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ECONOMIC ANALYSIS OF LAW - 2° PARZIALE

2° CLMG

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LAW & ECONOMICS

Law and economics is the study of law from an economic perspective, so as to deepen and diversify the knowledge of law. The starting point is to consider law as a **system of incentives**: scholarly talking, law gives incentives to take or not to take a certain conduct, in the light of the hoped avoidance of a *sanction* to be triggered whenever the opposite state of affairs takes place. The sanction can be **positive** (i.e. people want it to perform because it constitutes a benefit or award, such as a new right, a sum of money or a form of tax exemption) or **negative** (i.e. people want to avoid it because it constitutes a sort of restriction of personal liberty or a punishment).

The assumption of law and economics is that law's addressees, as economic agents, respond to incentives **rationally**, in the sense that citizens understand the contents of law and then deliberate on the conduct to perform; after all, if otherwise people behaved in a completely random way, without a rational ground, law would be utterly useless. Therefore, law tries to guide our conducts by means of incentives, as when we are about to act, consciously or not, we always take them into consideration for our behavioral decision.

Therefore, the economic approach to law assumes that rational individuals view the threat of legal sanctions as implicit prices for certain kinds of behavior, and that these prices can be set to guide behavior in a socially desirable direction. Relating to this, Oliver Wendell Holmes set forth the so-called **prediction theory of law**, whose key figure is the *bad man*, called this way not because he breaks the law, but rather he is a rational calculator who seeks to stretch the limits of law and will break it without remorse if the perceived gain exceeds the cost. Thus, a bad man has a strong interest in knowing what the law is and what the consequences of breaking it are: Holmes himself prophesied that "*if you want to know the law and nothing else, you must look at it as a bad man, who cares only for the material consequences which such knowledge enables him to predict*". Nevertheless, the economic model of law does not focus on the bad man because economists think people are basically amoral.

Law and economics carries on two types of analysis:

- positive analysis = analysis of law as it is, thus investigating on how people respond to legal incentives and, in particular, to the threat of legal sanctions, but without prophesying how things should be changed. This analysis involves the possibility to make predictions about the future (ex. future crimes) and, if they are followed by a factual corroboration, then it means that law works well.

The ambition of this analysis rests on the claim that law incorporates an economic logic, so it appears to be already **efficient per se**, namely efficiency is a social goal that is **actually reflected in the law**. This pretentious assumption, thus stating that legal rules tend to reflect the economic reasoning, was advocated by Richard Posner when describing Common Law: according to him, common law *stricto sensu* is the outcome of an evolutionary process throughout which the inefficient rules were progressively abandoned, leaving all the space to the efficient ones, scilicet the only rules that were maintained and that managed to survive over time. Conversely, when making a point on statutory law, Posner criticized it to be piecemeal, characterized by different *desiderata*, created by means of lobby activities.

- normative analysis = it consists in giving suggestions on potential changes in law, so as to make it more efficient. It thus dictates how law can be improved to better achieve the goal of efficiency. Therefore, efficiency is a social value that **should be reflected in the law** though a promotion made by the latter, and although from this perspective law could seem only *instrumental* to the goal of efficiency, there is actually no room for any critiques of the kind: law is indeed broad-spectrum and can fulfill the most various functions.

Nevertheless, this perspective can lead to an **imperialistic and monistic conception of law**, as the latter, reportedly, should fix efficiency as the prime and only goal to achieve. Conversely, it is undeniable that each legal system needs to schedule the pursuit of other values as well (fairness, equality, freedom, etc.). The variety of *desiderata* that is at stake within a legal system must be pursued in its integrity, otherwise the rationale of law is distorted. The **pluralistic view** of law thus opposes the monistic one, and even though in the former conflicts between different values could arise, they will be settled through balancing procedures.



EFFICIENCY

There is no univocal meaning assigned to the term “efficiency”, being rather able to mention at least three of them, with correlative theories.

► Productive efficiency

it applies to productive *processes*, thus involving *input* (ex. materials) and *output* (ex. goods). In this sense, a productive process is optimally efficient if and only if at least one of the following conditions is met:

- a. it is impossible to produce the same amount of output using a lower-cost combination of inputs, i.e. **the same quantity at lower cost**;
- b. it is impossible to produce more output using the same combination of inputs, i.e. **more quantity at the same cost**.

The question now arising is how to apply this theory to law, considering that it is not automatic to identify *inputs*, *outputs* and *quantities* of law (**one example could be sanctions as input and human behaviors as outputs**). Nevertheless, we can list three possible, though disputable, applications of productive efficiency to law:

- I) **legislation** = a legislative body is *inefficient* if it could produce the same amount of output (laws) at lower cost, or more output at the same cost. However, it could be criticized that quality of legislative production is much more important than its quantity;
- II) **administration of justice** = a court is *inefficient* if it could produce the same amount of output (decisions) at lower cost, or more output at the same cost. However, it could be criticized that, whereas in the field of bureaucracy efficiency — in terms of acts produced within a certain interval of time — plays a key role, the same could not be said with regard to courts: as far as the latter are concerned, indeed, we had better prioritize the arguments claimed and the structure of decisions, rather than the quantity of decided cases. In fact, even though judicial system is usually deemed as *inefficient* because of the long-lasting proceedings, it would be a mistake to sacrifice quality just to accelerate the decisional process;
- III) **costs and benefits of substantive rules** = a rule is *inefficient* if it achieves a goal at a cost which is greater than the cost of a possible alternative rule.

► Pareto efficiency

advocated by Vilfredo Pareto, a famous economist being fond of politics and sociology, it basically concerns the *satisfaction of individual preferences* without making a judgement about the potentially best and worst ones among all others; indeed, in this theory any trace of normative pretension to change people’s mind can be found. Pareto starts reasoning from the fact that each individual allocates his preferences in a hierarchical structure, thus creating an **ordinal ranking of state of affairs**.

Yet, it is not possible to measure the degree of **utility** that people get from the satisfaction of their **ordinal preferences**, since it can’t be expressed in quantitative terms and we will explain why. Imagine that, for each satisfied preference, an individual gets a determined amount of utility going from a minimum of $(-\infty)$ to a maximum of $(+\infty)$: for instance, if I gift individual A with an apple, he gets a utility of 10, instead if I gift individual B with an apple, he gets a utility of 15 because he prefers apples, over the other types of fruit, more than A does; but, if I gift individual C with an apple, he gets a disutility of -5, because he hates apples. Therefore, when assigning numbers to quantify certain amounts of utility, we mould a threshold scheme composed of two segments: the one of **cardinal utility**, going from 0 to $(+\infty)$, and the one of **cardinal disutility**, going from $(-\infty)$ to 0.

At this point, the problem rests on the fact that no tool to calculate these numbers really exists: all we are allowed to know is that people have various preferences of various intensity, and that if people are **rational**, they dispose them into an ordinal ranking, which is changeable in time and according to the considered individual.

This topic was tackled by **utilitarianism** as well, namely the philosophical theory dealing with what is morally appropriate and what is economically appropriate. In both cases, the objective is the *optimization of social* (not individual) *utility*, in the sense that the collective arrangement has to maximize the universal utility through moral conducts and economic allocation of resources. The main fathers of this theory were Cesare Beccaria (who promoted the maximization of *happiness*),



Jeremy Bentham (who promoted the maximization of *utility*, that just in isolated cases coincides with happiness) and John Stuart Mill.

At this point, given a certain framework, how to assess efficiency according to Pareto? We should distinguish between:

- Pareto Superiority → an allocation of resources (i.e. distribution of goods and services between parties) is Pareto efficient when **it makes someone better off and no one worse off**, according to their preferences. Technically speaking, a state of affairs S_2 is Pareto-superior to another state of affairs S_1 if and only if no one is worse off in S_2 compared to S_1 , and at least someone is better off in S_2 compared to S_1 ;
- Pareto Optimality → an allocation of resources is Pareto efficient when **it is impossible to make someone better off and no one worse off**, according to their preferences. Technically speaking, a state of affairs S_0 is Pareto-optimal if and only if there is no such state S_n such that S_n is Pareto-superior to S_0 .

This theorem can be applied, in the legal field, when dealing with *social reforms*: in this sense, a social reform will be possible only if no one prefers the current situation rather than the potentially reformed one, or if only one prefers the potentially reformed situation rather than the current one. The bad consequence, however, is an inducement to **conservatism**, since visibly Pareto-criterion, in order to be applied, requires an **unanimity of consensus** that is almost impossible to occur in a domain of law where opposition of a kind is practically omnipresent (**in fact, even if considering a social reform that extends the right to vote to new categories of people, the latter would be better off but preexistent and privileged voters could feel worse off because of their loss of power and influence**). As a matter of fact, the promotion of a social reform could be vanished by the sufficient objection of just one individual, accordingly turning the current state of affairs into the Pareto-optimal one, as there is no alternative state of affair that is Pareto-superior to the actual one. And patently this is bizarre: if everyone wants to revolutionize a certain state of affairs but they cannot find a compromise on how to carry out this modification, then no reform will take place.

The only legal case in which Pareto-criterion could apply with not much difficulty is in contractual relationship, whose performance gives rise to an efficient state of affairs that is not challenged by any other Pareto-superior states of affairs; in fact, **contracts provide for Pareto-optimality**, thus for Pareto-efficiency.

► KALDOR-HICKS EFFICIENCY

it applies in a context where allocation of resources produces winners, who gain benefits, and losers, who pay costs. Thus, the application of this criterion involves a cost-benefit evaluation and comparison. The Kaldor-Hicks test dictates that an allocation of resources S_2 is efficient compared to allocation S_1 if those who benefit from S_2 can **compensate** those who incur costs and can still **have a net benefit**. Therefore, if benefits are superior to costs, namely when winners gain more than what losers lose, efficiency is achieved. This test is used to assess changes in **social welfare**: in fact, in cost-benefit analysis, a project is undertaken when its benefits exceed its costs, which implies that the gainers could compensate the losers; cost-benefit analysis tries to take into account both the private and social costs and benefits of the action being contemplated; there are both theoretical and empirical problems with this standard, but it is indispensable to applied welfare economics.

Ex. more-restricted gun laws (S_2) is an allocation of resources that benefits to gun victims (winners) and creates costs for gun owners (losers), which would prefer the previous state of affairs (S_1) of less-restricted gun laws, but if gun victims can compensate the loss suffered from gun owners and still have a net benefit, than K-H efficiency is met.

Another example [A_n = economic agents; T = total wealth]:

	A_1	A_2	T
S_1	50	50	100
S_2	70	40	110



Moving from S_1 to S_2 , A_1 gets a benefit of 20 and A_2 gets a cost of 10. Since A_1 could **potentially** compensate A_2 with 10 and still have a net benefit (he will stay with 60), K-H efficiency is met. Now we should focus on the concept of **potential compensation**: if compensation was *actual*, then A_2 will come back to 50 also in S_2 , consequently it would be **indifferent** for him to an allocation of resources of S_1 or S_2 type; contemporarily, if compensation was *actual*, A_1 would prefer S_2 . Therefore, in a situation of actual compensation in which neither A_1 nor A_2 is worse off, than S_2 is **Pareto-superior** to and Pareto efficiency is met: that is why the K-H test is also known as **test of potential Pareto-superiority**.

For all things considered, to have K-H efficiency compensation must remain only *potential*, otherwise we would have Pareto efficiency.

The application of K-H criterion turns problematic when it concerns non-quantitative cases, which demand a hard quantification of the costs and the benefits occurred.

Differences between Pareto and K-H criteria can be pointed out. First and foremost, in the former the compensation is actual, while in the latter it is only potential. Secondly, the latter requires the utilization of cardinal values of utility and disutility, that in Pareto test are basically impossible to get. Thirdly, we cannot claim that, in K-H test, changes are as *consensual* as they are in Pareto-efficiency, since there are actual losers, and this reflects an important trade-off: on the one hand, consent guarantees mutual gains, which is the basis for the efficiency of competitive markets, and is satisfied under Pareto efficiency; on the other hand, when markets fail as the result of some sort of externality such as pollution, not all gains from trade will be exploited. An important economic justification for government intervention in markets is therefore to correct market failures, yet such state interference will nearly always create winners and losers. However, the hope is that those who lose from one policy will benefit from others and that on net, everyone will gain as aggregate wealth is increased. In this way, one can argue that *implied consent* for the use of K-H criterion replaces *actual consent* under Pareto.

Moreover, as already disclosed, Pareto criterion is criticized as supposedly being **biased by the status quo**: in this sense, considering that the change in state of affairs could make someone worse off, then no reform will be held and the actual allocation of resources will be maintained, consequently becoming the *optimal* one (since there would be no other state of affairs that is Pareto-superior to the current one).

Another point about K-H test is the **distribution of wealth**, that constitutes also its Achilles' heel according to constructionists.

Example:

	A_1	A_2	T
S_1	50	50	100
S_2	70	40	110
S_3	150	0	150

The move to S_3 is K-H efficient because A_1 could potentially compensate A_2 with 50 and still have a net benefit (of 50). Yet, even if in the total wealth has relevantly increased (150), in the same state of affairs does not own anything. In fact, the distribution of wealth is not so important for economists as it is instead for jurists: the former care more about the **total welfare**. By making compensation actual, instead, the distribution of wealth would be much more fair and S_3 will become the Pareto-optimal allocation of resources.

On distribution of wealth, **Guido Calabresi**, the father of contemporary approach of law and economics, made his voice heard. According to him, Pareto-efficiency is pointless, whereas K-H test is *legally acceptable* as long as K-H efficiency is juxtaposed to distributional concerns. From Calabresi's point of view, in fact, an allocation should have not only efficiency, but also **acceptable distributional consequences**.



Example:

	A_1	A_2	T
S_1	90	70	160
S_2	90	90	180

The move to S_2 is Pareto-optimal, because — concerning just these numbers, and not other subsequent state of affairs potentially concerning numbers superior to 90 — there is no state of affairs that is Pareto-superior to S_2 .

Example:

	A_1	A_2	T
S_1	90	70	160
S_2	80	90	170

The move to is K-H efficient, because A_2 can compensate A_1 of 10 and still have a net benefit (10).



COASE THEOREM

The starting point of Coase's theorem is the concept of **externality**, that impacts *negatively* or *positively* on third parties yet the author does not pay any cost (*negative externality* **ex. pollution, smoke**) nor receive any price (*positive externality* **ex. your neighbors listen to you playing the piano from your own house**) for these effects.

Prior to Coase, the prevailing view among economists was that externalities could be internalized only by means of government intervention; for instance, Pigou proposed the imposition of **taxation** on the producers of negative externalities in order to compensate the related victims: indeed, according to him, if such taxes are appropriate, Kaldor-Hicks efficiency is accomplished.

Pigou's approach, after being the prevailing one up until 1960, was outclassed by Coase's approach, formulated for the first time by Ronald Coase in his book *The Problem of Social Costs*.

According to Coase, the problem of negative externalities has a **reciprocal nature**: just to think that industrial pollution is a problem for the neighborhood but the neighborhood is a problem for the industry as economic agent. We thus have to calculate the **social cost**, as the difference between the value of two economic activities when they do not interfere with one another and when they do.

Example: *Sturges (Doctor) v. Bridgman (Confectioner) case (1879)*

Defendant is the occupier, for the purpose of his business as a confectioner, of a house in Wigmore Street. In the rear of the house is a kitchen, and in that kitchen there are now, and have been for over twenty years, two large mortars in which the meat and other materials of the confectionery are pounded. The Plaintiff, who is a physician, is the occupier of a house in Wimpole Street, which until recently had a garden at the rear, the wall of which garden was a party-wall between the Plaintiff's and the Defendant's premises, and formed the back wall of the Defendant's kitchen. The Plaintiff has, however, recently built upon the site of the garden a consulting-room, one of the side walls of which is the wall just described. It has been proved that in the case of the mortars, before and at the time of action brought, a noise [**negative externality**] was caused which seriously inconvenienced the Plaintiff in the use of his consulting-room, and which, unless the Defendant had acquired a right to impose the inconvenience, would constitute an actionable nuisance. The Defendant contends that he had acquired the right, either at Common Law or under the Prescription Act, by uninterrupted user for more than twenty years. The plaintiff asked for injunction against the defendant.

Law: nuisance law, technically *doctrine of coming to the nuisance* (art. 844 c.c.);

Facts: the plaintiff built a consulting room whose use is inconvenienced by the noise of two mortars of the defendant;

Legal problem: is there a right for the plaintiff to be free from noise, or a right of the defendant to go on with his business? So as to decide how to solve the case, on the one hand we should consider the **threshold of acceptability of noise**, that in this case was evidently overcome; on the other hand, we may consider the existence or not of a **causal nexus** between the activity of the defendant and the damage suffered from by the plaintiff. Yet, setting aside mere legal solutions and opting for economic ones, we should firstly recognize the reciprocity of the problem and subsequently calculate the social cost.

	D	C	T	SC
S ₀	100	100	200	0
S ₁	80	100	180	20
S ₂	100	50	150	50
S ₃	100	80	180	20

[S₀ = no interference; S₁ = actual world; S₂ = rule for the doctor (D); S₃ = compensation to D; SC = social cost]



- in S_1 the doctor earns less (i.e. incurs in a cost) since he had to suspend his consulting activity owing to the noise of the mortars, instead the confectioner, working as usual, earns the same. The social cost (20) is equal to the cost suffered by the doctor;
- in S_2 the rule provided by the court was the stop of only one mortar. Thereby, doctor's problem is solved (coming back up to 100) but confectioner incurs in a huge cost (50) insofar as the social cost is in this case. The consequence is that $SC(S_2) > SC(S_1)$, illustrating how a bad economic decision was to balance the two economic activities.
- in S_3 parties bargained without accruing a cause of action before a court: moving from S_1 , they negotiate on a compensation that pleases both of them, concluding that C will give 20 to D, who will come back up to 100, and C will keep 80, that is less than his benefits in S_1 but it is undoubtedly better than the situation in S_2 . Consequently, the social cost decreases again down to 20.
- it is worth noting that in and the social cost is the same (**minimization of social cost**), as well as the total wealth, but the distribution of the latter differs from one allocation of resources to another.
- if negative externalities affect more than just two people, naturally bargaining activity will become much more irksome.

What Coase wants to prophesy is that if agents are *economically rational* and there are no *transaction costs*, they will bargain in a way to minimize social costs, regardless of what law establishes. In this sense, when bargaining is possible, the efficient outcome can always be achieved by private agreements between the parties to an externality, regardless of how the law assigns liability. Therefore, with *costless market transactions* (ie zero transaction costs):

- (i) the decision of the courts concerning liability for damage would be without effect on the allocation of resources;
- (ii) an efficient use of resources results from private bargaining, regardless of the legal assignment of property rights;
- (iii) the initial assignment of a property right will not affect the ultimate use of property.

Notwithstanding, the problem rests indeed on those **transaction costs**, ie positive costs that, in a way or another, in an intensity or another, any transaction implies (ex. distance and transport, information asymmetry, biases, waste of time, significant expenses, exc.), and paradoxically it was Coase himself to admit their ubiquity. Therefore, to such an extent it all depends on the entity of these transaction costs: the lower they are, the more convenient the bargain is; viceversa, parties can even renounce to bargain.

Coase theorem works when transaction costs are null, so that parties, if economically rational, will bargain up to the optimal allocation of resources; but law is never *economically irrelevant*, but rather fundamental in most of the situations, even more so when transaction costs are extremely high and it is, hence, the law to establish how resources should be allocated. In fact, the legal corollary of the theorem provides that when transaction costs are high enough to prevent bargaining, the efficient use of resources will depend on how property rights are assigned.

Some ideas about how to allocate resources in presence of transaction costs have been extracted by the theorem (even by Coase himself), so as to **maximize the value of production**:

- A. allocate property rights to the party who values them the most (**subjective value as a proxy for efficiency**) = in our case, the confectioner in S_2 has suffered from a damage that his huger than doctor's one in S_1 , thus the former is amenable to pay up to 50 for having his right, instead the latter just 20. Thus, we should assign the right to the confectioner;
- B. allocate property in a **clear and simple** way so as to reduce transaction costs, as parties would know better and unequivocally which are their rights. The more complex the allocation, the less frequent bargains will take place;
- C. use **standards** instead of inflexible rules = providing for standardized rule will vest judges with more discretion, thus easing them to decide a case in the most efficient way. However, more standard rules translates into more transaction costs, since in case of wrong judicial decisions, it will be harder for the parties to bargain again in the future.

