of mutual coercion, which is similar (but preliminary) to the other system of mutual coercion, the market.

To combine different PR and different logics

Judge does not apply a standard book mechanically but must say how to apply a system of PR in a global legal framework and a specific context. And he must envisage all the effects in terms of efficiency and of equity. And, moreover, the changes in the context can modify the consequences of the existing PR as far as efficiency and equity is concerned (and frequently to modify them in two opposite ways). So, the judge has to say:

- How to combine the precise application of different PR, possibly partially contradictory; how to arbitrate between PR and in which proportion to make such or such PR prevail; how to weigh the rights in the two sides of the scales of justice ; into what new complex of concrete rights to translate the system of theoretical PR.
- How to apply these PR together, considering the concrete and characteristics of the situation, of the individuals' personalities, of the context of the case.
- How to apply these PR together, considering different criteria, some related to efficiency and some related to equity.

The efficiency criterion is not sufficient

The institutionalist approach says that efficiency criterion is not a sufficient one for two reasons. The first reason is that any PR entitlement modifies the relative rights, the relative capacities, and the relative wealth and thus has an economic effect, modifying prices, production, and incomes. So, to each PR configuration corresponds a specific efficiency solution and efficiency cannot be used any more, as a criterion, independently of any judgement on the distribution. The second reason is that judicial shouldn't align itself on working of the market. Market values, standards and norms, cannot be used as a normative reference. To accept the existing prices, to be a " price-taker ", is to be a " rights-taker ", to accept the prevailing PR configuration, whose equity is not proved. And whose equity is, precisely, an element in the judicial process.

To precise the relation between entitlements and solutions with distribution effects, we can use a parabola, I called it the Titanic model. The boat shipwreck creates a strong scarcity of lifeboats, which were in an insufficient number for the number of passengers and the crew. So we are in a typical situation of a lack of property rights, moreover of a lack of PR system, on a resource becoming tragically scarce. We have to define entitlements. The efficiency criterion is inoperative: whatever the PR allocation is, no more lifeboats are to be constructed. A savage conception of efficiency –to give the seats to people with the highest earnings- is disputable, on ethical grounds. A naïve conception of efficiency –to give the seats to people with the highest individual preferences for life- is a nonsense. Clearly entitlement is a problem of equity, and many solutions can be envisaged (and different conventions can exist): women and children first, drawing, according to age, to gender, to hair colour, to political preferences, to

nationality, to physical strength and so on. This is an illustration of the “arbitrariness of the rights”: as in the critical philosophy and sociology of Bourdieu and Foucault, every right is related, through free exchanges or power relations, to primary entitlements ; these entitlements are not the legal translation of some pre-existing fairness, efficiency or equity, but a part of a specific system of PR among many potential systems. Obviously, in most situations, efficiency has to play a role but together with equity criterion. In the coasian framework, when there are no (or little) transaction costs, entitlement is neutral for efficiency, so the judge may favour equity criterion (in the standard example of air pollution, he entitles a right to clean air, that is he decides who pays for the anti-pollution filter). When there are transaction costs and when the law does not establish any order of precedence, the question is how to combine different types of criteria that lead to different outcomes. In these cases, the judge has to weigh the two types of criteria on a pair of scales, according to the specificities of the case.

The market as an equity producer is disputed.

Judicial intervention is all the more necessary in so far as the market as an equity producer is disputed. Formal equality on the market can be accompanied by “real” inequalities related to the preliminary distribution of rights¹⁰. Then, if the judge bases the entitlement of concrete rights only on market prices and rights, he may reason in a circle: market data itself results from the system of pre-established rights¹¹, which are disputable or even disputed. The market cannot constitute the fixed point since it supposes itself another fixed point, the legal one. This is why some authors insist on the necessary transparency of the judicial decision when equity considerations have to be introduced.

The growing role of the judiciary

The growing role of the judicial system is correlated to more complex PR and more uses and more complex uses of economic resources, with less free goods or resources. It is related to a more sophisticated economic regulation.

A second reason for this increasing role is the increase in the number of opportunistic strategies used as competition becomes tighter. Globalisation implies more competition in a mixed world, with different cultures, conventions, behavioural norms, without universal and unified law¹².

A third reason is that judicial decision must join different logics. Justice has a particular function that makes it the main place of connection between the various areas of society, its various dimensions, its different norms and value systems: economics, politics, social, cultural, ethics, ... At the same time, it is related to the refusal of an absolute constructivism that would elaborate a perfect property right system, with no inconsistencies, no vacuum, no contradictions. Rights are, in some proportion, necessarily incoherent. Frequently they have different sources, origins, they are linked to different legal principles. And, moreover, they concern different systems of values and not only economic values or values expressed by the market.

The judicial intervention in PR application does not deny the power of law makers. Firstly, it is an application into the legal framework. Secondly, after the judicial intervention, the legislative power is not defeated. It can change the law or specify the effects of the law. A good and recent example comes from France. The supreme court, the “Cour de Cassation”, decided, based on the existing legal system, to admit a compensation for handicapped people born after a medical error (the parents were not informed that they probably would have had handicapped children). After great public

disputes, Parliament decided to change the law and to explicitly prohibit such compensations¹³. Conversely, the State power and the legislative power have to be controlled, according to constitutional principles.

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¹ The symmetrical structure of the game is not a restrictive hypothesis. The payoffs are utility indices and may be arbitrarily chosen as being equal in the same outcomes for each player. The important point is that, for everyone, $\gamma > \alpha > \delta > \beta$.

² Optimal co-operative equilibrium is possible, but the possible outcomes are infinite. Any system of identical strategies (to cooperate n times, not to cooperate m times, to cooperate n times...) constitutes a system of best responses and is a solution, according to the folk theorem, with the two extreme systems $n = 0$ (no-cooperation indefinitely repeated with 3,3) and $m = 0$ (co-operation indefinitely repeated with 5,5).

³ $dq_{NR} / dt = q_{NR} \cdot [G(nr, S) - G(S, S)] = 3 q_{NR} (1 - q_{NR})$, with q_{NR} the proportion of players using the pure strategy NR, S being every strategy in kind $[pS1, (1-p)S2]$, $0 \leq p \leq 1$.

⁴ The idea of autonomy of law political logic is sustained in the USA by the "Modern Civic Republican Tradition School" ; cf. Mercuro and Medema [1997], p.97.

⁵ Posner himself notes "the need for specifying an initial set of individual entitlements or rights as a necessary prerequisite for operationalizing wealth maximization" (Law and Economics: An Introduction. R.A.Posner and F.Parisi, p.XI), and writes that it is difficult to define the absolute and relative importance (according to other components of Justice) of efficiency research in Justice research. He thus admits the Calabresi analysis (1980) according to which justice is not an objective or a criterion on the same level as efficiency or distribution and cannot thus be the object of a trade-off with them. Efficiency and modes of distribution are only elements, "ingredients" of justice, which remains a goal of a different nature. Posner adds that efficiency is congruent with our morals intuitions because founded on assent. Efficiency based on the exchange respects the personal freedom; corresponds to the protesting spirit of the search for an improvement; especially is pragmatic: the market societies are the most democratic (Posner, The

Economics of Justice, 1983, p. 89 quoted by Mercurio and Medema, Economics and the Law, From Posner to Post-Modernism, 1997, Princeton University Press, p. 60.).

⁶ Buchanan, J. (1975), Freedom in Constitutional Contract, College Station: Texas A&M University Press, 46-7, quoted by Pejovitch, Pejovitch 2001, at xxi.

⁷ Am I entitled to smoke in my neighbour's house if he hates smoke ? There is a potential (even unimportant) conflict between my individual freedom to smoke and his individual freedom to breathe in the fresh air. The solution is conventional (to be polite.).

⁸ To enforce ownership and, so, to enforce some right, is, simultaneously, to prohibit an hypothetical right to steal. As every monopoly power a right – except for public goods- is, at the same time, an exclusion. Prohibition is the other face of freedom.

⁹ Le Monde 20/3/2001.

¹⁰ Furthermore, unequal positions on the market can have a cumulative effect as the debates on free exchange and protectionism in the case of young nations' industrialisation showed.

¹¹ "The economy is a system of power, of mutual coercion, of reciprocal capacity to receive income and/or to shift injury - whose pattern or structure and consequences are at least partially a function of law". Samuels, op. cit. p. 440. W.J.Samuels, Interrelations between legal and economic processes, The Journal of Law and Economics, vol. XIV (2) October 1971.

¹² For an example of consequences of opportunistic strategies on PR complexity, see the Prestige tanker shipwreck ; with an incredible tangle and overlapping of PR.

¹³ As the decision of the Court was called « arrêt Perruche », the new law was called « the anti-Perruche law ».