Always referring to the above-mentioned case, **art. 844 c.c. (Immissioni)** recites that: "A fund owner cannot prevent emissions of smoke or heat, fumes, noises, shaking and similar propagations arising from the fund of the neighbor, if they not exceed normal tolerability, also having regard to the



condition of places **[standard for the judge]**. In applying this rule, the judge must reconcile the needs of production with the reasons for ownership. The judge can take into account the priority of a particular use **[standard for the judge]**.”

Despite not in a neat way and devoid of any precise dividing threshold, we can distinguish between:

- **private externality** = it affects just a few individuals, involving relatively contained transaction costs;
- **public externality** = it affects a huge number of people, thereby impacting in a grater way on transaction costs: in fact, the more people are involved, discuss and bargain, the higher the transaction costs; as a consequence, actual compensation becomes unfeasible due to its excessive expensiveness. Therefore, within the context of a public externality it is really unlikely to have a solution from bargaining, as transaction costs are so high that they would annihilate any benefit.

Moreover, when an externality is public, involving a large amount of people in competition with one other, **opportunistic behaviors** find a fertile land.



TORT LAW

Robert Coase, Guido Calabresi and other authors advocated the scholarship of tort law in the US, providing an **economic model of tort law**. According to them, tort law has basically two *social functions*:

1. compensate victims for their injuries, following to accidents of various nature, for which they demand damages to be paid;
2. deter “unreasonably” risky behavior. The idea is that some accidents occur because they have been provoked by an activity that was performed, which is considered to be *risky* per se, but are nonetheless carried out because of their *value*; in the same way, there are intrinsically *risky* products that are by the way used because of their *utility*. Nevertheless, there are behaviors which result in an overcoming of the reasonable threshold of riskiness. To this end, tort rules are viewed, first and foremost, as providing monetary incentives for individuals engaged in risky activities to take all reasonable (cost-justified) steps to minimize overall accident costs.

Through an EAL lens, this second social function of tort law is more important than the one and accordingly it is the one on which it mostly focuses, yet just because **the latter function operates in the shadow of the former**, in the sense that agents acting in an unreasonably risky way have to take into account the possibility to be burdened with the obligation of compensating the damaged party. Following this way of proceeding, EAL attempts to achieve the **goal of establishing optimal deterrence**.

Tort law is a **private remedy** for accidental harms, being the right of accident victims to sue injurers for damages under tort law. Since therefore the enforcement is in the hands on victims, in order to recover damages, they must file a lawsuit against the injurer. In order to prevail in the suit, the plaintiff has the **burden of proving** that the defendant is *legally responsible* and therefore must pay compensation. This requires that the plaintiff establish (1) that he sustained some damages and (2) that the defendant was the cause of those damages.

A **rule of liability** is a rule for dividing the damages between the injurer and the victim. First and foremost, a **rule of no liability** says that the victim should bear all of these costs herself. Then, within tort law, we can outline two main *liability schemes*, to which relative rule of liability correspond:

- **strict liability**, which imposes all the damages on the injurer. It occurs as long as two conditions are met:
 - (1) *compensable harm* (**danno ingiusto**);
 - (2) *causation* between behavior — action or omission — of the defendant and the harm (*causal nexus*), ie the established link between the most probable cause and its resulting effects. Proving causation requires that the plaintiff establish that:
 - i. the defendant’s action was the **cause-in-fact** of the damages. Cause-in-fact is established by using the **but-for test** (“*but for the defendant’s action, the plaintiff would not have sustained any harm*”), and it becomes problematic when a case concerns two or more causes that simultaneously produce an harm that either would have caused acting separately, or when two or more injurers act to produce a harm that would not have occurred if each acted separately.
 - ii. it was also a **proximate cause**, meaning that the connection between the injurer’s action and the harm cannot be *too remote*. The proximate cause is established by using the **reasonable foresight test**.
- **negligence**, which shifts liability from the victim to the injurer, in full or in part, only if the injurer is found to be *at fault* or *negligent*. It occurs as long as the two conditions above are met, plus a third condition, that is to say the *negligence* of the defendant, ie a failure to behave with the level of care that someone of ordinary prudence would have exercised under the same circumstances. A negligence rule is indeed based on the idea that injurers owe potential victims a *legal duty* to take reasonable efforts to prevent accidents. In a sense, we can think of negligence as a combination of *no liability* and *strict liability*, where the two are separated by a *threshold* based on the injurer’s level of precaution.

Palsgraf v. Long Island Railroad Co. (1928)



Plaintiff was standing on a platform of defendant's railroad after buying a ticket to go to Rockaway Beach. A train stopped at the station, bound for another place (**diretto altrove**). Two men ran forward to catch it. One of the men reached the platform of the car without mishap (**senza particolari difficoltà**), though the train was already moving. The other man, carrying a package, jumped aboard the car, but seemed unsteady as if about to fall. A guard on the car, who had held the door open, reached forward to help him in, and another guard on the platform pushed him from behind. In this act, the package was dislodged, and fell upon the rails. It was a package of small size, about fifteen inches long, and was covered by a newspaper. In fact it contained fireworks, but there was nothing in its appearance to give notice of its contents. The fireworks when they fell exploded. The shock of the explosion threw down some scales at the other end of the platform many feet away. The scales struck the plaintiff, causing injuries for which she sues.

Problem: does that justify the application of a liability scheme?

→ As far as strict liability is concerned, there is a *causal process*, but visibly **unforeseeable**. In fact, the causal nexus can be deemed as present in the world but not in a legal sense. Moreover, the causal chain has no actual beginning, since we could potentially make infinitive steps back in order to find the primordial cause of the injury.

The fact is that law considers causation as such only if it is **proximate** (ie it engenders a foreseeable outcome), and not when it is **remote** (ie it engenders an unpredictable outcome — **in the case at hand, no one could imagine the contents of the package**). The proximity of a causation is established through a **but-for test** ("*but for the existence of X, would Y have occurred?*"), inferring a certain fact to be or not to be the **sine qua non condition** of the outcome. The intrinsic problem of this test is that, potentially, several facts could be calibrated to be *sine qua non* conditions, consequently frustrating the aim of the test to extract the singular proximate causation.

For all things considered, the strict liability's condition of causation is therein not satisfied due to excessive unpredictability.

→ As far as negligence is concerned, we can make reference to the so-called **Hand Formula**, prophesied by judge Learned Hand within another judicial case that is immediately mentioned below.



HAND FORMULA

US v. Carroll Towing Co. (1947)

A number of barges (**barconi**) were secured by a single mooring line (**attracco**) to several piers (**piloni**). The defendant's tug was hired to take one of the barges out of the harbor. In order to release the barge, the crew of the defendant's tug (**rimorchiatore**), finding no one aboard in any of the barges, readjusted the mooring lines. The adjustment was not done properly, with the result that one of the barges later broke loose, collided with another ship, and sank with its cargo. The owner of the sunken barge sued the owner of the tug, claiming that the tug owner's employees were negligent in readjusting the mooring lines. The tug owner replied that the barge owner was also negligent because his agent was not on the barge when the tug's crew sought to adjust the mooring lines.

Law: tort law, compensation of harm for negligence.

Facts: loss of barge and cargo, after improper adjustment of mooring lines

Legal problem: was the defendant negligent? of plaintiff too? In this case, we can see that parties blame each other to be negligent, with the only difference that the negligence of the defendant is purported to be occurred in an *action*, whereas the one of the plaintiff in an *omission*.

Economic solution: Hand Formula.

The Hand Formula, also known as *Hand rule*, states that there is negligence insofar as there is **no compliance with standard of care**. The standard of care, codified in some legal systems, is used when **professional standards** (legal provisions, expert suggestions, etc.) are missing, however it is extremely **undetermined**. Conventionally, we can consider it as met when someone avoids unreasonable risks. It is indeed its vagueness to spread critics among jurists about the use of this standard.

Therefore, the economic view of **due standard of care** is that there is negligence when there's no compliance with the latter. It is interpreted by using three variables:

- 1) precaution costs (B) = the burden of costs that someone pay so as to prevent certain facts from happening;
- 2) probability of event (P);
- 3) gravity of resulting loss (L) = it is the expected loss, the magnitude of the loss.

According to Hand, there is negligence if the expected loss, namely the magnitude of the loss (L) multiplied by its probability (P), is greater than the costs of precaution (B). In this sense:

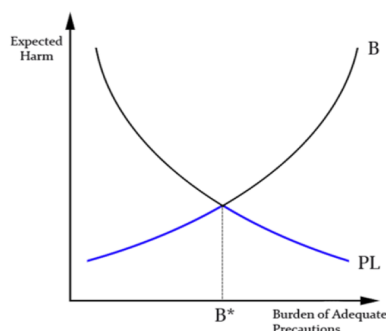
NEGLIGENCE WHEN $B < PL$

Instead the **optimal level of precaution** is attained when the costs of precaution are equal to the product between the magnitude of the loss (L) and its probability (P). Meaning that:

OPTIMAL LEVEL OF PRECAUTION WHEN $B = PL$

Contrariwise, if $B > PL$, it means that negligence is totally excluded because excessive precaution have been taken.

Noticeably, as B increases, PL decreases.



Example:

	B		PL	
S₁	0	<	any positive value	negligent (since nothing was spent for precaution, whatever value of PL shows negligence)
S₂	10	<	100 (0.10 x 1000)	negligent
S₃	20	<	50 (0.05 x 1000)	negligent
S₄	30	=	30 (0.03 x 1000)	optimal level of precaution
S₅	40	>	20 (0.02 x 1000)	too precaution (spending too much money for precaution obviously leads to economic inefficiency . It is an exaggerate risk-aversion, causing excessive and useless expenditures)

n.b. it is quite unrealistic that the gravity of resulting loss (L) does not change, in this example it was made immutable just for simplicity's sake.

The use of this formula can become problematic in certain cases. In fact, whilst L and B are easy to determine — provided that the resulting loss and the costs of precautions are definable by a market value — P involves an unsafe evaluation due to the lack of appropriate information to calculate it. Even if we make use of *statistical information* to assess it, they just help us *guess* the value of P, that diminishes insofar as B increases. Consequently, the probability of accident is just a **subjective guess**.

This formula is also referred to as **total values reading**, since it does not take into account the *marginal values* of the increases in B and PL (**although marginal values are preferred by economists**).

The following legal step is to understand **when negligence is sufficient to establish liability**. First and foremost, it must be pointed out that there is a *conceptual connection* between negligence and liability, since the former is sometimes a component of the latter, but they do not coincide in principle. We can distinguish between three schemes:

1. **simple negligence rule** = here, the connection between negligence and liability is patent, since this rule states that if the injurer is negligent, he is liable and has to compensate the victim. In this sense, an injurer is liable insofar as he is negligent. According to EAL scholarship, the simple negligence rule is the easiest one to apply as long as it is possible to operate with the Hand Formula;
2. **contributory negligence defense** = it occurs when the injurer is claimed to be negligent and, in turns, he claims the victim to be negligent as well. This rule thus states that if the victim is negligent too, then he has **no right to compensation**. According to EAL scholarship, contributory negligence defense is simple to apply as well, since no damages should be calculated;
3. **comparative negligence defense** = the previous liability rules operate under a scheme of *all-or-nothing application*, meaning that only one party, either the injurer or the victim, bears all the damages from an accident. Instead, in this case both the injurer and the victim are negligent, but damages should be split between them according to some criteria (as stated under art. 2054-2055 c.c.), usually in proportion to relative fault of parties.

Therefore, the distribution of damages depends on the regime — contributory or comparative — under which parties are operating. For example, US v. Carroll Towing Co. case was decided under comparative negligence defense, and damages were hence split between negligent parties. According to EAL scholarship, comparative negligence defense is complicated to apply, owing to the task of splitting damages in a reasoned and justified way; it is in fact the **most**



expensive regime, since the judge needs to make more evaluations, to acquire more information, to employ more time.

Negligence rules can thus be intended as *incentives* to both injurer and victim to operate under a due care standard: in fact, the accidents won't decrease by incentivize only potential injurers, rather to reduce accidents also potential victims need to take precautions so as not to fall into negligence, namely in order to **minimize the total cost of negligence**. This is the idea through EAL lens, instead jurists tend to favor the victim, thus they do not burden victims with the duty to take precaution to the same extent as the one of injurers.

For these things considered, **B** is thus given by the sum of costs of precaution born by both parties.

Example: Troman, in charge of decorating Stansbie's house, suspends work for buying wallpaper and leaves the house without locking the entrance. During Troman's absence, the house is burgled by unknown persons. With what economic arguments can Stansbie (plaintiff) take legal action against Troman (defendant)? We should apply the Hand Formula:

- **$B \approx 0$. Troman spends almost zero, considering that he didn't even lock the door, as well as Stansbie did, since in the text no reference to hypothetical precaution by house owner is made. By contrary, B would be very if not outright too high if Stansbie would have stayed next to Troman during his decoration work.**
- **$PL > 0$. There is a certain probability (P) that a burglar could enter into an unlocked house, even if the likelihood is not precisely quantifiable. The gravity of resulting loss (L) naturally depends on which valuable things were in the house at the time of the burglary, yet since the text talks about an actual burgles, we can say in general that something was surely stolen.**
- **Since $B < PL$, Troman was negligent. Hypothesizing that Stansbie had left some luxury objects exactly next to the unlocked door, without relocating them more properly nor hiding them, he could have been declared as negligent too.**

Posner warned that in the majority of the cases (included the exemplated one) there's no necessity of having precise number at disposal in order to establish negligence. The only needed things are reasons, coming from the facts of the case, that B is inferior to PL . The Hand rule is therefore a formula that is more heuristic than purely economical, as the outcomes of its application mostly depend on the reformulation of judges' intuitions.

Some legal systems provide that, if the exact distribution of negligence is unknown, then **default rules** concerning the division of damages will be applied automatically.



MODELS OF PRECAUTION

The rules of tort law are designed to give parties engaged in risky activities an incentive to undertake all reasonable means of minimizing the costs arising from those risks: for this reason, the economic model of accidents is usually referred to as the *model of precaution*. The total costs of accidents are made of three components:

- (1) the **damages suffered**, in dollar terms, by the victims (**L in Hand Formula**);
- (2) the **costs of precaution** taken by the injurers and the victims, namely the ones on which we will focus, together with (1) (**B in Hand Formula**);
- (3) the **administrative costs** of using the legal system to resolve tort claims, including the costs of filing suit and conducting judicial proceedings.

The purpose of model of tort law is to **minimize overall accidental costs**, namely to minimize (1), (2) and (3). The **model of precaution** defined as such thus have to be intended as a piece of *normative*, and not *descriptive*, law and economics, since it illustrates how law should be.

Tort law is the area of the common law concerned with *accidental injuries* (personal injuries, products liability, accidents, medical malpractice and environmental accidents). Risk is a necessary by-product of many *socially beneficial activities*, like driving, use of vaccines or medical procedures. And although we cannot ordinarily eliminate the risk without cutting out the activity altogether, we should nevertheless take all **cost-justified steps** to minimize the resulting cost. That means that we should invest in risk reduction to the point where saving an additional dollar in accident losses can be achieved only by spending more than one dollar in precaution.

We can distinguish between two models of precaution.

1. Unilateral care model

It states that only the injurer can invest in costly precaution to reduce the likelihood and severity of damages borne by the victim; consequently he is the only one who can prevent a certain event from happening. Contrariwise, the victim has no role in accident occurrence (**e.g. on a plane, passengers can't do anything to avoid the crash**).

Within the application of this model, after having focused on precaution and damages, two steps need to be followed:

- (1) identify the **socially efficient level of precaution**;
- (2) take that as the benchmark for **examining the incentives** created by actual legal rules.

The notations therein used (**that are respectively identifiable with B, P and L in Hand's vocabulary**) are:

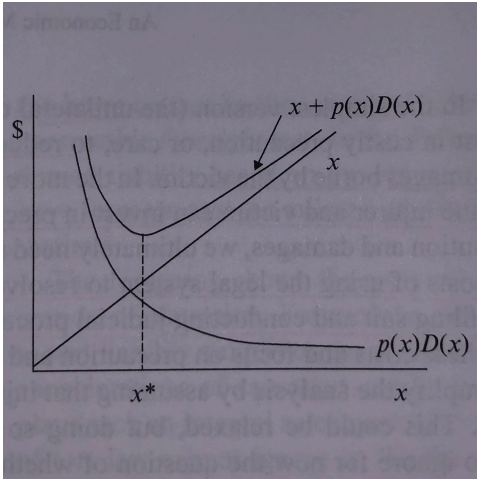
x = INVESTMENT IN PRECAUTION BY INJURER
p(x) = PROBABILITY OF ACCIDENT
D(x) = DAMAGES SUFFERED BY THE VICTIM

The assumption is that **if x increases, then p(x) and D(x) decreases**, as the greater precaution reduced both probability and severity of an accident. Thus, **p(x) and D(x) are decreasing at a decreasing rate**, meaning that precaution as a diminishing marginal benefit in terms of reducing accident risk. Intuitively, injurers invest first in the most effective precautions and only later turn to less effective measure.

The **social optimum** consists in *minimizing overall costs of accidents, namely:*

$$\min(x + p(x)D(x)) = x^*$$





x^* is the **cost-minimizing level of care** and it occurs at the minimum point of the total cost curve. At levels of care *below* x^* , an extra unit spent in care reduces the expected damages by more than one unit, whereas at levels *beyond* x^* , an extra unit reduces the expected damages by less than one unit. This model implies a *marginal value reading*. In fact, the slope of x reflects the **marginal costs of care** (= 1\$), while the slope of $p(x)D(x)$ reflects the **marginal benefit of care** (the reduction in expected damages). The optimum occurs where these marginal values are equal.

2. Bilateral care model

It states that both the injurer and the victim can invest in precaution costs and consequently amount to lower overall costs of accidents, as well as to reduce the likelihood and severity of an accident. It is more interesting as a model since it takes into consideration the interaction between two economic agents and their respective actions or omissions.

The notations therein used are:

x = INVESTMENT IN PRECAUTION BY INJURER

y = INVESTMENT IN PRECAUTION BY VICTIM

$p(x, y)$ = PROBABILITY OF ACCIDENT given the investments in precaution by victim and injurer

$D(x, y)$ = DAMAGES SUFFERED BY THE VICTIM given the investments in precaution by victim and injurer

Also here, the social optimum consists in minimizing overall costs of accidents, namely:

$$\min(x + y + p(x, y)D(x, y)) = x^* \text{ and } y^*$$

x^* and y^* are the **cost-minimizing levels of care**, i.e. the *efficient* and *optimum* levels of care. Then, one has to figure out **whether the actual rules of a given system approximate to the optimum**.

US v. Carroll Towing case was decided under a bilateral care model, as it involved two reciprocal claims underpinned by the consideration that the one could have done more to avoid the other's damage.

Models of precaution must be provided by law and institutions as *incentives* to encourage people to adopt optimal level of precautions. Taking, for simplicity's sake, just x^* we can state that:

- (i) at x^* the marginal cost of an additional unit of precaution equals the marginal benefit of reduced damages. As already disclosed, in fact, this is a marginal value reading;
- (ii) B can be taken as the marginal cost of care and PL as the marginal reduction in accident costs from that last unit of care;
- (iii) injurer will be negligent when **$B < PL$** , that is to say when **$x < x^*$** .

Making reference to the example made on page 39, making now a **marginal values reading**, the optimal value x^* would now be S_5 and not S_4 because, as already said, the optimal value in met when the marginal cost of care equals the marginal reduction in damages. Now:



	B	PL	marginal cost of care	marginal reduction in damages
S ₁	0	< any positive value	/	/
S ₂	10	< 100 (0.10 x 1000)	10	< 100
S ₃	20	< 50 (0.05 x 1000)	10	< 50
S ₄	30	= 30 (0.03 x 1000)	10	< 20
S ₅	40	> 20 (0.02 x 1000)	10	= 10

In S₅, in fact, the marginal cost of care (10), ie the increase in precaution (= increase in B) is equal to the marginal reduction in damages, ie the reduction of PL (10).

The criticism advanced by jurists towards this model starts from the fact that it is too artificial as a scheme to be applied to judicial cases, where such precise numbers are normally not available.

Tarasoff v. Regents of the University of California case (1976)

The defendants – a therapist and the police – failed to confine a patient who had expressed his intention to kill the victim, and also failed to warn the victim that the patient had the intent to kill her. After the patient killed the victim, her parents sued, alleging that the defendants owed the victim the duty to warn about the impending danger.

Economic arguments: the plaintiffs' case can be supported with the Hand Rule [explain what this is]. B (the burden, or cost of precaution) was certainly lower than PL (probability of the loss and magnitude of the loss), especially if one notices that one of the "failures" of the defendants was the failure to warn the victim, which seems to be a relatively inexpensive kind of action.

A complete answer also observes that the Hand Rule can be applied to establish negligence, which is not equivalent to liability [explain why]. Therefore, the above reasoning could help establish the negligence of the defendants; the next step, i.e. liability, would depend on the availability of a defense (like the contributory or comparative negligence defense), but in this case there seems to be no room for this.

It is worth noting that therapists have the deontological duty not to disclose private information about their patients, thus one could doubt on his negligence. The damages suffered by the victim (L) are much greater than the borne costs of precaution (B), since the policeman and the therapists have neither taken pains to make a phone call to the victim and warn her. By the way, since a telephone call would in principle have been relatively sufficient to exclude or heal negligence, precaution would have been even cheap to bear, at least for the policeman. In fact, one could argue than the therapist didn't meet the due standard of care because of costly precaution due to the violation of deontological duties. Also the probability of accident (P) was visibly high since the intention to murder the victim was communicated ex ante to the defendants.

Conclusion: properly using a unilateral care model, the defendants are negligent for omission of information.

Additional comments: he would have been possible to use the bilateral care model, thus operating under comparative negligence defense, if, in presence of more details on the case, the defendants claimed that the victim should have taken more precautions (**not to meet that person, not to go out alone, etc.**) and succeeded at it.

According to some scholars, the choice between unilateral and bilateral care model influence in turn the application of either strict liability or negligence. In fact:

- when opting for the unilateral care model, the strict liability gives enough incentives to the injurers to meet the due care standard x^* , as economically rational agents, because the threat of liability



forces him to fully internalize the victim's expected damages. In fact, in this operational context the injurer already knows that, in case of damages suffered by the victim, he will have to compensate her regardless of any kind of negligence.

Moreover, a legal frame characterized by the unilateral care model and the strict liability rule would even entail less administrative costs, since it is simpler to apply as a scheme, there is no negligence to prove nor damages to split. Strict liability is in fact cheaper to apply because plaintiffs need only prove causation, nor fault, thus requiring less fact-finding and consequently less costly trials. However, this reduction in administrative costs is can be frustrated by the request of more suits.

It is a popular convention that the cases of product liability should be decided under the regime of strict liability, since the victims, as consumers, are not fully aware of the productive itinerary of an item, and consequently they shouldn't be asked at all to prove the negligence of the manufacturer enterprise. The only exception is constituted by the case in which consumers suffer from a damage caused by an unusual and wrong utilization of the product itself.

- when opting for the bilateral care model, the following decision usually resorts to negligence rule. Negligence rule involves more costlier trials as the plaintiff must prove causation and fault. Under negligence rule, the request of suit can lower. Remembering that a tort claim must be initiated by the victim, she will file a suit only if the expected gain exceeds the cost, otherwise, if she expects to lose, she will not file any suit. Moreover, since the injurer has a powerful incentive to meet the due standard, victims are often deterred from filing suit under negligence because they expect to lose the case.



PUNITIVE DAMAGES

We can distinguish between:

- *compensatory damages* = damages given to the plaintiff for the harm and loss suffered. For example, if the victim's harm amounts to 100, then the compensatory damages will be 100: this is also a case of **perfect compensation**, since the harm value is equal to the damages value;
- *punitive damages* = traditionally nonexistent in civil law jurisdictions, they can be defined as damages given to the plaintiff as a way of **punishing the defendant**. They can be either additional or substitutional to compensatory damages. For example, if the victim's harm is 100, then she will have 100 as compensatory damages and 1000 as punitive damages, for a total recover of 1100. They are awarded in situations that go beyond the mere negligence, whereby the injurer's actions are seen as intentional or reckless, that is to say when **his behavior is malicious, oppressive, gross, willful and wanton, or fraudulent**.

Yet, it is not clear the reason why punishment — typical of criminal law — was transplanted to tort law too; in other words, why should we *punish* tort injurers? Why was this hybrid figure created?

The situation reveals to be even more problematic when noting that the computation of punitive damages made by juries is often erratic and arbitrary, causing uncertainty and fear among corporate and government defendants. However, according to some scholars, they can prove to be *efficient* within a legal system that, by contrary, proves to be *inefficient*.

Within **perfect tort liability systems**, that give proper incentives to potential injurers, there is no need of providing for punitive damages. Contrariwise, legal tort systems are inefficient when many losses are not compensated, owing to various circumstances: victims may have difficulty in identifying or proving the specific cause of their injuries; the cost of litigation may prevent some victims from bringing suit to collect damages; injurers may sometimes take conscious steps to conceal their identity, and so on. In these scenarios, victims, having such a dispiriting expectation, usually renounce in principle to sue the injurers, as it would be useless and quite impossible to succeed in practice and get compensation from them. This phenomenon of the presence of victims who are not compensated though they should be is called **enforcement failure**, and it is defined by the ration between the uncompensated victims and the total victims:

$$\text{ENFORCEMENT FAILURE} = \text{UNCOMPENSATED VICTIMS} / \text{TOTAL VICTIMS}$$

Enforcement failure is also an advantageous bait for potential injurers, most of all when they are corporations: since they know that in such situations it is highly likely they will not be sued nor will have to compensate the potential victims, being rational economic agents they recognize enforcement failures as a potential source of profit. They take advantage of this scenario and give up in principle to invest in costly precautions, since — we repeat — they will not be sued nor will have to compensate the victims. Cutting precaution costs that become relatively useless to bear, they will save money and make more profit. Potential injurers have thus an incentive to profit from enforcement failures.

In order to deter economic agents from acting in this opportunistic and reckless way, punitive damages can supplement the absence of compensatory damages, thus offsetting the efficiency loss due to enforcement failures. In this sense, punitive damages are seen by scholars as **punitive multiples** which restore the injurer's liability to the level that would have prevailed under perfect enforcement. However, there are some alternative accounts:

1. punitive damages can be seen as **approximation to the subjective value of the loss** which does not coincide with market value. Hypothesize that my car, which I was really attached to, was destroyed in an accident. Since I purchased it around 15 years ago, the value of resulting loss was quantified at 100, that does not coincide at all with the subjective value I gave to my car. This is for saying that, if thinking of punitive damages as concretization of the subjective value of the loss, the victim could also exaggerate this value so as to gain more in recover.
2. punitive damages can be seen as **reflections of moral externalities in society**, thus morally condemning the injurer's behavior. In this sense, punitive damages have to be quantified according to the impact they make on the community, that depends on the level of outrageousness of the accident and of injurer's action. The intrinsic problem is that in reality,



punitive damages are often established discretionally and irrespectively to any moral consideration.

In order to add mathematical notions, assume that an injurer expects to face liability for only a fraction α of the damages he causes, where $\alpha < 1$. Suppose that courts are able to award victims compensatory damages of $D(x)$ plus punitive damages R , making the injurer's overall expected liability equal to: $p(x) \alpha [D(x) + R]$. Incentives for efficient care are achieved when the injurer's overall expected liability equals the full expected damages of the victim, that is, when:

$$p(x) \alpha [D(x) + R] = p(x)D(x)$$

Solving the equation for R yields: $R = [(1 - \alpha) / \alpha]D(x)$, from which we infer that the efficient level of punitive damages is proportional to actual damages, where the *factor of proportionality* is given by $(1 - \alpha) / \alpha$.

Ford Pinto case (1981)

In the '70s Ford Motor Company decided not to invest in a device to improve the safety of a Ford Pinto (preventing the gas tank from rupturing and exploding after a rear-end collision). That decision was made since the burden per vehicle of the additional investment was calculated to be \$11 and the expected loss \$1. So the investment was not cost-justified **[the company thus decided not to increase B because they purported it not to be a cost-justified investment for precaution, given the estimation of B = \$11 per vehicle against PL = \$1 per vehicle]**.

The expected loss was determined *assuming* an amount of \$200,000 per death and of \$67,000 per injury, with a very low accident probability **[the expected loss per death (L) and the probability of accident (P) were determined by mere assumptions and conjectures]**.

Eventually, several accidents have occurred, among which we remember the one concerning Grimshaw as victim.

The jury decision for the plaintiff in Grimshaw was supported by a different estimate of L , which dramatically changed the Hand formula scenario, leading to an expected loss of \$37.5 (an estimate approximately 37 times greater than Ford's) **[the expected loss was not equal to \$1 as the defendant assessed, but rather to \$37.5 per vehicle!]**.

Ford had decided to run the risk of potential injury, and even of death, rather than pay the additional per-unit cost. But that decision was economically wrong in light of the different figures assumed by decision-makers. However, note that with Ford's figures the decision not to invest was cost-justified. Jury established, on top of compensatory damages, \$125 million in punitive damages **[a super high sum, whose conspicuity is given to the enforcement failure]**. Trial judge reduced them to \$3.5 million **[however, in general, the determination of punitive damages seems unpredictable]**.

As already disclosed, Italy does not provide for punitive damages, because of the separation between tort liability and criminal liability, in light of the *tertium comparationis* of "punishing", even if the two spheres share points of conjunction such as the presence of *parte civile* (prosecution) in criminal cases (ie the person offended by crime that turns himself in the criminal trial so as to get compensatory damages). They are not included also and most of all due to serious doubts on their **compatibility** with our legal system; apropos of this, the Court of Cassation in 2017 stated that: "Civil liability is not only assigned the task of compensating the subject who suffered the injury, since the deterrence function and the punishing function are internal to the system of civil liability. Punitive damages are not therefore "ontologically incompatible" with the Italian legal system. The recognition of a foreign decision that contains a ruling of this kind must however satisfy some normative conditions including the predictability of the punitive damages amount and the indication of quantitative limits (cap on punitive damages)." The Court of Cassation hence declared that the primary goal of tort liability is to compensate the victim, still punitive damages are compatible with our legal system. They can consequently be awarded if contained in a foreign decision to recognize (since they cannot be directly imposed by our judiciary, as we said they are not codified in Italy). Nevertheless, maximum and unsurpassable thresholds for punitive damages are indispensable.



MARKET SHARE LIABILITY

The concept of **market share liability** was formulated by Ronald Dworkin, together with his fictional example of *Inventum* case. He prophesied that, in *hard cases* like the latter, there are two competing principles:

- bearing the costs of an enterprise = each company should be declared as *liable* and damages should be split among them according to *market shares*;
- no liability without proof = the plaintiff didn't establish any specific proof towards any of the companies, therefore the latter ones can't be deemed as liable. However, this solution could lead to enforcement failure.



CONTRACT LAW

According to a number of scholars, contracts are economically efficient, yet, taking a step backward, it should be pointed out that contracts are used because the exchange of goods, services and resources proves to be beneficial. Contracts thus provides for the **economic benefits of exchange**. When such a potential increase in value exists, it can be realized by means of a market exchange that gives both of parties a share of the **gains from trade**.

When there is a **voluntary exchange**, the transaction makes both parties better off, since resources move from lower- to higher-valuing users (when I buy a laptop, I'm better off with it and the seller is better off with the price earned). Therefore, as after bargaining everyone is better off and no one is worse off, contracts provide for **Pareto-superiority**. Instead, making reference to Coase's vocabulary, the bargain between a high-valuing user and a lower-valuing one results in efficient allocation of resources.

Further, one mention can be made towards Posner, according to which **contracts maximize wealth** given the different subjective evaluations of goods and services. Example (1):

	Seller	Buyer	Total Wealth
S ₁	5000	10000	15000
selling price: 7500			
S ₂	7500	12500	20000

Parties make a contract of sale having a car as object.

In S₁, the **value of the car** for the seller is 5000, whereas it is 10000 for the buyer. This confirms the assumption that the same item can be evaluated diversely by different economic agents.

The car is then sold at a price of 7500, that is superior to the value attributed by the seller to the item and is inferior to the one attributed by the buyer: the differential is ± 2500.

Therefore in S₂, after the contract is made, the seller will have a wealth of 7500 (5000 as value attributed to the car + 2500 as surplus of money he gains), whilst the buyer's one will be of 12500 (10000 as value attributed to the car + 2500 as spared money).

Noticeably, the total wealth has been maximized, thanks to the **surplus** provided by the contract.

Example (2):

	Seller	Buyer	Total Wealth
S ₁	5000	10000	15000
selling price: 5000			
S ₂	5000	15000	20000

Even if the selling price was 5000, we would still have a **wealth maximization**. The only thing that changes is the **wealth distribution**, considering that in the seller has maintained his previous wealth (5000 as the value attributed to the car, corresponding to the money gained) whereas the buyer has a total wealth of 15000 (10000 as the value attributed to the car + 5000 as money spared).

Even if the selling price was 10000 and the data were therefore reversed, with a wealth distribution more leaned towards the seller than the buyer, at any rate it can be asserted that **contracts provide for additional wealth**.

Contract efficiency intersects Pareto, Coase and Posner efficiency. In fact, even if Pareto-efficiency normally deals only with ordinal preferences that are devoid of cardinal values, in contractual situations where prices are involved, we can make reference to Pareto-efficiency even in a quantitative way. Particularly, a contract is efficient when:



$$V_b \geq P \geq V_s$$

whereby V_b is the value to the buyer, P is the price and V_s is the value to the seller. It descends that Pareto efficiency is met because both parties are better off, as well as Coase one is achieved since resources are allocated in an efficient way, and it goes without saying that Posner's efficiency takes place as wealth is there maximized.

At this point, we should discuss the reasons **why contracts are needed in law**, why legal rules about contracts are set out, and why supplement or interfere with private bargaining. As we have already seen. The motives are essentially reduced to:

- **the role of transaction costs** = as already seen, null transaction costs make law useless, as rational economical agents can simply bargain towards efficient solutions operating outside the shadow of law. Yet we have already seen as well that having zero transaction costs is quite impossible. It is here that law plays a fundamental role: it provides for legal provisions that attempt to keep transaction costs as low as possible;
- **rationality problems and other pathologies** = law acts as a tool forbidding to trade non-disposable goods, whose opposite bargaining would provoke, as Calabresi warned, *moral externalities* (such as social disapproval).

Contract law has mainly four purposes:

1. **promote and facilitate exchanges**, thanks to *default rules*. The latter ones, in fact, relieve parties from regulating in a detailed way each aspect of their contractual relationship, by supplementing various terms. In this way, default rules lower transaction costs, consequently encouraging people to bargain because it will be, for them, much easier;
2. **lower transaction costs**, by providing the missing terms of incomplete contracts. Since transaction costs reduce the benefits from a transaction, it is in the parties' mutual interests to minimize them. Indeed, this is one reason why they often write incomplete contracts in the first place, even when there is no uncertainty. In fact, thanks to the presence of the law, parties can afford to leave blank spaces within the contract (often regarding some *contingencies*), since they will be filled in by legal rules. Thereby, transactions costs decrease;
3. **remedy market failure**, by providing solutions to inefficiencies that are owing to information asymmetries, forms of irrationality, etc.
4. **ensure enforcement** with remedies against nonperformance. The possibility of enforcement is an intrinsic characteristic of legal rules, which is in turn followed by *relief*, whereas the enforcement of the moral rules can be just recommended and relief is not granted at all.

Miceli does not envisage a *descriptive* picture of the legal system, but rather an *ideal* and *normative* one, making the following assumptions:

- (i) parties are *rational agents*, that is, they pursue their self-interest subject to whatever constraints they face. This typically involves maximization of *utility* (or *wealth*) subject to a budget constraint. Nevertheless, we are pretty aware that, in real world, this happens not so frequently;
- (ii) contracts produce *no externalities*, thus not effecting on third parties. Nevertheless, there are various cases in which contracts impact on external subjects, for example one party can make someone worse off if deciding to bargain with someone else. Unfortunately, third-party effects could lead to *market failures*, in the sense that some inefficient transactions may occur because the parties to the transaction ignore the costs born by third parties;
- (iii) the economic theory of contract law is the *competitive markets*, ie environments in which contracts are formed within a perfect contract legal system, and are thus able to maximize the gains from trade. Competitive markets are characterized by: *no monopolies*, ie situations in which one party has the ability to set the price, or has an undue amount of market power; *perfect information*, that is, both parties to a transaction must be fully informed about the nature of the exchange so as to ensure that both receive a benefit; *no transaction costs*, in terms of costs associated with the writing and enforcing of a contract. Nevertheless, in the real world also competitive markets entail discreet complications.



Contract validity (or physiology) is grounded on the vision of contract as a *legal and mutual agreement*, explicit or implicit, between two parties to a transaction that allows either party to go to court to enlist the power of the state to enforce the other's promise. This agreement concretizes thanks to the simultaneous presence of three elements:

- (1) **offer** to provide service, to delivery goods, etc;
- (2) **acceptance** of the offer;
- (3) **consideration**, ie the promise's return promise, crowning as exchange on the basis of the principle that an offer can't be rendered for free (ex. **“when my nephew will turn 21, I'll give him \$100” has no consideration, it is rather a moral promise and as such can't be enforced; “when my nephew will turn 21, I'll give him \$100 provided that he has already quitted smoking” has consideration, thus it is an enforceable legal promise**”). It is the consideration to make the transaction *mutual* and hence *enforceable*. The general rule is that courts will inquire only about the *presence* of consideration, but not about its *adequacy*; in fact, an important economic principle is that the parties to a transaction are generally the best judges of their individual benefits therefrom.

When all these requirements are met, there is the **meeting of parties' minds** and agreement is found.

Conversely, there can be situations of **contract pathology**. Pathological contracts have something wrong and therefore courts are not supposed to enforce them, but for some exceptions. The contract turns pathological in case of:

A) **mental incapacity** (or **incompetence**) = courts shall not enforce contracts made by parties judged to be mentally incompetent or otherwise unable to exercise rational judgement. This includes parties who are mentally impaired (temporarily or permanently), or who are too young to act in their own best interests. This rule clearly makes economic sense as a way of ensuring rationality, which is a fundamental prerequisite for parties to engage in mutually beneficial transactions. Generally, the law presumes competence unless it is proven otherwise, except for the general case of *minors*. The latter ones, in fact, can't enter into contracts because they are deemed as unable to exercise rational judgement. A standardized threshold of minority is needed because otherwise it would be too costly to make a case-by-case analysis, assessing each minor's individual competence. Minors' incapacity is thus conventional and presumed on an average maturity.

It is disputed whether holding bizarre beliefs is a sign of mental incapacity, since they are able to affect market values: if an house is deemed to be ghosted, the seller discloses it to the potential buyers and the latter turn afraid of this, the ghosted house will be evaluated at a lower market level;

B) **coercion** (or **duress**) = courts shall invalidate contracts that a party signed under duress or as a result of coercion. The presence of coercion clearly violates the requirement of *voluntariness*, which is a prerequisite for a mutually beneficial transaction. The question that now arises is whether it is possible to make *irrefutable offers*: actually, they appear to be a contradiction, since an offer which can't be reject is not an offer anymore; in fact, in the event than an offer is advanced as irrefutable, the contract would be affected by duress, namely by the lack of voluntariness in the acceptance of the offer. There are economical downsides too. (Ex) the buyer says to the seller “I offer you \$3000 for your car. This is an offer you can't refuse”. Hypothesizing that the sale will take place, the seller would suffer from an economic loss:

	Seller	Buyer	Total Wealth
S ₁	5000	10000	15000
selling price: 3000			
S ₂	3000	17000	20000



Moreover, it should be pointed out that there are several disputable cases in which it is unclear whether the contract is impaired with duress or not: a negative answer should be given, for instance, to the case in which the buyer says to the vendor “if you sell me this car for \$3000, it is ok, otherwise I’ll look elsewhere”, because it is rather a threat, not a coercion.

Alaska Packers’ Assn. v. Domenico case (1902)

The defendant hired a crew of sailors to go on a salmon-fishing expedition off the coast of Alaska. Prior to the voyage, the crew agreed to a set wage, but once at sea they refused to fish unless the wage was raised. Defendant agreed but later reneged.

Contracts modifications are changes to a contract made after formation but prior to performance. The traditional legal rule, referred to as the *preexisting duty rule*, holds that they are enforceable only when accompanied by new consideration. In this case, the sailors have taken an opportunistic behavior. The defendant is right by refusing to raise wages, since the plaintiffs have coerced him.

Goebel v. Linn case (1882)

When an unseasonably warm winter caused a short supply of ice, the ice company requested a price increase, and the brewery, which had a supply of beer that would have spoiled, agreed but later reneged.

In this case, there is no coercion. In fact, the brewery had the right to walk away and seek for other vendors around the market, so as to find a more convenient competitor. This descends from the fact that it is totally normal that prices fluctuate and companies are entitled to raise theirs. It is permitted even though in this case parties seem to have a long-lasting relationship.

The economical understanding of duress is about the **prevention of monopoly power**. This explains and justifies the different decisions in the first and second case: as to the former, the sailors made an opportunistic modification of contract terms, to exploit bargaining power, since in the middle of the sea — where neither markets nor competitors may be naturally found — they created a sort of monopoly; as to the latter, the defendant made a legitimate modification, due to increase in costs.

- C) **mistake** = situation in which parties form a contract based on mistaken beliefs, that therefore shouldn’t be enforced. We can distinguish between *mutual* and *unilateral* mistake, depending on whether parties or just one of them got mistaken; in the former case, parties usually agree on invalidating the erroneous contract, as no one of them is really interested in the enforcement of a contract whose material aspects they have fundamentally disagreed on.



DUTY OF DISCLOSURE OF INFORMATION

When dealing with mistake, a question which arises is whether there should be a **duty to disclose private information** prior to contracting. We said earlier that competitive markets require full information to function efficiently. Thus, economic theory would seem to suggest that legal rules relating to mistake should promote the maximal production and disclosure of information. However, the conclusive solution is not that easy.

Let's consider an example in which the buyer purchases a violin that, contrarily to the seller, he knows being a *Stradivarius*; should the buyer disclose his information? In principle, individual economic agents are not inclined to do it, since they aimed at maximizing their own wealth. Surely, the buyer, if sued, can't pretend to have been unaware of this information, as there is a credited probability that his awareness will emerge as evidence.

Sherwood v. Walker case (1887)

The case concerned a contract for the sale of a cow by Mr. Walker, a cattle breeder, to Mr. Sherwood, a banker and farmer. The parties agreed to a price of 80 based on the apparent belief that the cow was infertile and hence only valuable for slaughter. Before delivery, however, Walker discovered that the cow was pregnant, and hence worth much more, between 750 and 1,000. He therefore refused to deliver the cow to Sherwood, who brought suit seeking enforcement of the contract. **This case involves a mutual mistake according to the majority of the court, whereas the dissenting judges argued that the buyer could have a suspect of the potential fertility of the cow. Following the latter line, if the buyer has invested this money so as to acquire such information that is conversely unknown to the seller, the former possesses a private information. At this point, should the law impose a duty of disclosure upon the buyer, so as to transform his knowledge into a public information?**

The economic understanding of information and disclosure duty is grounded on the distinction between:

- **socially valuable information** = information having the potential to increase economic value (**metaphorically talking, they are information which 'enlarges the size of the pie'**). Let's imagine the following scenario: the buyer has invested money so as to discover the actual fertility of the cow, that is contrarily unknown to the seller; nevertheless, the cow does not become pregnant, consequently leaving its fertility unknown to everybody but the buyer; the seller, therefore, if the buyer didn't buy that cow, would have sent the latter to slaughterhouse; in this sense, the buyer's private information has saved the animal. The buyer's knowledge about the cow's fertility is a *socially valuable information*, in the sense that the investment in the latter is socially beneficial, has a social value and does not cause any economic loss, since the cow will not be sent to slaughterhouse uselessly. For all this things considered, **no duty of disclosure** should be imposed for socially valuable information, because its absence would *incentivize* private investments in such information. So as to protect a socially valuable information, that would not have been acquired but for the personal investment of a party, no duty of the kind should be set out.
- **purely distributive information** = information which only affects the distribution of a fixed value (**metaphorically talking, they are information which 'only changes the way the pie is cut'**). Let's imagine the following scenario: the buyer has invested money so as to discover the actual fertility of the cow, but some time later the cow becomes pregnant, thereby everyone becomes aware of its fertility, thus frustrating the informational advantage of the buyer. The buyer's knowledge about the cow's fertility is a *purely distributive information*, in the sense that it gives just a private advantage to the buyer, and not a social one. The purchaser's investment in acquiring that information before all other is therefore an **economic and social loss**, it is wasteful, because at any rate, sooner or later, the information would have become *public*, and therefore the buyer would have gained that knowledge even without putting money in its discovery. For all things considered, a **duty of disclosure** should be imposed for purely distributive information, because it will *disincentivize* private investments in such information that only



provide for social and economic losses. The latter ones manifest themselves in the phenomenon of **free riders**, ie people who acquire a purely distributive information anyway, without bearing any cost, to the detriment of whoever has otherwise invested money so as to acquire such knowledge.

Therefore, if the court' enforcement decision affects the distribution of gains from the contract, but it does not affect the expected value of the transaction, the information at stake is just *distributive*; conversely, if the decision affects the expected value, the information is *socially valuable* (or *productive*).

The economic rationale for enforcement of contracts is grounded on the fact that **the duty of disclosure acts as a disincentive to invest in purely distributive information and as an incentive to invest in socially valuable information**. As a consequence, the law should **not require the disclosure of socially valuable information**, whereas it must **require the disclosure of purely distributive information**, as well as of **unfavorable information** (such as defects in the thing).

Starting from these premises, contracts based on *socially valuable information* should be **enforced**, whereas the ones based on *purely distributive information* should **not be enforced**, because they concern a duty of disclosure that must be abided by; on account of this, all contracts in which a purely distributive information has not been disclosed despite the duty to do the contrary, can't be enforced owing to the same breach of duty.

Another useful distinction is the one between:

- a. **deliberately acquired information** = information whose acquisition entails costs that would not have been incurred but for the likelihood, however great, that the information in question would actually be produced; acquisition costs include not only direct **search costs**, but also the costs of developing an **expertise** as well. When they are *purely distributive*, the law should impose a duty of disclosure; when they are *socially valuable*, *no* duty of disclosure should be imposed.
- b. **information acquired by chance** = when information is casually acquired, the disclosure rule is *irrelevant for efficiency*, because its acquirement does not depend on human behaviors or investments. Its impact will be purely distributive, and only a *principle of fairness* (like good faith) would justify the imposition of such duty.

Laidlaw v. Organ case (1817)

The case concerned a contract in which a merchant in New Orleans, after receiving private information about the treaty ending the Anglo-American War of 1812, ordered a quantity of tobacco at a given price. When the information became public, ending the naval blockade of New Orleans, the price of tobacco shot up (by 30 to 50%), and the seller sought to invalidate the contract.

So as to discern whether the contract is enforceable or not, we should firstly establish the nature of information. In this case, it is purely distributive, therefore: if it has been randomly acquired, only a principle of fairness would justify the imposition of such duty; instead, if it has been deliberately acquired, it means that the merchant has made an investment to gain such knowledge although it would have become public anyway. Therefore, there is a social loss and the contract is not enforceable.

So as to summarize:

DUTY OF DISCLOSURE	deliberately acquired	acquired by chance
socially valuable information	NO	NO
purely distributive information	YES	NO



ENFORCEMENT	deliberately acquired	acquired by chance
socially valuable information	YES	NO
purely distributive information	NO	NO

A contract based on information acquired by chance, be they socially valuable or purely distributive, should not be enforced, from a point of view of economic efficiency, because no one has made investments so as to acquire such knowledge. Its potential enforcement, in fact, would only cause a **social and economic loss** due to the payment of the **social costs of judicial proceedings**.



DOCTRINE OF UNCONSCIONABILITY

The doctrine of unconscionability is grounded on the fact that courts should invalidate contracts whose terms appear to be **grossly unfair** to one of the parties. The idea is that a party would not have voluntarily accepted such terms and therefore must have been either incompetent or the victim of duress or fraud. However, under unconscionability, proof of these specific problems is not required. Instead, the court infers their presence from the terms of the contract and then shifts to the defendant the burden of proving that the contract was fair at the time it was formed. This remedy is thus applied within situations of **unequal bargaining power**, whereby one party takes advantage of it.

This shifting burden, however, has a practical impact: on the one hand, some contracts will be *properly* discharged because fraud, duress or incompetence was present, but the plaintiff could not easily have proved it; on the other hand, some contracts that were fairly formed but turn out to be unfavorable to one party after the fact will be *improperly* discharged.



BREACH OF PROMISE

There is a *breach of promise* when one does not do what he had promised, thus realizing a *moral wrong*. From Kantian intuition, breaching a promise is *always* wrong because you have a *moral duty* to do what you have promised, whereas utilitarian scholars criticized that the fulfillment of a promise must depend on utility, costs and benefits that such performance can generate.

There are also cases in which the obligation we had assumed through a promise reveals to be **defeasible** by another obligation: for instance, it can happen that you were supposed to carry out a certain obligation because of a moral duty to do so (for example, having lunch with a friend), but an unpredictable contingency pushes you to breach that promise because of the moral duty to carry out another obligation (another friend of yours is in danger and you must help him); in this case, the first obligation is defeated by the second one. In this sense, logically speaking, if you have made a promise (P) to carry out the obligation (O) of doing a certain performance (q), you can breach that promise only if it entails an exception (R):

$$\begin{aligned} P &\rightarrow Oq \\ (P \ \& \ R) &\rightarrow \sim Oq \end{aligned}$$

Let's imagine two scenarios:

- (1) what if I promised to sell you my car and then my son implores me not to sell it?
- (2) what if I promised you to sell my car and then someone else offers me a higher price? In this case, the most efficient thing to do is to sell the car to the most generous offeror and, at the same time, give *remedies* to the previous offeror, so as not to make it worse off.

Thanks to a **cost-benefit analysis**, we can discover that the breach of contract can be efficient, and it specifically happens when the **cost of performance** turns out to exceed the **benefit of performance**. In these cases, performing the promise reveals to be *inefficient* owing to **unforeseeable contingencies** that made the value of performance decrease or the cost of performance increase.

As disclosed in scenario (2), it is **remedies** (ie damages for nonperformance) which make nonperformance (+ remedies) *Pareto efficient*. In fact, speaking with Pareto's terminology, a failure to perform a contractual promise is efficient if **no one is worse off** than they would have been with performance and **at least someone is better off** with nonperformance. In this sense, the breach of promise is efficient in a way that the state of affairs of nonperformance is **Pareto-superior** to the alternative state of affairs of performance. Consequently, remedies should be calculated in a way that they incentivize performance when the latter is efficient and incentivize breach when performance is inefficient.

The **efficient breach model** is supposed to give to *both* parties the proper incentive to breach the contract, aiming at envisaging a state of affairs of nonperformance that is *socially desirable*, and not craved by just one party. The model designs two general cases in which breach of contract turns out to be efficient. In particular, it enunciates that:

- (1) **Breach is efficient when $C > V$**

where C is the **cost of performance to the seller** and V is the **value of performance to the buyer**. In this sense, if the cost of performance to the seller increases up to the point that it overcomes the value of performance to the buyer, then the performance of contract is inefficient and a breach must take place; otherwise, in case of $C > V$, performance would produce a **net loss of $C - V$** . C increases in an impacting way most of all when the seller had promised to deliver a *future good* that is still nonexistent at the moment the contract is made.

- (2) **Breach is efficient when $V_1 > V_2$**

where V_1 is the **value of performance to the second buyer** and V_2 is the **value of performance to the first buyer**. It is the case envisaged in scenario (2).



However, so as to produce an efficient state of affairs, nonperformance must be accompanied by **remedies** to the buyer, otherwise he will surely be worse off. We can list four kinds of remedies for breach of contract:

1. *expectation damages* = according to Miceli scholarship, they are the most efficient type of damages because they leave the promise (buyer) **indifferent** between performance and nonperformance, while the seller will be better off with nonperformance again because costs of performance has increased (Pareto optimal?). Therefore, expectation damages measure give sellers the right incentives for efficient breach. Expectation damages (D) are equal to the difference between the value of performance to the buyer (V) and the price for the thing (P):

$$D = V - P$$

This difference between the buyer's valuation and the price is known as *buyer's surplus*. For example, if the value of performance to the buyer (V) is 100 and the price (P) is 75, then the expectation damages (D) will be equal to 25. Hypothesizing that the cost of performance to the seller (C) are 125, and thus $C > V$, nonperformance proves to be efficient. In fact, in case of performance the net loss to the seller would be 50, that is the difference between his cost for performance C (125) and the price P received for the thing sold (75), whereas the buyer would have 100; instead, in case of non-performance the seller would have only a net loss of 25, namely the amount of expectation damages he must pay to the buyer, who will have 100 anyway. One objection could be made with reference to the element of V: after all, we do not have any information on the value of performance for the buyer, unless he does not express it to us, but at any rate he will try to boost it as much as possible so as to receive higher remedies;

2. *reliance damages* = as expectation damages, they try as well to achieve Pareto efficiency, but in a diverse manner. The criterion, in fact, is that they leave the promisee as well off as **(that is, in the same situation)** if the contract had never been made. Again as expectation damages, they fully compensate victims of breach, except for the fact that their reference point is the **pre-contract status**, rather than their post-performance status as the former prefixes. Therefore, reliance damages reimburse buyers for their **non salvageable reliance expenditures**; accordingly, given that these remedies are equal to what the victim has spent, then:

$$D = R$$

Where **D** corresponds to reliance damages and **R** to the **reliance investment** of the victim. Nevertheless, this type of remedies opens to two different problems:

- under reliance damages, the seller is likely to breach the contract more often. Let's start from the assumption that in the event of performance, the seller's return will be equal to $P - C$, instead in the event of nonperformance his return will be $-D$ (where D are *expectation damages*). Therefore, the seller will find breaching the contract more convenient than performing it only if $-D > P - C$, that can be written also as $C > P + D$. Now, as regards to *reliance damages*, we know that $D = R$, thus — making a substitution in the above-written formula, the seller will breach the contract if $C > P + R$. Remembering that breaching the contract is efficient when $C > V$, or we had better say, when $C > V > P+R$, then in case of $C > P+R$ the seller will breach the contract *often*, whilst if even $V > P+R$ the seller will breach it *more often*. In fact, the condition for buyer's positive return in case of performance is $V - P - R > 0$, therefore nonperformance will become convenient if $V > P+R$;
- under reliance damages, the buyer tends to **over-invest** in reliance expenditure, so as to be reimbursed in a higher way. It is a form of moral hazard. But how would it be possible to ask the seller to reimburse such a conspicuous expenditure to the buyer? That is why, in case of over-investment, the one to be reimbursed is solely the **reasonable expenditure** borne by the buyer. A **standard of reasonableness** must indeed be established, according to the *usual course of things*. The fact is that, in case that the buyer has specific needs, he has the **burden to communicate** them to the seller, instead of making directly over-investments. Economically, that means that damages will be limited to the losses that result from a reasonable — and thus *efficient* — level of reliance;



Hadley v. Baxendale case (1854)

Plaintiff operated a mill that was forced to shut down when the crank shaft broke. Plaintiff needed to ship the broken one back to the manufacturer to serve as a pattern for construction of a new one. Defendant was hired to transport the shaft, and promised delivery to the manufacturer the following day, but delivery was “delayed by some neglect”, which caused the mill to be shut down for several days. Plaintiff sued for the lost profits. Defendant conceded negligence, but claimed that the requested damages were too high because the need for the mill to shut down was a “remote” possibility.

→ In this case, we should apply the standard of reasonable reliance according to the usual course of things. The plaintiff deserves to be reimbursed, but surely in a lower way than how he has expected, because he had failed in communicating to the defendant that his mill was lacking of a spare shaft. Naturally, the defendant was negligent in delaying the delivery. The court placed the burden on high-value plaintiffs (those who have a lot to lose from breach) to communicate this information to defendants. If they do, then the damages in the event of breach would be the amount of injury which would ordinarily follow from a breach of contract under these special circumstances so known and communicated. In other words, the law limits the ability of promises to collect the c.d. **consequential damages**, defined to be damages that were unforeseeable to the promisor at the time of breach, to those cases in which the victim communicated the unusually high cost of a breach beforehand. From an economic perspective, limiting damages in this way encourages communication between the parties prior to contracting.

The consequences of this attitude are really effective: (a) when buyers choose the level of reliance prior to contracting, it prevents them from over-relying by limiting the damages to the amount that buyers would lose if they had invested efficiently; (b) when buyers vary in their valuation of performance, it encourages those with higher-than-normal valuations to communicate that fact so as to allow sellers to take extra care to avoid breach. Thus, the court here held that the mill’s lost profits were not recoverable because the mill owner had not informed the carrier of his need to shut down for lack of a spare shaft.

n.b. refund does not amount to loss compensation.

3. *specific performance* = where money damages are thought to provide inadequate compensation — generally, contracts involving **land** or **unique goods** — courts can order *specific performance*. It seems to be a legacy of Kantian intuition, as a judicial order commands to the promisor to do exactly what he has promised. Yet, considering that in many cases nonperformance of contract is efficient, ordering a specific performance so as to achieve efficiency appears as a contradiction. In fact, these remedies oblige a person to make the performance regardless of the cost it requires.

It is thus disputed whether they can be *efficient remedies* in a situation in which it is the nonperformance to be efficient. The question is answered in a positive way when the contract regards unique goods, or even lands, that by nature do not have substitutive market goods: in this hypothesis, specific performance actually makes sense. But the latter is not the only possibility of efficient specific performance: indeed, in some situation we can have efficiency with specific performance provided that it is followed by the **proper form of bargaining**.

Ex: $V_1 = 60000$; $P = 50000$; $V_2 = 65000$. In case of nonperformance, expectation damages would be equal to 10000, the buyer will be indifferent to his pre-contractual status, and the seller — having concluded the contract with the 2nd buyer — would have a return of $65000 - 10000 = 55000$, which is $>$ to 50000, ie what he would have yielded if had he performed the contract with the 1st buyer. The seller would thus have a net gain of 5000. In this case, we have efficiency in breaching the contract.

If the given remedies were of the kind of specific performance, then the seller would have had 50000 from the price, and the buyer would have gained 10000. Efficiency now can be anyway achieved if the buyer, being rational, decides to resell the thing to the 2nd buyer for 65000. The 1st buyer thus would have a net gain of 5000.

The difference between the first and the second situations is the allocation of profit, ie the distribution of this additional wealth (to which economists are rarely interested in).



As a matter of fact, under expectation damages, the court sets the price that the seller must pay to breach the original deal, and the original buyer can only accept the damages. In contrast, specific performance allows the original buyer to participate in setting the terms of the breach, either by enforcing the original deal and reselling, or by bargaining with the seller over the price of a buyout. In general, it will always be true — according to Coase Theorem — that when breach is efficient, bargaining between the original contractors can yield the same result.

Regarding specific performance, it appears even more efficient if considering that expectation damages entails high **transaction costs**, that specifically identify themselves with the *litigation costs* generating by the duty of going to court and discussing, plus the court determination of the correct amount of damages. Let alone remembering that V is extremely hard to define with certainty. Transaction costs are thus lowered under specific performance.

In fact, if the breeding transaction for sale of land is governed by an expectation damages remedy, a breach by the seller will entail two further transactions: (1) litigation over damages owed to the first buyer and (2) resale to the second buyer. Although the transaction costs of resale are probably low, the costs involved in determining damages for the first buyer may be quite high. Recall that it requires measurement of the value of performance (V), which is the buyer's private information and is therefore subject to misrepresentation. Measuring it accurately could therefore be a difficult factual inquiry.

Under specific performance, there are two transactions needed as well: (1) a court proceeding, initiated by the 1st buyer, to enforce the contract, followed by (2) the sale from the original buyer to the new one. In this hypothesis, there is the reason to think that the litigation costs will be lower because of the absence of factual issues.

Peevyhouse v. Garland Coal and Mining Co. case (1962)

The case concerned a contract between the Peevyhouses, owners of a farm containing coal deposits, and a mining company. The contract allowed the mining company to conduct a strip mining operation for a period of five years, after which it was required to perform "certain restorative and remedial work at a cost estimated by expert witnesses at about \$29,000." When the mining company failed to repair the land, the Peevyhouses sued for damages. At trial, the mining company admitted to having breached the contract, arguing that the cost of performance was substantially larger than the mere \$300 reduction in the market value of the farm resulting from the failure to do the repairs.

→ In this case, additional costs loomed over the defendant during the operation, after the contract was made, and they increased in a striking way. Therefore, both specific performance and expectation damages would be really costly to hold. According to the defendant, the loss of the plaintiff was just \$300, namely the maximum sum they are amenable to pay for plaintiff's recover.

In this case, there is a misalignment between **subjective value** and **market value** of the thing. Market value measures the maximum amount that someone would *offer* for a piece of property, while the value to the owner is the minimum amount he or she would *accept*. After all, as often said, "*everyone has their price*". We should remember that, if the price P is equal to the **market value** (V_m), then contract efficiency requires that:

$$V_b \geq V_m \geq V_s$$

where **V_b** is the value to the buyer, **V_m** is the value to the market and **V_s** is the value to the seller. Therefore, if the subjective value (of the thing) of the seller is superior to its market value (V_m), he surely won't sell, because the value he gives to the thing is higher than the price he could receive for it. Even though in principle economic exchange should respect subjective value, this is usually unobservable.

Therefore, specific performance gives the possibility to resolve the problem through **negotiation**, buying the other's consent. So as to explain this concept, we should recall the last examined case. Let's suppose that the specific performance remains a threat to the defendant, who would be forced to relieve the plaintiff with \$29000 of damages. The assumption is that the cost of performance of \$29000 is even higher than the subjective value that the plaintiff gives to the subject matter of the transaction, therefore the



performance of contract would lead inevitably to market inefficiency. That is why parties had better **bargain**, finding an efficient solution between \$29000 and \$300 that respects parties' subjective values.

4. *party-designated remedies* = they are **liquidated damages**, namely agreed as part of the contract. They are in fact remedies specified by the parties at the time the contract is made. Since they are predetermined, they avoid litigation costs. Moreover, this kind of remedies allows parties to give a value to the performance.

There are several reasons why the parties to a contract might want to specify their own damage remedy rather than relying on a court-imposed remedy: firstly, they may wish to avoid the litigation costs that are involved; secondly, the court may have difficulty in measuring the loss from breach, especially if it includes subjective value; finally, the parties may want to structure damages to share the risk of breach in an optimal way. Yet, regardless of the reason, economists argue that courts should enforce liquidated damage causes because they reflect the wishes of the parties at the time of contracting. Courts generally follow this advice with one notable exception, scilicet they refuse to enforce damages that appear to be excessive (c.d. **penalty clauses**).

The prevailing doctrine states that they are enforceable only if they are a **reasonable approximation** of the actual losses from nonperformance, in view of the fact that excessive damages might induce performance when breach is more efficient. In this sense, the damage amount should be set equal to the *expected loss* of the victim of the breach.

The problem is that when the contract is written, the best that the parties can do is forming an expected value of the loss from breach. The *actual loss* may turn out to be higher or lower.



WHAT MICELI DOES NOT SAY

Information asymmetry systematically favors sellers and producers, whilst buyers have imperfect information and imperfect rationality. The latter, in turn, favors sellers, who analyze costs and benefits better than consumers do. The behavioral study of Law & Economics prophesies that biases affect real economic agents (first of all consumers), who systematically make mistake showing a **deviation from perfect rationality**. What Miceli assumes is that economic agents are rational, but it is not the case of real world, in which they are rather affected by imperfect rationality.

Information asymmetry, imperfect rationality and biases cause **behavioral market failures**, ie bad and biased allocations of resources that prove to be not efficient at all. The problem is that biases can affect the *decision-making process*: in fact, when consumers are imperfectly informed and imperfectly rational they *misperceive* benefits and prices, thinking to be better off when actually they aren't at all; this situation of buyer's misrepresentation is exploited by the sellers, which design their products, contracts and pricing schemes to maximize the **perceived net benefit** to consumers, that is opposed to their **actual net benefit**. In a nutshell, they take advantage of this situation so as to make profit to the detriment of consumers, who by contrary are convinced to have made a certain deal, yet actually they have just overestimated their gained benefit. Since, the misalignment between perceived benefit and actual benefit, if known to producers, can be exploited by the latter, legal interventions are undeniably needed, in terms of:

- *ex ante* rules on contract design = law must provide for duties to follow certain models of contract, so as to avoid the risk of information asymmetry;
- *ex post* right to withdraw = the right to withdraw from the contract, after the latter was concluded, must be granted (**ex. return of the thing after the sale**), though within a *reasonable* period of time that mustn't be neither too long nor too brief (**ex. if I am entitled to return my purchase only by 10 minutes, my entitlement to withdraw will be just a paper right, and not a real one**). Moreover, the exercise of the right to withdraw must be granted **without the burden of providing a justification** for having got out of the contract.



ARE WE RATIONAL?

To the interrogative “*are we rational?*”, the most reasonable answer places itself in a grey zone between polarized extremities. In this sense, we should reply that surely we are not *perfectly rational*, but rather *rational up to certain extents* and simultaneously we are used to *making mistakes*. Our attitude is thus halfway between *perfect rationality* and *imperfect* one. Therefore, it would be totally wrong to respond that *we are irrational*, since, despite the errors we make, we are undoubtedly endowed with some grounds of rationality, otherwise it will be impossible for humankind even to survive.

Nevertheless, many economists (like Miceli and Coase) of the so-called **Conventional Law & Economics** uphold the assumption that economic agents are actually rational, an assumption that, by contrary, is challenged by **Behavioral Law & Economics**.

One of the most important figures of the latter scholarship is **Daniel Kahneman**, namely the author of the theory on *System One* and *System Two*:

- S1 can be defined as the fast thought which leads to fast decisions and cranks out fast solutions to problems. This thought can prove to be right in some occasion and wrong in some others, considering that is an emotional thought influenced by feelings and extemporaneous states of mind, that requires no efforts to be held;
- S2 can be defined as the slow, analytic and rational thought, which produces outcomes after having reasoned on probabilities, statistics, facts, consequences, and so on.

Together with **Amos Tversky**, Kahneman developed, in the 1970s, the *Heuristics and Biases Research Program*, studying the **systematic deviations from Rational Choice Theory (RCT)**, ie the one upheld by Conventional Law & Economics. The deviations are mostly due to *heuristics*, that is to say mental shortcuts acting as double-edged swords, since they can guide us in a successful way as well as produce systematic errors and generate biases. Moreover, it must be specified that Kahneman and Tversky’s program, differently from Conventional L&E, does not derive from *a priori* speculations on human nature, but rather from *a posteriori* empirical findings underpinned by data.



SYSTEMATIC BIASES: A) FRAMING EFFECT

Let's start with an example: we are given to choose between alternative health programs aimed at eradicating the Asian disease, that would otherwise destroy the entire population of a community of 600 people:

- program (A) saves 200 lives with *certainty*;
- program (B) has the probability of 1/3 of *saving all* 600 lives and 2/3 of *not saving anyone*.

It could be argued that program A should be chosen because it gives us the certainty that at least a part of the population will survive and lineage will continue; contrariwise, it could be advanced that program B should be chosen because otherwise, in case of opting for program A, there could be luckier and less lucky people.

This is the second version of this problem: we are given to choose between alternative health programs aimed at eradicating the Asian disease, that would otherwise destroy the entire population of a community of 600 people:

- program (A) involves the *certain death* of 400 lives;
- program (B) involves a 2/3 chance of *losing all* 600 lives and 1/3 that *no one will die*.

The two versions of the problem are equal as to the content, but the **emphasis** differs: in the first representation, it enhance the *survival*, whereas in the second one it falls upon the *death*, and that is why in the first scenario most people will choose program (A) and in the second one the majority will opt for program (B). However, it should be noted that in program (A), in both scenarios, nothing is told about the remaining lives that, respectively, are not saved or whose death is not involved. It is usually believed that this alternative implies the certain death and the certain survival of remaining persons, and we'll continue reasoning with this assumption. If not, responses would be completely different and the majority of respondents would surely tend to prefer the first program.

Nevertheless, the most rational response would be that these experiments are the same as to their contents, but the diverse emphasis will provoke different answers regarding the congenial program to choose.

This technique of shifting emphasis is well-known to sellers and marketing-managers, which communicate their products in a strategic way (ex. they will never advertise a yogurt by saying that it has 90% of fats, but rather by alleging that is has 10% less of fats).

For all things considered, we can state that the way in which effects are framed generates different answers to a problem.

And there's even more: the two programs are *equivalent*, in both scenarios, in terms of **expected value** (or **expected utility**), that is given by the sum of all products between the value of a variable and its probability, namely:

$$EV \text{ (or EU)} = \sum p(x)$$

And in fact, in the case at end:

$$\begin{aligned} EV \text{ (A)} &= 200(1) + 400(0) = 200 \\ EV \text{ (B)} &= 600(1/3) + 0(2/3) = 200 \end{aligned}$$

Therefore, the two programs, involving equivalent expected values, are indifferent one from another.

In general, these deviations and differences from RCT are given: to the effect of the way the problem is presented; to the role of emotions (fear, panic, trust, etc.); to a sense of fairness (in our case, the value of collective survival would lead to a B choice); to the variety of human attitudes.

More technically, we could talk about **loss aversion**: in this sense, we tend to *take* risks when we think in terms of *losses* (**in the second scenario, in which death is emphasized, most respondents would opt for program B, that involves uncertain probabilities**), whereas we tend to *avoid* risks when we think in terms of *gains* (**in the first scenario, in which survival is emphasized, most respondents would opt for program a, that involves certain probabilities**).



SYSTEMATIC BIASES: B) HINDSIGHT BIAS

Let's start with an example. Between 1814 and 1816, a war was fought in Nepal between the British and the Nepalese population of Gurkhas. The question is who wins the war and with what probabilities, considering that:

- the British has better *military organization* and better *availability of weapons*;
- the Gurkhas has better *knowledge of the territory* and a *stronger motivation*.

The respondents state the following probabilities of victory:

BRITISH	GURKHAS
66,6%	33,3%
49%	51%
60%	40%
45%	55%
40%	60%

Then, a second version of the problem is given.

Let's start with an example. Between 1814 and 1816, a war was fought in Nepal between the British and the Nepalese population of Gurkhas. The question is who wins the war and with what probabilities, considering that:

- the British has better *military organization* and better *availability of weapons*;
- the Gurkhas has better *knowledge of the territory* and a *stronger motivation*;
- **the British won.**

The respondents state the following *ex ante* probabilities of a British victory:

BRITISH	GURKHAS	
66,6%	33,3%	
80%	20%	BIAS
70%	30%	
45%	55%	BIAS
50%	50%	BIAS

As we can notice, the first and third respondents, after having acquired the additional information of British victory, advanced consistent and rational probabilities, whereas the second, fourth and fifth respondents advanced biased and irrational probabilities. The effect of the received information on the estimate of the *ex ante* probability has been their **systematic overvaluation**.

The **hindsight bias** consists indeed in revising the given probabilities once having received an additional information, although an *ex ante* probability question should not be answered by taking into consideration this *ex post* information, and therefore the initial response on probability must not be changed. Nevertheless, unfortunately people tends in fact to *judging in hindsight*, meaning that once they know how things went, they tend to estimate the relevant event as *more predictable* than it really was.



This effect can be quite dangerous within legal issues, most of all when it is needed to assess liability, and specially **negligence**: as a matter of fact, the P in Hand formula is always calculated *ex post*, when the event already occurred, thus causing its biased overestimation. This deviation from rational choices occurs even more when the decision-maker is a jury and not professional judges.

After all, when you acquire an additional information, it is quite impossible to cancel it from your mind and judge without taking it into account. Yet, even if the problem of bias can't be eradicated, it might be at least mitigated by disregarding other overwhelming additional information. For instance, if I fall in a supermarket because of a banana peel on the floor, I shouldn't use as argument — despite the high temptation to do it — the fact that, after my injury, the supermarket intensify the cleanups. The judge must not accept this kind of evidence, and its categorical exclusion is stated also in **US Rule 407 FRE**: “when measures are taken that would have made an *earlier* injury or harm *less likely* to occur, **evidence of subsequent measures is not admissible** to prove negligence, culpable conduct, a defect in a product or its design, or a need for a warning or instruction. But the court may admit this evidence for another purpose, such as impeachment or — if disputed — proving ownership, control, or the feasibility of precautionary measures”.



SYSTEMATIC BIASES: C) ANCHORING EFFECT

Let's start from an example. If you are asked to answer in only 5 seconds to:

$$1 \times 2 \times 3 \times 4 \times 5 \times 6 \times 7 \times 8 = ?$$

the median estimate of answers will be 512.

Instead, if you are asked to answer in only 5 seconds to:

$$8 \times 7 \times 6 \times 5 \times 4 \times 2 \times 1 = ?$$

the median estimate of answers will be 2250.

Yet, the correct answer is 40320. What is the explanation to this deviation from rational choices?

The sole discriminant between the first and the second operation is the order of numbers. It is relevant because we always have *points of references* that we solidly take into consideration while calculating, and these normally identify with the first given elements: not by chance, answers to ascending series are a lower result, since our points of reference to make the calculation were 1, 2 and 3; instead, answers to descending series are a higher result, since our points of reference to make the calculation were 6, 7 and 8. It means that we tried to guess the result ('guess' because, obviously, unless endowed with magical mathematical propensity, we were totally unable to carry out a real calculation) basing on the first given numbers, and as showed, if they are not reliable indicators, anchoring doesn't work as a good heuristic, only leading to error.

This points of reference are **given figures as anchors** and expands their effects also in legal field. In fact, if the plaintiff claims for a certain amount of damages, the judge receiving this proposal will be in real difficulty to drift apart from that anchoring value. The traditional view is that in criminal cases, before the decision is made, the defense must have the last word; therefore, if there is an anchoring effect, prosecution will be advantaged.



PROPERTY LAW

Property rights are a creation of society: they delineate the boundaries between what individuals can and cannot do with assets —be they tangible or intangible — under their control.

The functions of property law have been matters of discussion by scholars of all centuries, starting from **Thomas Hobbes**. Talking about the passage from the *State of Nature* to the *civil society* by means of a *social contract*, he described it as a **good and Pareto-efficient move** because in civil society everyone is better off, instead in the State of Nature life is “solitary, poor, nasty, brutish and short”(Leviathan).

In fact, civil society has attributed **property rights** to individuals as positive law, being it also **productively efficient**: holding property rights means that persons can extract *wealth* from owned things, and each one has an *interest* in gaining such a wealth. Moreover, if it's the law to grant enforcement of these rights and defense of one's property, than anyone will have to spend resources, money and time to protect himself — differently from the state of nature, where everyone must protect himself constantly and think only to survive. Thanks to this action of law, in civil society individuals can employ the time that in the state of nature they devoted to survival attempts, to develop an economic activity: for all things considered, we can state that property law **reduce the costs of protection (since law provides it for us)** and **encourage production** toward a better allocation of resources. Therefore, property law provides for both Pareto and productive efficiency. The economic rationale of property rights was tackled also by **John Locke**, who exposed his **Labor Theory** in his work *Second Treatise of Government*. He thought that *labour* entitles the one who carries it out to gain property, in the sense that what comes for your labor, what is produced through labor with your own hands, is yours as property. His words are the following:

“Though the earth, and all inferior creatures, be common to all men, yet every man has a property in his own person: this nobody has any right to but himself. The labour of his body, and the work of his hands, we may say, are properly his. Whatsoever then he removes out of the state that nature hath provided, and left it in, he hath mixed his labour with, and joined to it something that is his own, and thereby makes it his property. It being by him removed from the common state nature hath placed it in, it hath by this labour something annexed to it, that excludes the common right of other men. For this labour being the unquestionable property of the labourer, no man but he can have a right to what that is once joined to, at least where there is enough, and as good, left in common for others.”

So as to paraphrase, Locke debuts by saying that even though there are goods, such as earth and inferior creatures, that are *common*, ie they belong to anyone, every man has individual property rights: first of all, on his own *body*, and secondly on the things he produces with the **labour of his body**, with the **work of his hands**, as well as all the things he removes from the state of nature and mixes with something of his own.

As regards to the view on the state of nature, Locke thought it be not so bad because it provides for things on which everyone has common rights and that can me annexed to things made with one's own labour. He thus covers an intermediate position between Hobbes, that completely demonized the state of nature, and **Jean-Jacques Rousseau**, who by contrary exalted it. The latter, indeed, thought that everyone was happier in the state of nature, whereby resources were not scarce but rather sufficient for anyone. His words, contained in his masterpiece *Discourse on Inequality*, are the following:

“The first person who, having enclosed a piece of land, took it into his head to say “This is mine” and found people simple enough to believe him, was the true founder of civil society. What crimes, wars, murders, what miseries and horrors would the human race have been spared, had someone pulled up the stakes or filled in the ditch and cried out to his fellow men: ‘Do not listen to this imposter. You are lost if you forget that the fruits of the earth belong to all and the earth to no one!’”

Rousseau hence thought that society started degenerating when someone, for the first time, said “this is mine”. In his view, property rights as *individual rights* are bad and should not be present in law; an idea subsequently upheld by anarchists and Marxists.



In modern debate on property, a popular argument was the one on the **tragedy of the commons**, illustrated in the following way: imagining there is a community of herdsmen (shepherds) having a **group ownership** of grazing land (ie a common right of property on a single land) and an **individual ownership** on each one's animal. As a rational being, each herdsman seeks to **maximize his gain**; explicitly or implicitly, more or less consciously, each one asks to himself: "what is the *utility* to *me* of adding one more animal to my herd?". This utility has both:

- a **positive component**, ie a function of the increment of one animal. Since the single herdsman receives all the proceeds from the sale of the additional animal, his positive utility is nearly **+1**;
- a **negative component**, ie a function of the additional overgrazing created by one more animal. In fact, if each herdsman, indeed to maximize his own gain, adds one more animal, the land will become overgrazed, overcrowded, consequently be **resources depleted and overused**. Since, however, the effects of overgrazing are shared by all the herdsmen, the negative utility for any particular decision-making herdsman is only a fraction of **-1**. As a matter of fact, adding together the **component partial utilities**, the *rational* herdsman concludes that the only sensible course for him to pursue is to add another animal to his herd.. and another, and another again. The **tragedy** is that this is the conclusion reached by each and every rational herdsman sharing a commons.

The same reasoning could be carried out with regards to fishing: if every fisher starts fishing more and more, the over-fishing will empty the sea and cause the extinction of marine species.

However, it must be pointed out that group ownership has the advantages of **exploiting scale economies and risk sharing**, on condition of strong commitment and social control. The latter *social control*, in particular, was heavily impacting in the ancient small communities, where caps on the quantity on things that could be owned and demographic limits according to the amount of available resources were set out by the law. Contrariwise nowadays, in modern, globalized, interconnected communities, it would be really difficult to think about *common property*, though there are activities and resources that absolutely can't be parceled out (**for example the same fishing, since you can't in principle divide the sea into sections, differently from lands that ease to do it**): therefore, in the latter exceptional cases, it would be better to keep ownership as common and imposing social control, a regulation, which firstly aims at prohibiting and penalizing the destruction of the shared thing.

According to Miceli, property law has the **economic function** of:

- enforcing contracts, which knowingly provide for an efficient allocation of resources;
- protect investments in property, so as to stimulate an economic activity that would not be privately financed in absence of individual property rights.

It is needed a **stable background** of property law, in the sense that it must not change a lot, so as to allow economic activity to take place in a fluent way.

The **ownership of an asset** thus appears to be a *bundle of rights*, including:

- the right to *use* the asset;
- the right to *dispose* of the asset;
- the right to *exclude* other from using the asset. It is also linked to Coase Theorem, given that the confectioner wanted to exclude the doctor from exercising economic activity, and the doctor vice versa.

The law enforces these rights, but only up to the point where they become *incompatible* with the rights of other individuals; *incompatible rights* is just another way of saying 'externality', and law will generally limit property rights in the presence of externalities. Yet, a limit of one's own property right can be also the fruit of individuals themselves' *choice*, in order to enhance the value of the asset (**ex. a landowner may lease his land to tenant farmers, thereby contractually dividing the previous rights between the landlord, which will retain the right to dispose, and the tenants, that will have the right of use and exclusion**).

One way property rights create *efficient incentives* is by **internalizing externalities**, both positive (as benefits to the producer-owner) and negative (so as to avoid that damaged parties could limit the owner's economic activity). An externality exists when a decision maker does not internalize the



full costs or benefits of his activity. A useful way to think about externalities is that they exist when property rights are not completely defined. **Incomplete property rights** lead to *inefficiency* of:

- *exchange* = exchange efficiency requires that resources end up with the party who values them most. **Well-defined property rights** promote this outcome by allowing *market exchange*: if you value my property more than I do, then you will offer a price that I will accept; for this to happen, however, you have to be confident that I alone have the legal right to sell my property, and that once you acquire it you will have the exclusive right to use it; that is why people are sometimes reluctant to buy property they believe to be stolen;
- *production* = property rights also create efficient incentives for production. People will invest resources to produce goods only if they have the exclusive right to sell what they make. As a general rule, therefore, exclusive property rights are necessary to ensure adequate protection. The lack of well-defined property rights can instead lead to **overproduction**, as in the *tragedy of commons* case: the excessive depletion of an **open-access resource** results when several producers have **unrestricted access** to the resource.



WAYS OF LEGALLY ACQUIRING PROPERTY

Property can be legally acquired through different ways:

- creation of ideas, that can licitly count as a way to acquire a property right;
- production of material goods, thus acquiring property rights on those precise goods;
- contracts, wills and inheritance law.

An interesting focus should be made on the so-called **fugitive property**, that can be legally acquired as well: it concerns things like natural gas or wild animals that are likely to 'escape', being rather unstable. Its acquisition can take place according to two alternative principles:

(1) principle of **first possession** = ownership is acquired by the first possession. In this sense, if one manages to catch something fugitive, gaining possession on it, then he becomes the legitimate owner (remember Popov case).

First possession has historically been the dominant method for establishing property rights in the law, but it also pervades less formal modes of behavior according to rules like 'finders keepers' and 'first come, first served'. To the philosopher John Locke, the rule was justified on the ground that when an individual combines his labor with property, 99% of the realized value is due to the labor;

(2) principle of **tied ownership** = owner of surface land has exclusive right on fugitive property on it (ex. wild animals) or under it (ex. natural resources such as gases).

So as to make an example and comparing the different situations that create if either one or the other principle is applied, let's imagine that a wild rabbit crosses our land. If operating under principle (1), then we'll become the owner of the rabbit if and only if we manage to acquire possession of it before anyone else; contrarily, if operating under principle (2), we'll become the owner of the rabbit just for the fact that it is a fugitive property staying on our surface.

Hammonds v. Central Kentucky Natural Gas Co. case (1934)

The Central Kentucky Natural Gas Company leased tracts of land above large deposits of natural gas. Some of the leased tracts were separated from one another by land that the company did not own or lease. The geological dome of natural gas from which the company drew its supply lay partially under the leased land and partially under unleased land. Hammonds owned 54 acres of land that lay above the geological dome tapped by the company, but she had not let the subsurface rights in her land to the company. When it extracted natural gas and oil from the dome, she sued the company on the theory that some of the natural gas that was under her land had been wrongfully appropriated by the defendant.

→ In this case, consequences on property rights change according to the operating principle: if it be the (1), the Company had the first possession of the natural gas, therefore he gains a property right; be it the (2), the Hammonds is the legitimate owner of what is on and under his surface, therefore the company has stolen parts of his natural gas.

What we should set forth now is which is the most efficient principle to apply from an EAL's point of view.

The principle of *first possession* may be arguably the most efficient one because, assigning property right to the company, so as to extract wealth from it, it acts as a rule who is efficiently allocating the resources upon the **high-valuing agent**.

First and foremost, both principles involve **litigation costs** if applied: it would be really difficult to establish if the company has acquired the gas by first possession, as well as establishing the amount of gas that was actually owned by Hammonds according to his ownership of rights, be the dome under partially leased and unleased land (in this sense, how to prove that the gas was extracted from a precise zone rather than another?).

We could also speculate on the reason why Hammonds decided not to let the subsurface rights in her land to the company, perhaps for personal motives or because he planned to make other projects on his land. But, if the company is actually the high-valuing agent, it will surely accept the price that Hammonds would make to let the subsurface rights in his land, avoiding litigation costs and entailing only the mere cost of transaction: in this sense, both the agents will be better off. Another answer to Hammonds' reluctance could be that his subjective value of the land exceeds the one of the company, or that transaction costs for the leasing of rights were too high to be borne.



A counterargument in favor of the principle of *tied ownership* could be that the opposite principle of first possession implies a risk: it incentivizes everyone to become the first possessor of the fugitive property; everyone will invest so as to become the first possessor, but in the end just one among many will turn into it proving its investment to be useful, whereas the investments of all others will be lost, provoking an **economic loss**. Therefore, the intrinsic risk that the application of the principle of first possession entails is a collective **over- investment** so as to acquire the first possession (as we remember, in Popov case all spectators were craving and rushing so as to acquire the ownership of the ball, they made investments towards this perspective).

Another EAL issue is whether the principle of *first possession* can be applied also to **non-fugitive property**, and the answer is in the affirmative, unless there is a legitimate owner. Apropos of this, we can mention the episode occurring in occasion of the **Homestead Act** (1862) about public land in the West of the US.

So as to stimulate the inhabitation of Western area of USA, the government decides to give public land to private citizens, awarding property rights to land on a 'first come, first served' basis: citizens must pay just \$10 as entry fee, acquire the first possession of a land and promise to reside for 5 years; under these conditions, they acquired ownership on those lands, as non-fugitive properties. At this point, we can make a **cost-benefit analysis (CBA) of First Possession approach**:

COSTS	BENEFITS
<p>Wasteful race to acquire exclusive use of a resource. As already disclosed, it refers to over-investment. In fact, this method for allocating land is often regarded as <i>inefficient</i> because it causes everyone to rush to the land so as to preempt other potential possessors and, in the process, dissipate the value of the land.</p>	<p>Mix of private and public methods. Regarding the Homestead Act case, land ownership on the frontier was a risky proposition — considering potential threats by natives and wild fauna — but some protection was provided by the government with military presence and the settlers invested in forms of self-enforcement, having almost anyone carried a gun.</p>
<p>Excessive depletion of an open-access resource, as happened in the tragedy of the commons.</p>	<p>Less administrative (and litigation) costs, namely the costs of establishing who's the real owner.</p>

Overall, the first possession principle appears to be a **value-maximizing policy**.

Pierson v. Post case (1905)

Post, being in possession of certain dogs and hounds under his command, did, on a certain wild and uninhabited, unpossessed and waste land, called the beach, find and start one of those noxious beasts called a fox, and whilst there hunting, chasing and pursuing the same with his dogs and hounds, and when in view thereof, Pierson, well knowing the fox was so hunted and pursued, did, in the sight of Post, to prevent his catching the same, kill and carry it off. A verdict having been rendered for Post, who was the plaintiff below, and Pierson appealed.

→ In this case, Post made an *investment* (employing his dog) so as to hunt the fox, which is a **fugitive property**, and in this perspective Pierson was just a **free rider** acquiring the property of the animal without putting any money to reach such an outcome. Therefore, from an EAL's point of view, it would be more efficient to give the property to Post. Yet, it could be objected that Post has never acquired possession over the fox, hence according to the principle of *first possession*, ownership right should fall upon Pierson.

In the end, the court of appeal reversed the judgement of the lower case in favor of Post, thus holding for Pierson, stating that, however '*uncourteous or unkind*' the conduct of Pierson towards Post may have been, his act was nonetheless productive of **no injury or damage for which a legal remedy can be applied**.



ENFORCEMENT OF PROPERTY RIGHTS

When property rights first emerged, they were mostly protected by private threats of violence or force, instead in modern societies, they are primarily protected by the government, which holds the **monopoly of the use of force**.

Even though, in the absence of government, private enforcement is the only option, it is a maneuver that puts the greatest power in the hands of the strongest. In an effort to gain an advantage in this setting, individuals are likely to form associations in which members pledge to protect one another's right; this has the benefit of **exploring economic scales in protection** — because deterrence is a public good — but is also subject to **free riding**. Further, competing associations may become entangled in 'turf wars' for control of a given area. Once again, violence is the ultimate arbiter, and a dominant association eventually emerges.

The transition to a state further requires that the dominant association acquire monopoly control over its use of force. As with any monopoly, however, the risk of abuse exists. Democratic states therefore usually take additional steps to ensure legitimate use of the government's monopoly on force, including creation of a constitution to limit the government's powers and periodic review of its performance by means of elections.

In modern societies, individuals still **invest in private protection** of their property, mainly as a supplement to public protection (ex. in security systems in houses, cars and factories). For the most part, however, protection of private property is a function of the government.

Now we are going to deal with *no-fugitive property*, specifically with **land ownership** in cases that a dispute arises on the legitimate entitlement regarding it.

In a world of *perfect information*, possession is sufficient to establish legitimate ownership because prospective buyers are confident that all previous transfers of the property occurred by *consensual means*, and so the current possessor is also the *rightful owner*. Thus, there is no risk that a previously defrauded owner will arrive and assert a claim. In reality, however, information is not perfect, and buyers always face the risk of past thefts or error. An important function of property law, therefore, is to **minimize this cloud of uncertainty**, thereby improving the efficiency of market exchange.

Since information is costly, however, legal protection of ownership (also known as *title*) will generally not be complete. Rather, an efficient system will protect title up to the point where the **marginal benefit of increased security** equals the **marginal cost**. For all things considered, in a world of costly information, buyers and sellers will not choose to verify ownership with certainty before transacting: as a result, owners will sometimes be deprived of their property by fraud, theft or error. If the deprived owner later discovers the loss and asserts a claim for a property, should the law protect the **possessor** (ie who acquired the property in a legal manner) or the **claimant** (ie the last supposedly rightful owner)?

The answer changes according to the system we adopt. In particular, there are two systems for protecting title to land:

- a. *recording system* = prospective buyers can consult a public record for evidence that possessor has title, but the record itself does not establish title. If the claim is proved sound, this system awards **title to claimant** and **compensation to possessor**. However, it provides for high litigation costs, since there is uncertainty on possessor's title. In fact, depending on the thoroughness of the search, errors or omissions in the record, or differences in lawyers' interpretations, there may remain a residual risk of a claim. As a result, buyers search the record anew with each transfer and generally purchase title insurance against the possibility of a future claim;
- b. *registration system* = buyers registers property with the government at the time of the purchase, followed by judicial inquiry into the status of the title. If no claim is found, government issues a certificate that is good against future claims. Therefore, this system awards **title to possessor** and **compensation to claimant**. This system provides for more certainty and less litigation costs.

The two systems thus provide opposing solutions to the fundamental problem of title protection under uncertainty.

According to Oliver W. Holmes, the latter system must be preferred to the former because "man, like a tree in the cleft of a rock, gradually *shapes roots to its surroundings*, and when the roots have grown a certain size, *can't be displaced without cutting at its life*". He intends that man confers a **subjective value** to the land he possesses, hence possession and subjective value are *inextricably*



linked, and the more time he possesses the land, the higher the subjective value. This is the so-called **endowment effect**, which we'll recall later in a better-detailed way, showing that the more a person possesses a land, the more the subjective value he has towards the land grows.

As a consequence, it is inevitable that possessor generally prefers title to compensation: they would rather a system that allows to retain title than receiving market value as compensation. Conversely, the claimant, although having utility over land and wealth, considering that he is not currently occupying the land (and maybe he never has), it is reasonable to suppose that he has little or no subjective value. In this case, he will value the land at roughly its market value, and accordingly he will be **indifferent** between title and compensation.

As a result, the registration system seems better because it leaves the land in the hands of the higher valuer, ie the possessor. Instead, if it is actually the claimant to be the higher valuer, then he will rationally buy the land from the possessor. There are two qualifications to this conclusion:

- 1) if compensation is adjusted to account for subjective value, then the possessor should be indifferent between receiving the land or receiving compensation. The problem with this solution is the difficulty in measuring subjective value;
- 2) although the recording system *initially* awards title to the claimant, the former possessor may be able to repurchase it from him.

As already disclosed, the topic of possession is linked as well to the so-called **endowment effect**, which shows that people change their evaluation on certain things when they acquire them. In this sense, they attribute a certain value to the thing when they are going to buy it, and a different one when they are about to sell it. This behavior is bizarre from an EAL point of view, since we shouldn't revise our subjective value on resources once we have gained them.

However, this difference in value can be explained according to **loss aversion**, which several men frequently show: for instance, if asking to a slice of population whether they would accept tossing a coin with +10 if it lands heads, and -10 if it lands tails, a conspicuous number of participants will refuse to bet. And the intrinsic cause if that, usually, we are **more concerned about losses than gains**, even if they are equally likely to take place, as in the case at hand: the probability of the coin of landing heads (0.5) is the same as landing tails (0.5), thus producing, in both hypothesis, an expected value of (\pm) 5. Nevertheless, we could bet on the prediction that many people will not play because, disregarding the equal probability of succeeding and failing, *a priori* they do not want to run any risk of loss.

The endowment effect thus consists in giving a different value to an item once you have it. Recalling an example we have already made with reference to contract law:

	Seller	Buyer	Total Wealth
S ₁	5000	10000	15000
selling price: 7500			
S ₂	7500	12500 (10000 + 2500)	20000

According to a **standard economic theory**, the value to the buyer in the first and second states of affairs doesn't — and shouldn't — change. However, an experiment regarding the endowment effect has shown that many people are amenable to spend \$3 for buying a mug but, when to sell it, they are willing to accept a price of at least \$7. The fact is that we perceive the loss of a thing or of an amount of money as more relevant and concerning than a gain could be, even if the expected utility is the same.

It is not utterly clear why people tend to be *loss-averted*. Nonetheless, looking at the bright sides of this characteristic, it has undoubtedly constituted an evolutionary element which have prevented humans, throughout centuries, from running the most disparate risks. It has thus represented a good element for mankind survival.



REGULATION AND LIMITATION OF PROPERTY RIGHTS AND INTELLECTUAL PROPERTY

Property rights can be limited.

Intellectual property rights are generated by the creation of *ideas*, which thus acquire an economic value. If the creation of ideas is recognized by the law as a legal way to acquire property, then the law *protects* the holder of such rights. However, when dealing with protecting ideas, a **trade-off** engenders between:

- protecting ideas = it will cause **benefits to the inventor**, who will have his invention safeguarded, but **costs to society**. Apropos of the latter consequence, protection of ideas creates upon the inventor an *exclusive property right*, which involves the *right to exclude* all other from enjoying that idea. As a consequence, the latter becomes a *closed-access resource* that other people can't make use of;
- not protecting ideas = it will cause **benefits to society** from availability of ideas but **costs to inventors**, since his idea will become publicly knowable, within everyone's means.

The solution of this trade-off requires an understanding of the economic distinction between:

- o **private goods** = goods that are *rival*, ie their consumption by one person leaves less, if not outright none, for the others. In this sense, one's consumption prevents others' consumption (**ex. an apple**);
- o **public goods** = goods that are *unrival*, ie their consumption by one person does not leave less for other consumers, does not generate a loss for others. Therefore, a public good remains the same regardless of how many people make use of it. An example could be the **information**, as the consumption of an information by one does not compromise the amount of information that is available for others.

However, ideas and other creative works are costly to produce, and common ownership may prevent originators from fully capturing the returns from their ideas, thereby possibly inhibiting creation of those ideas in the first place: this is known as *appropriability problem*.

As a consequence, private production/ownership of public goods will result in **underproduction** because the producer will not internalize the full consumption benefits: as a matter of fact, a public good as information can be communicated also for free, in a 'word of mouth' way, therefore a private citizen will not be incentivized in producing such 'non-profit' public goods.

Moreover, **exclusion costs** for public goods are usually high for private producers to bear: just to think about how difficult it could be to find a way for barring people from disclosing an information. That is why governments usually provide **public information systems**, so as put everyone in the position of acquiring an overall knowledge of such information.

For all things considered, intellectual property (ideas, inventions, musical compositions, artwork), being usable by everyone, is usually viewed as a *public good*: it can in fact be reused without diminishing in quantity, obviously with physiological exceptions (**ex. a painting can be observed by anyone, but it can't be said to be 'totally public' or of 'public property'**). However, all objects of intellectual property are **costly to produce**, requiring labour, resources, capitals and time to invest, but these private producers will be discouraged if they couldn't internalize at least a part of the benefits. Therefore, another *trade-off* engenders between the **benefits of public ownership of ideas** and the **need for incentives to invest in producing them**. So as to give an answer to the latter, with the aim of avoiding producers' discouragement, law provides for the following solutions:

1. **PATENTS** (brevetti). Ideas and inventions are different from private goods such as apples. A farmer can capture returns in apple investment by charging price for apples and can deny consumption to non-payers by bearing certain exclusion costs (that will be borne, obviously, as long as the resulting gain for the farmer, as producer, is greater). Instead, it is difficult for investors to prevent non-payers from using their ideas, given the super **high exclusion costs**. Therefore, the patent system awards **exclusive property rights in ideas** to inventors: patents thus **protect ideas** as such. However, on the other hand, it creates a **monopoly problem**: as the sole producer of the patented invention, the inventor will have an incentive to restrict output and raise prices, thereby depriving society of the full benefits from the use of the idea. So as to solve this problem of monopoly, law imposes a **time limit** on patents, usually for **20 years**, meaning that the inventors will be able to internalize the full benefits of his idea just for



that limited period of time. Notwithstanding, one could argue that actually the congenial patent life depends on multiple variables (the kind of idea, the economic loss, the investment in creating it, etc.), therefore it would be more appropriate to carry on a *case-by-case analysis* on the due legal protection. Yet, as tailoring patent length will be too costly (high *information costs*), the patent life is established by an average measure, by a generalized standard provided by the law, that is indeed normally 20 years. The **optimal patent life**, giving optimal incentives to invest in ideas, balances two effects: (1) welfare loss from monopoly and (2) investor's returns.

However, the patent system entails problems as well, that are:

- *patent races* = because the patent is *valuable* (owing to the monopoly returns), **over-investment** in research and development of ideas, as well as it happens with people *racing* to become the first possessor; in fact, this is an illustration of the *inefficiency* associated with the assignment of property rights by a rule of first possession. An offsetting factor, however, is that patent races may hasten the development of new technologies and lead to the unintended discovery of others (an external benefit). Thus, the overall effect of a patent race on efficiency is ambiguous;
- *patent scope* = need to define the **extent to which ideas are protected**. In fact, the patent system can involve **litigation costs**, not on the *duration* of protection — since, as disclosed, it is directly set out by law (20 years) and therefore there is nothing to dispute on — but rather on the *imitation* of an idea. Indeed, if my idea is protected and you have the *same* idea as mine, yours can't be protected, in favor of mine. But if your idea is just *similar* to mine, then litigation becomes more expensive because it emerges the need to establish to which extent two ideas are similar or can be considered to be similar, and according to which parameters. A broad patent offers great protection to inventors, thereby spurring investment, but it also limits the ability of rivals to develop new and useful products. From a legal perspective, patent scope is not as clearly defined as patent length, in the sense that there is no set rule for determining when an infringement has occurred. Thus, in contrast to length, courts can tailor decisions on patent scope to the characteristics of individual inventions or fields.

An alternative to patents for stimulating inventive activity is a **government system of rewards** paid to innovators. The prospect of the reward provides the incentive for innovation, but unlike a patent, the invention would immediately **become public property**. Thus, rewards have the advantage over patents of eliminating the deadweight loss from monopoly. The disadvantage is that the government may lack the information necessary to set the appropriate reward, thereby possibly leading to inefficient investment incentives. In particular, innovators will have better information about their costs and probably better information about the social value of an invention. A reward system therefore does not appear to offer a clear advantage over a patent system.

2. **TRADE SECRETS**. This kind of protection takes mainly two advantages: (1) the inventor does **not need to reveal** the nature of the invention; (2) it is of **unlimited duration**. However, the chief disadvantage is that trade-secret law offers **less protection** than a patent. Although disclosure by 'improper means' (such as by employees or by espionage) are forbidden and punishable, competitors can *legally* appropriate the idea by means of **independent discovery** or reverse engineering. In this way, the duration of the secret is effectively limited.

These characteristics of trade secrets suggest that they will be most useful to inventors whose ideas will take longer than the legal length of a patent to discover, or for inventions that are not worth the cost of patenting. Trade-secret law therefore supplements patent law by offering a lesser degree of protection, and at a lower cost, for less valuable information.

3. **COPYRIGHTS**. Copyright law provides legal protection to writing, music, artistic, works, and other creations, and it generates the trade-off between benefits to the creators and interest of others in having such information and ideas. It is of **limited duration**, specifically it lasts for all the creator's life plus 70 years after his death. This time limit encourages production of creative materials without overly limiting their use.

Similarly to trade-secret system, copyrights do **not preclude independent discovery** (provided that independence can be proved), only *copies*. Law thus acts in a more loosened way in this case, but just because we shouldn't actually be concerned about the acquisition of copyrighted ideas: in fact, it is quite unlikely that a person, with an independent discovery, formulates the



same poem line or writes the same novel of ones that are copyrighted; the possibility of unintentional duplication is remote.

It must be specified that copyright law protects the **expression of the idea** (ie the way in which an idea is expressed), rather than the idea itself (**that is as such protected, instead, by patents**). This limited protection makes sense since protection of the idea would greatly impede the production of creative works by requiring each prospective producer to obtain the holder's consent. Nonetheless, it could generate some **litigation costs** regarding the *similarity* between two expressions of the same idea.

Copyright law can be **exceptionally** set aside via the *doctrine of fair use*, which allows **limited copying for educational purposes**, criticism or review. It must be specified that 'fair use' is just a standard, not thoroughly defined by law; the proper economic standard for allowing fair use involves asking whether, in a world of *zero transaction costs*, the copyright holder would have consented to the use in question. In this way, fair use imposes a market test on the transfer of copyrighted ideas. Relating to this exception, a case involving Google arose, when several writers claimed that Google Books database was violating copyright rules. To their dismiss, Google Books database was at the end considered *fair use* and thus preserved authors' copyright entitlements. That is because the database contains the full text of *public-domain books* and just **small portions of copyrighted books**. In 2013, the US Second Circuit Court of Appeal pointed to the significant public benefits of the wide availability of such works and the sufficient protection of the rights of copyrights holders.

More difficult cases have emerged with the development of **new and cheaper copying technologies**. Copyright holders have, for example, brought cases of **contributory infringement** against manufacturers of technologies that *facilitate* infringement by others. Two famous cases have involved the use of *videocassette recorders* (VCRs) to copy television programs for later viewing, and the use of computer software to allow the free sharing of digital music files among users.

In the VCRs case (*Sony Corp. of America v. Universal Studios*, 1984), the US Supreme Court ruled that recording of individual television programs by home viewers for purposes of '*time-shifting*' was not itself an infringement but *fair use*. **Time-shifting** can be defined as *private and domestic use*, namely for the purpose of viewing or listening the recoding at a more convenient time. The court further held that manufacturers of VCR equipment were *not liable* for contributory infringement because the technology had **substantial non-infringing uses**. In contrast, in the music sharing case (*A&M Records v. Napster*, 2001) the US Court of Appeals held Napster *liable* for contributory infringement because, although the court concluded that the technology also had non-infringing uses, it found that Napster had actual *knowledge* of some users' infringing behaviors.

Nevertheless, these case clearly show the indeterminacy of *fair use* standard, together with the risks and litigation costs it can implicate. Therefore, courts need to continually adjust the scope of fair use in the face of technological change, so as to maintain the proper balance between incentives to produce new ideas and the benefits of making theme widely available. Otherwise copyright will become more and more similar to public domain, and exclusion costs will increase. Despite the ruling in *Napster*, it is clear that advances in technology have weakened the copyright protection of creators, but at the same time, other technologies have lowered the cost of producing and marketing new works. The evidence shows no apparent decline in the quality or quantity of new musical works, suggesting that copyright protection of this form of artistic creation remains adequate, even in presence of new technologies for disseminating these creative works.

Copyright is the branch of property law protecting works having an intellectual or artistic nature (whereas patents protect works of industrial nature). Under copyright law, it is not forbidden to discover an idea and develop it autonomously, but it is forbidden to exactly copy the idea as already expressed by someone else.

David Bowie/Queen v. Vanilla Ice case

This is a **music copyright case**. Vanilla Ice's song "*Ice Ice baby*" was claimed to have the same baseline of Queen's song "*Under Pressure*": admittedly, *Ice Ice Baby's* baseline contains **just one note more** that *Under Pressure's* one. The similarity is patent and undeniable, it was an



easy case to solve, undoubtedly held for Queen. So as to avoid litigation costs, given that Vanilla Ice were aware they would have lost the case, they bargained an adequate compensation to the plaintiff without going before a court.

Skidmore (Spirit) v. Led Zeppelin case

This is a **music copyright case**, but harder than the previous one because here there are more factors to take into account. Spirit's song "*Taurus*" appeared so similar to Led Zeppelin's song "*Stairway to Heaven*" that it was highly probable that the latter band had stolen the song from the former and pretended to be original. However, it could be argued that Led Zeppelin acquired such idea through an **independent discovery**.

- arguments for the plaintiff Spirit = the songs have the same **cord progression**, thus Led Zeppelin violated copyright law.
- arguments for the defendant Led Zeppelin = it should be remembered that copyright law protects the expression of the idea, rather than the idea itself. Since *Taurus* is more an orchestra-like song, whereas *Stairway to Heaven* is tainted with a lyrics and other instruments over the baseline, it could be argued that, even though the *idea* of cord progression is similar, it is *expressed* in different ways by the two artists. After all, music history swarms with resembling songs, having pretty the same melodies, tunes or cord progressions. Music history is full of **clichés**, therefore sentencing all cases in which two songs appear to be similar in some characteristics would lead to a tidal wave of judicial cases to solve. The case at hand undoubtedly implicates a *line cliché*, but the idea is differently expressed by the two authors.

Furthermore, on account of the fact that copyright law does not preclude independent discovery, it is the plaintiff to bear the burden of proving, according to a certain standard of proof, that Led Zeppelin's discovery was actually not independent.

The Court decided that songs were not sufficiently similar, as anyone could acknowledge directly by listening to the two songs.

4. **TRADEMARKS**. Trademark law protects symbols, phrases, or any other *distinctive signs* that **uniquely identify** a product or a service. Legal protection of a trademark requires a sole simple thing: that the owner be the first to **use it commercially**, though protection may be limited to the geographical region in which the product or service is advertised. Wider protection requires the owner to register the trademark with the federal government. Unlike patents and copyrights, legal protection of a trademark endures for as long as the owner uses it, though in the case of a registered trademark, the owner must periodically renew the registration.

The primary function of trademark law is not to protect ideas, but rather to **help lower consumer search costs** by making it easier for buyers to distinguish high-quality products from inferior competitors. To serve this function, however, trademarks must have an incentive to invest in product quality as a way of maintaining the commercial value of the trademark. Trademark law provides this incentive by awarding owners exclusive rights in the use of the trademark.



REMEDIES TO INTELLECTUAL PROPERTY

Intellectual property law establishes two kinds of remedies for the protection of such rights, in case they are violated. After all, a right without a remedy is not a *legal* right at all, but rather a moral one. These types of remedies are:

1. **injunctive relief** against infringers. The injured party can ask the judge to make the injurer quit the activity that has resulted in the infringement of his right, and the defendant must obviously comply;
2. **damages for lost profits** due to the infringement. The injured party can recover the financial loss he has suffered because of the violation of his intellectual property right. It is worth noting that, philosophically speaking, claims about lost profits are **counterfactual**: they argue about the reinstatement of a state of affairs that is alternative to the actual world. Counterfactual claims are indeed problematic because we will never know for sure what would happen or would have happen given a diverse state of things. As a consequence, supporting such claims appears to be difficult and unfounded.

An example is shown by the Sennheiser case. In a newspaper article regarding the electronic company, it was reported that, if it weren't for fake headphones in circulation, the Sennheiser — which produces high-performance pods — would have profit two million dollars more per year. It is a striking article and the lost profits for Sennheiser seem abyssal, but how to prove them? Should we dare alleging that, in case of total ban of fake pods, all potential consumers would have both the hyper expensive Sennheiser headphones? Probably it would be a hazard, since purchasers of fake pods are usually budget-constrained, thus the effect of market removal of fake pods would be pushing them to buy cheaper pods, and not necessarily the Sennheiser ones. Therefore, the mistake made by the reporter, in stating such high lost profits for the company, is that he assumed that, in absence of fake pods, everyone would have run to buy exclusively Sennheiser pods, and not competitors' ones.



LIMITATIONS TO PROPERTY RIGHTS

There are cases in which property rights can be limited by the law, either in terms of *time*, as already seen, or of *scope* according to special situations and circumstances.

Ploof v. Putnam case (1908)

Defendant owned a dock. Defendant's servant was in charge of the dock when Plaintiff and his family were sailing. A storm arose and Plaintiff was forced to tie his boat to defendant's dock. Defendant's servant unties Plaintiff's boat. Plaintiff and his family were injured and the boat was destroyed. Plaintiff sued in trespass, claiming that it was defendant's servant's duty to allow Plaintiff to tie his boat to Defendant's dock.

- Putnam is the owner of the dock, so he has the right to *exclude* Ploof from the use of his thing. At the same time, Putnam's servant unties Plaintiff's boat, committing trespass. It could be argued that, in this case, the defendant could easily foresee that, in case the boat was not tied, the plaintiff and his property could be harmed, as in the end happened. This is thus an EAL argument in favor of the plaintiff, because it would result in an *efficient* choice to limit the defendant's property right, imposing on him a duty to content other boats to tie to his dock in case of danger. Furthermore, here *bargain* would have been totally impossible: firstly, for lack of sufficient time; secondly, as the defendant was — almost literally — the only safe anchor for the plaintiff, the former would have act as a monopolist, imposing bad bargaining conditions on the plaintiff who, resting in a dangerous situation, would have accepted without hesitation.

Regarding property rights limitation, **art. 2045 c.c.** recites that: "When the injurer (**in our case, Ploof**) was forced to act by the need to save himself or others from the current danger of serious personal injury, and the danger was not voluntarily caused by him nor was it otherwise avoidable, the injured party (**in our case, Putnam**) is due an indemnity, the amount of which is left to the fair judgement of the judge".



INVOLUNTARILY TRANSFERS AND REGULATION OF PROPERTY

Unfortunately, markets do not always function smoothly, even when legal rights are precisely established by law, namely when they are *clearly defined*, so as to reduce transaction costs. Have a legal right clearly defined means that law has provided for explicating the way to acquire it, as well as his **scope**, that is, to which extent you can exercise your right, in terms of use, exclusion and disposability (c.d. *bundle theory*).

Well, **market failures** or **market imperfections** occurs even when rights are so defined because their exercise, though having been carried on within the legally drawn perimeter, usually produces **negative externalities** that right-holders reject to internalize. Externalities as a problem of market failures can be intended also as *incompatible property rights*, which represent situations in which one person's unrestricted use of his or her property rights imposes costs on others.

Accordingly, externalities can lead to inefficient use of property: if instead the owners internalize them, they could better calculate how to efficiently exercise their rights, also by quantifying the possible damages they should award. The potential inefficiency due to externalities provides a possible justification for **government intervention** with the aim of restricting the way in which people can use their property.

Market failure and government intervention are conceived in divergent ways in the political scenario: the more we move to the right wing, the more the former's existence will be denied and the latter will be demonized, being considered as an abuse and an expensive maneuver; the more we get closer to the left wing, the more we merge into a progressive view of economics, which justifies the state role in markets because the latter's failures are actually frequent. Market failure thus reveals to be a non-neutral topic, opening to various and oft contrasting opinions, obviously in EAL field as well. In fact, Ronald Coase suggests, in case of externalities, government intervention may not be required if the parties are able to bargain at low cost.

An important economic function of property rights is to internalize externalities. Traditionally, economists viewed externalities as a problem that governments had to correct by coercive means, for example, by imposing a tax or other regulation.

According to this **Pigovian view** (named after the famous economist Arthur Pigou), the government first identifies the cause of externality and then imposes a *tax* (c.d. **Pigovian taxes**) on the factory **equal to the external harm**. The factory thereby internalizes the harm and operates at the efficient level. By this action, the government eliminates the externality by assigning property rights in a particular way: it gives the people harmed by pollution the **right to be free** from that harm by essentially requiring the factory to **purchase the right to pollute** if it wishes to continue operating. As a result, the factory will choose the efficient level of pollution, which may be zero or not. While there is nothing wrong with this solution, Coase made it turn out to be not the only one, and maybe not the best one. We illustrate the pigovian tax solution to externalities by using Coase's **example of straying cattle**.

The straying cattle

There are a farmer and rancher who occupy adjoining parcels of land. The rancher's cattle starts straying on farmer's land, resulting in crop damage. This means that the rancher, with his animal farming activity, has produced an externality onto farmers' one, that the rancher himself should internalize. According to the Pigovian view, the externality results in too many cattle because the rancher does not account for the cost borne by the farmer. Hence, the solution to this *inefficiency* involves imposing a tax on the rancher to force it to internalize the external harm.

Therefore, the Pigovian solution is equivalent to awarding the farmer a '*right*' to be free from straying cattle, and requiring the rancher to '*purchase*' that right by compensating the farmer for his crop damage; in this sense, the farmer will be compensated for his losses and the rancher will be allowed to continue his activity, having purchased such a right. Since the rancher internalizes the farmer's loss, he purchases just the right amount of straying rights and ends up with an efficient herd size (that is to say, the *optimal social size*). Note that this assignment of rights implicitly corresponds to an initial entitlement point of zero herd, that is, the rancher cannot allow any cattle to stray without incurring an obligation to pay damages to the farmer. This assignment not only result in an efficient amount of ranching but conforms to most people's **commonsense notions of causation** because,



after all, it is the rancher who is *physically* causing the harm to the farmer, so he should pay. Commonsense is often a good guide to policy, but in this case it limits one's ability to perceive other solutions to externality.

To illustrate, suppose that the rancher was not liable for any damages, that is, suppose the rancher *initially holds* a right to allow his cattle to stray freely. According to the Pigovian view, this assignment of rights will lead the rancher to expand his herd until his own *optimal size*, because he can ignore the farmer's losses and focus on maximizing his own profits. It turns out, however, that this conclusion is not necessarily correct.

The reason that the herd size may not end up being too large in this case is that there is room for **bargaining** between the farmer and rancher. To see why, suppose the rancher initially has a certain herd size. The last cow yields a return of zero to him, but imposes a cost on the farmer. The latter would therefore be willing to offer up to this amount to the rancher if he agree to reduce his herd by one, while the rancher would accept any amount greater than zero to do so. This transaction is mutually beneficial because the farmer places a higher value on the last cow than does the rancher. By the same logic, the parties will continue bargaining to reduce the rancher's herd so long as the farmer *values* the last cow more than the rancher. Bargaining will therefore end when the herd has been reduced to the efficient size (optimal social size); further reductions will not occur because for smaller herds, the rancher values the marginal cow more than the farmer does. Therefore, we can state that if the rancher had the right to allow his cattle to stray, the farmer would '*purchase*' that right if he put a higher value in the use of the resource. After all, internalizing an externality implicates either that the farmer reduces the herd size from his own optimal size to the social optimum, or that he pays compensation to the farmer remaining with his own optimal herd size.

In this example, property rights in straying cattle were initially assigned to the rancher, and the farmer purchased them so long as he valued them more than the rancher. This is the reverse of what happened under the Pigovian solution, where the farmer initially held rights to the straying cattle and the rancher purchased them. The outcome in both cases is however *efficient*.

When we say that property rights are *well-defined*, that simply means that both parties know the initial assignment. This is important because it determines the nature of the transactions that are needed to reallocate rights toward the efficient point.

Coase's critique of the Pigovian approach as just described have challenged two of its underlying assumptions, that are:

- a. there is a clear injurer (the rancher) and a victim (the farmer). Pigou started in fact from the premise that there is a *unique cause of harm*. Coase shows, instead, that both parties are simultaneously causes of the harm, in the sense that the presence of both farming and ranching are necessary for crop damage to occur. The externality can be thus defined as *reciprocal*;
- b. government intervention is required to internalize the externality through the imposition of a tax on the rancher, thus producing an efficient outcome. Coase shows, instead, that assigning rights to either party will result in an efficient allocation without intervention of the government, provided that the parties can bargain. The government need only assign rights and enforce whatever transactions the parties arrange. In this sense, the Coase Theorem is an **irrelevance result** because it says that the initial assignment of rights is irrelevant for the final allocation, which will be efficient.



COASE THEOREM (AGAIN) AND COROLLARIES

As we remember, Coase Theorem prophesies that, when property rights are well defined and transaction costs are low, the allocation of resources will be efficient regardless of the initial assignment of property rights; only the **distribution of wealth** changes. Indeed, although the initial assignment of rights does not matter for efficiency when transaction costs are low, it does matter for the distribution of wealth.

Recalling the previous example, when the farmer initially had the right to prevent straying cattle, it was the rancher who paid him for the right to increase his herd size up to the efficient point. In contrast, when the rancher initially had the right, the farmer paid him to reduce his herd to the efficient point. In both cases, the herd size ended up being the *same*, but the distribution of wealth **avored the party who held the initial right**.

This is not surprising once we recognize that the property right in this case is **valued by both parties**. The rancher values the right to allow his cattle to stray, and the farmer values the right to prevent straying cattle. Thus, whoever receives the right first is better off. This is an important point because it implies that when the conditions of the Coase Theorem are met, the legal system does not face a **trade-off between equity and efficiency** in assigning property rights in externality situations. In other words, courts can assign property rights to achieve a desired distribution of wealth without sacrificing efficiency.

Coase Theorem branches out into two corollaries:

1. *when transaction costs are high, making the bargain problematic, the assignment of property rights matters for efficiency; specifically, rights should be assigned to the party that values them the most.* When transaction costs are present, the assignment of property rights will matter because some assignments will involve lower transaction costs than others.

Endowment effect has an implication also with Coase Theorem, since even when transaction costs are low, the assignment of property rights may affect the ultimate allocation of resources by increasing the minimum amount that the party receiving the right would be willing to accept in return for it. As a result, the ultimate allocation of resources not be independent of the initial assignment of rights, as instead Coase wished. Since once you assign property rights to one person, he is going to attribute to the owned thing a higher value, it is needed, in light of efficiency, to allocate ownership rights to the higher-valuing agent. This maneuver is usually unknown to the legislator, yet he will amount to lower transaction cost anyway just by defining in a clear way property rights.

It does not follow, however, that the endowment effect prevents resources from being allocated efficiently. Indeed, if the party receiving the right truly values it more than a prospective buyer by virtue of possessing it, then it is efficient for him or her to retain possession. The endowment effect merely implies that the efficient allocation of resources cannot be defined independently of the initial assignment of rights.

2. *to enforce rights, use property rules when transition costs are low, and liability rules when transaction costs are high.* The distinction between **liability rules** and **property rules** was explained by Guido Calabresi and Melamed by making reference to a painting depicting the facade of a Cathedral during different times of the day, thus catching changes in colors, shadows, brightness. The two economists' work is in fact called *Property Rules, Liability Rules, and Inalienability: One View of the Cathedral*, so as to convey metaphorically that there are several ways of looking at the legal system, yet there is as well a unified view which explains how law really works, integrating various legal relationships coming from separate branches of law (such as property, tort and contract ones); hence, the latter are actually and to a certain extent *connected*.



PROPERTY RULES AND LIABILITY RULES

It is worth pointing out that *property rules* and *liability rules* are only **theoretical labels**, not codified in the positive law. Even though they have a practical value as well, being useful in judicial decision-makings, they only serve as to understand better the functioning of the legal system.

- **property rules.** Suppose that A holds the right to plant a tree which would block B's view of the ocean. In this case, the solution would be that, if B puts a higher value in the use of the resource (namely, if he values the view of the ocean more than A values the plant of a tree; or again, if B puts more value in the right to exclude A from its entitlement of viewing the ocean than A does in the right to exclude B from its entitlement of planting a tree), then B should *purchase* A's right through bargaining.
This is to say that an entitlement (namely, a right) is protected by a property rule to the extent that someone who wishes to remove the entitlement from its holder must buy it from him in a *voluntary transaction* in which the value of the entitlement is agreed upon the seller. In this sense, the right of A is protected by a property rule because B must buy such entitlement so as to view the ocean, as this purchase is the only possibility he has to satisfy his sighting needs. Naturally, the seller of the right (A) has a **veto power** on the transaction as he retains the offer to be *insufficient*.
- **liability rules.** Whenever someone may destroy the initial entitlement if he is willing to pay an *objectively determined value* for it, an entitlement is protected by a liability rule. In this sense, any kind of rule that allows B not to buy the right from A through a voluntary transaction, but rather to pay an objective value to A that is *imposed* by a Court, is a liability rule. It descends that B does not need any *consent* by A so as to purchase his right, as well as A has **no veto power** on the transaction so carried out: he is simply compensated, receiving the objective value paid by B, while the latter has smoothly bought the right; this is the **liability rule outcome**.
Undeniably, liability rules may appear as contradictory, as they implicitly allow a person (B) to violate the right of another (A). However, Calabresi and Melamed explain that this is how things work: if the tortfeasor can compensate the injured party, even violating his right, he can get the resource he wants.

For all things considered, if A's right is protected by a *property rule*, then B can prevent him from planting the tree only by offering an amount of money that A is willing to accept. That is, B must purchase the right in a **consensual transaction**. In contrast, if A's right to plant the tree is protected by a liability rule, then B can acquire the right without A's consent (for example, by chopping the tree down) so long as **he pays damages** to A as set by the Court.

As this example illustrates, the rules differ in terms of how the price for the transaction is set. Under a property rule, the price is set by the parties through bargaining. Property rules therefore form the basis for **market exchange**, since the key is the presence of *consent*, which ensures that all transactions are *mutually advantageous*. Property rules are enforced by laws against theft or by **injunctions**, ie court orders to do or refrain from doing something backed by the threat of force. Under liability rules, in contrast, the party seeking to acquire a right can do so without first obtaining the holder's consent, provided that the acquirer is willing to pay compensation for the holder's loss. The transaction is therefore **nonconsensual**, and the price is set by the court after the fact rather than by bargaining.

- **inalienability rules.** An entitlement is inalienable to the extent that its transfer is not permitted between a willing buyer and a willing seller. As a consequence, under inalienability rules property entitlements are subjected to some **limitation**, in terms of the right to *dispose* of the owned thing. Examples include constitutional protections of certain basic freedoms (speech, religion and the right to vote), as well as laws against the sale of cultural artifacts or of children, and also minimum-wage and rent-control laws.
At first glance, inalienability rules seem inconsistent with the goal of promoting efficiency exchange of property rights, because they forbid even consensual transaction. An efficiency rationale for inalienability must therefore rely on the existence of externalities associated with the



transfer of certain goods. So as to explain this concept, take into account the emblematic limitation, namely the **prohibition to sell body parts**. Such transactions would have negative moral externalities onto society: even though, from a disputable and quite cynical perspective, this move could be seen as Pareto-efficient, making both parties better off, it is anyway a morally outrageous act that law could never enforce.

The possibility of limiting property rights is not immune from creating problems and inquietude, as this opens to the modest likelihood that boundaries could be imposed also on other rights that the society, from one day to another, starts perceiving as contrary to morality (such as same-sex unions or right to drink alcohol).

Property rules and liability rules can be applied also to cases of **breach of contract**. In fact:

- **expectation damages** in contract law are an example of *liability rule* = the promisor is *free* to breach a contract without first obtaining the promisee's consent, provided that **losses are paid**. In this sense, under a liability rule the promisor, deciding by himself without first consulting the promisee or seeking for his consent, is — not *legally*, but *economically* talking — **free** of either performing or breaching the contract, provided that in the latter option he pays the losses to the counterpart.

Strict liability is instead an example of liability rule in tort law: under strict liability, injurers are responsible for all losses suffered by victims of an accident, and in fact the injurer is required to compensate the victim for having '*taken*' her right to be free from accidents;

- **specific performance** in contract law is an example of *property rule* = the promisor can breach only by first obtaining the promisee's **consent**. In this sense, under property rule the promisee is fully entitled to ask the promisor to specifically perform, rejecting to be compensated in damages. He can indeed seek injunction before a court. In this situation, the promisor is **not free** at all to breach the contract, but rather, for doing it, he must first obtain the promisee's consent, and then obviously paying him the losses suffered.

Herein, it must be stressed that, although specific performance can be efficient in some cases, the systematic requirement of *consent* will generate by contrary inefficiency and will prevent beneficial exchanges from occurring, even more so when **transaction costs are high**. Suppose, for example, that people have the right to be free from accidents caused by trains, and that right is protected by a *property rule*. Railroad companies would then have to identify and negotiate with all potential victims over the assignment of liability *before any accidents happen*, a prospect that would prevent most trains from ever leaving the station. In contrast, a liability rule would allow the railroad to compensate victims after the fact, and so long as compensation is set *equal* to the victim's damage, the efficient number of trains would run. This is to say that:

- when transaction costs are *high*, *liability rules* are preferred over property rules. In particular, high transaction costs are present in case of **public negative externalities (ex. pollution)**, since they affect a large number of people and consequently finding an agreement, an efficient bargain appears unlikely. The advantage of liability rules is that they allow the court to coerce beneficial exchanges of rights when transaction costs prevent the parties from doing so in a consensual manner. This advantage, however, must be weighed against the **cost of using liability rules**. These include *litigation costs* and the possibility of *court error* in setting damages, the latter happening most of all when a large component of the victim's loss is *subjective value (as happened in Peevyhouse case)*;
- when transaction costs are *low*, *property rules* are preferred over liability rules. These low-transaction-cost cases which favor the operativeness of property rules refer to **lower administrative costs**. In fact, under property rules, the administrative role of the court is limited to enforcing transfers of rights, whereas under liability rules, the court has to establish the initial terms of trade by measuring victim's damage. Thus, the administrative costs of liability rules are likely to be higher.

Low transaction costs are present in case of **private negative externalities (ex. noise from the confectioner's mortars, or the loss to the land owners in Peevyhouse)**, since they affect just two individuals and consequently the seller will be free to breach the contract, as long as he pays the losses.



- with *zero* transaction costs, things can be left as they are and parties, being rational economic agents, will bargain towards an efficient allocation of resources, regardless of the initial distribution of rights.



TRESPASS AND NUISANCE

Trespass and nuisance are the primary common law doctrines designed to protect a property owner's *right to exclude* other users.

- ❖ trespass can be defined as an *invasion* of the plaintiff's interest in the exclusive possession of his property. Examples of trespass include squatting on another's land, or boundary encroachment. In terms of remedies, a trespass victim has the right to seek an **injunction against trespass**, that is, she can exclude the unwanted invasions (and she can seek compensation for any damages caused by them). Even if the trespasser values the invasion more than it costs the landowner, the trespasser can continue only by seeking permission from the owner. This is therefore a **property rule**. Trespass usually involves a limited and relatively small number of people, and hence have *low transaction costs*;
- ❖ nuisance can be defined as an *interference* with plaintiff's use and enjoyment of his property. Examples of trespass include pollution, noise, or foul odors. In terms of remedies, the situation gets more complicated, in fact:
 - A) victim cannot bring legal action unless the **harm is substantial**, and this is *not* the case, for example, when the usual and little tub-thumping on a train bothers us, nor when the neighbor's barbecue produces the inevitable smoke of roasting meat. In other words, the harm must not be little, it must be substantial and this substantiality must be **demonstrated** by the victim;
 - B) in some cases, **only damages** are awarded: this is a *liability rule*;
 - C) in other cases, victim can seek an injunction against the harmful activity: there is thus a *property rule*. However, economically speaking, the victim must pass a **cost-benefit test (instead in trespass, injunction is virtually automatic)**: she must demonstrate that a *reasonable person* would conclude that the amount of the harm done *outweighs* the benefits served by the conduct; as a consequence, she will indirectly show as well that the injunction will generate more benefits than costs.

Nuisance usually involves a greater number of people, consequently involving *high transaction costs*.

The distinction between trespass and nuisance and, more generally, between property rules and liability rules marks the boundary between property law and tort law. As noted earlier, the right to exclusion embodied in trespass is a fundamental component of the ownership of property, whereas liability for damages is the basis for tort law. The economic approach to law. The economic approach to law reveals that these two areas simply reflect alternative solutions to the general problem of allocating resources efficiently and, to this purpose, designing an efficient **transaction structure** for internalizing externalities. Specifically, rules of property law govern transactions in setting of low transaction costs, and rules for tort law govern transactions in setting of high transaction costs.

We have thus assisted to the manifestation of the ability of economics to provide a unifying theory of law.

Boomer v. Atlantic Cement Company case (1970)

The case involved a group of landowners who sought an injunction against a large cement company because of the dirt, smoke, and vibration that it produced. An injunction would have been an *overly drastic remedy*, causing the plant to shut down with the consequent loss of hundreds of jobs plus lost profits and lost investment value (originally \$45 million). Decision of the court: award of damages of \$183,000, with incentive for the plant "to research for an improved technique to minimize nuisance".

- money damages allow the plant to continue operating while at the time compensating victims. The court thus favored a **liability rule** over a property rule in this case, and this was the most *efficient* result given the prospect of *high transaction costs*. In particular, if the court had issued an injunction, the plant owner would have had to bargain with each victim for permission to continue operating. Not only would this have required multiple transactions, but a potential **holdout problem** also existed here, because *any* owner could have enforced the injunction; thus, each had **monopoly power** and could have sought to extract a large fraction of the plant's value.

Even if, in the case at hand, there had been *only one victim*, **transaction costs** might still have been quite high because of the presence of a **bilateral monopoly** problem. To illustrate, recall



that the plant stood to lose the present value of its profits if it shut down, while the residents would have suffered \$183,000 in damages if it continued to operate. Thus, any price between these two amounts should have made both sides better off while allowing the plant to continue operating (the efficient result). The problem is that each side had **no alternative but to bargain with the other**, and the *bargaining range* is so large that each side would have had an *incentive* to **invest a large amount of effort** to secure as much of the *surplus* as possible. This sort of **rent seeking** represents a potential impediment to bargaining, even in small-numbers cases, and therefore provides a further justification for the use of a liability rule in this case.

→ regarding the incentive given by the court to the company, the latter will catch it if the cost of finding and using such a technique are inferior to the cost of paying damages.



GOVERNMENT ACQUISITION AND REGULATION OF PROPERTY

The government, intended as the State, plays a role in the regulation and acquisition of property. As already seen, in most cases private citizens tend to solve problems by themselves through *bargaining* and, in case they do not succeed, they resort to courts. Instead, in some other situations the State can acquire property, acting *iure propria*, or regulate ownership in a general way. Indeed, the government has the power to take or regulate private property using its **power of eminent domain**. In examining these powers, it is important to keep in mind the conception of *government* as an economic agent whose objective, ideally, is to reflect the preferences of the citizenry, however those preferences are aggregated.

Apropos of that, the *Fifth Amendment* of the US contains clause, referred to as the **eminent domain** or **takings clause**, stating that private property cannot be taken for public use without just compensation. In this sense, the government *can* take private property solo as long as two conditions are met:

- (a) the property must be put to *public use*;
- (b) the government must pay *just compensation*.

When these requirements are fulfilled and the State thus exercises his **takings power**, it doesn't need the owner's **consent** to acquire his property: the government will just proceed in doing it, the owner has **no veto power**. The power of eminent domain lies in its *coerciveness*: landowners do not have the right to refuse a sale to the government as they normally do if the buyer is a private party (but he will be compensated). Eminent domain this is therefore a form of **liability rule**.

However, the aforementioned conditions are defined by two expressions that are so vague and undetermined that their meanings and understandings prove difficult and contradictory. As to clarify, economists have analyzed them separately.

Public use

Public use doesn't coincide necessarily with **public goods**, that we remember being, economically speaking, *unrival* goods which entail *high exclusion costs*. Given their characteristics, included the possibility of free-rider phenomenon, public good will be underproduced by market, and therefore it is directly the State which provides them, financing them through **taxation**. Hence, taxation can be justified for the purpose of providing public goods (always intended in the economic sense).

In fact, public goods have the characteristics that once provided, their benefits are available to all consumers, including those who have not contributed to the cost of provision (ex. national defense and lighthouses). Because the **non-excludability**, or free-rider, **problem** makes it difficult for producers to exact payment from consumers, the market will generally unproved public goods. Thus, the government usually provides them and uses its power of taxation to coerce consumers to contribute to their cost.

Public use doesn't coincide necessarily with **large-scale goods** as well, ie goods which require the **assembly of private property** to be produced. Suppose the government decides to build a highway on a certain land whose ownership is *dispersed* (ie whose parcels belong to different owners). In this case, bargaining will be *inefficient* because of an **holdout problem**: given the operativeness of a *property rule*, each owner could exercise his *veto power* against the construction of the highway if the offer advanced by the State is insufficient for him; the owners will thus assume opportunistic behaviors and will try to extract as much money as possible from the government to sell it their right. In fact, once the assembly becomes *public knowledge*, each landowner realizes that he or she can impose a substantial cost on the provider by refusing to sell. Once our hypothesized road builder has decided on the optimal path for a public highway and has begun to assemble properties along that route, if any single owner refuses to sell, the cost of completing the project would increase greatly. This knowledge confers significant **monopoly power** on individual owners, who can *hold out* for prices well in excess of their true valuation. That is why, in such situations, **takings**, intended as *forced sales*, can be justified, as some large-scale goods require the assembly of private property, and owners will accordingly have no choice but to sell at the set price set by the court. In this way, the property-rule protection of each owner's land is replaced **liability-rule protection**.

It is worth pointing out that this problem differs from the situation of a single landowner seeking the best price for his or her property, which is sometimes mischaracterized as a *holdout problem*. In fact, in such cases no single parcel affects the purchase of any other, and thus failure to complete this sale has no adverse consequences for other transactions. The unique feature of the assembly



problem, therefore, is the **interconnectedness** of the transactions and the **absence of other options** for the project once the project commences.

Consequently, it is alleageable that:

- public goods require **taxation** to overcome *free riders*, but do not require **forced sale** of the needed land unless **assembly is necessary**;
- assembly requires **forced sale** of land to overcome *holdout problem*, but does not require **taxation** unless the project being produced is a **public good**.

To put it analytically:

		ASSEMBLY PROBLEM	
		NO	YES
PUBLIC GOOD	NO	CASE I	CASE II
	YES	CASE III	CASE IV

- in **CASE I**, the thing is not a public good and there is no assembly problem. Therefore, there is **no justification** to use the *eminent domain* rule;
- in **CASE II**, the thing is not a public good but there is an assembly problem. Therefore, **forced sale** of the needed land is justified, but no taxation is required;
- in **CASE III**, the thing is a public good but there's no assembly problem. Therefore, **taxation** is justified, but no forced sale is required;
- in **CASE IV**, the thing is a public good and there is an assembly problem. Therefore, there is **full justification** to use the *eminent domain* rule.

In on the one side the first and the last case proved easy to regulate, the intermediate cases appear to be more problematic. On account of this, a more scrupulous reading of the expression 'public use' is needed. According to economists, two approaches to its definition can be used:

- a. ends approach = it concerns the **use** to which the land will be put;
- b. means approach = it concerns the **method** by which the land is acquired.

At this point, analyzing once again the aforementioned cases:

- **CASE I** (whose concrete example could be a private residence), we reconfirm that neither the *means* nor the *ends* approach justifies the granting of eminent domain power to the provider. The transaction should therefore go through the **private market**, even if one of the parties is the government.
- As regards to **CASE III**, we can make the example of police force. It is a public good, and therefore taxation is required so as to grant their services and pay their salaries, but there is no need of assembly. After all, it would be extremely problematic to acquire forcefully the land of a private citizen by selecting arbitrarily, between all the local lands, the one meant to become the headquarters of police force. That is why, in this case, the State must rather act *iura propria*, acquiring property **on market**, negotiating with private citizens and seeking for their *consent* to the sale, which can be denied exercising a *veto power* in case of insufficient offer. In this case, therefore, the **means approach** has been used, whereas the use approach would have revealed to be fallacious, as the government can't justify his acquisition simply by saying that 'it was for the purpose of public use'.

For all things considered, the *ends* approach justifies the use of eminent domain because the good is public, but the *means* approach does not because there is no assembly problem. To determine which argument is correct, recall that the inefficiency associated with public goods is free-rider problem, which the government overcomes by using its power of taxation. Once the funds are raised, however, there is no reason to allow the government to use eminent domain to



obtain the resources necessary to produce the good, absent any assembly problem. Instead, it should be required to buy them on the market.

A land for the police station must thus be bought on market because of the high cost of using the power of eminent domain: indeed, in markets lacking the holdout problem, in which eminent domain would be inappropriate, the transaction costs of using the market are typically less than that of using eminent domain. Thus, the risk of overuse of eminent domain by the government in case III is apparently small.

- As to **CASE II**, the first impression it gives is to be an empty category with no concrete references. *In extremis*, we can appoint to the example of a railroad or a canal, not being public goods and involving the need for assembly. They are rather **private goods** in the economic sense, as *rival goods* with low exclusion costs: if the railroad can host 10 trains maximum, the companies licensed to make use of it will exclude the eleventh, twelfth and so on companies which were not authorized or gained an authorization too lately.

The *means* approach justifies the use of eminent domain, but the *ends* domain does not. Historically, courts have tended to act in accordance with the means approach, but they nearly always attempt to justify their action in terms of the ends approach. For instance, in the landmark case of *Keto v. City of New London*, the US Supreme Court held that the use of eminent domain as part of a comprehensive economic development plan satisfied the constitutional requirement of public use, even though the bulk of the economic benefits of the project went to private interests. In support of its decision, the Court cited the spillover benefits to the public in terms of new jobs and enhanced tax base. In other words, it justified its decision in terms of the ends approach. At the same time, the project involved significant land assembly, suggesting that eminent domain was also defensible in terms of the means approach. Indeed, most large private developments both involve land assembly and promise significant spillover benefits, implying that the means and ends approaches will oft coincide. To the extent that this is true, courts generally arrive at the right decision, if for the wrong reason.

The same logic can be found in the *Boomer* case as well, where the presence of an *holdout problem* opened to the possibility that one owner could exercise his veto power and block company's activity, inevitably pushing the court to decide according to a liability rule. In fact, in the *Boomer* case a polluting factory was allowed to continue operating, despite objections by neighboring landowners, so long as it paid them damages. The court in effect gave the plant owner the right of eminent domain in order to overcome the high transaction costs of bargaining with multiple residents. Although the case did not involve land assembly per se, the owner clearly would have faced a similar holdout problem in seeking to assemble pollution rights if the court had issued an injunction. The *Boomer* decision therefore embodies the logic of the means approach to takings but without the need to frame it in public use terms.

In front of a choice between the means approach and the ends one, the former is likely to be the best one. Indeed, means approach is generally better, and takings power should be extended to any party, public or private, facing a holdout problem. Notwithstanding, the most accredited criticism is that this approach is inconsistent with the literal meaning of the expression 'public use', going far beyond its wording.

Other economists offer a different perspective, arguing that things power should be **limited to public projects**. This conclusion is based on two fundamental differences between private and public projects:

- (i) private developers can often use *secret buying agents* to avoid the holdout problem, whereas the government, because of its *need of openness*, cannot;
- (ii) the concentrated benefits from private projects create the *threat of corruption*, as developers seek to influence the political process to grant them the power of eminent domain. In contrast, this threat is less severe for public projects, precisely because the *benefits are widely dispersed*.

Just compensation

This expression opens to an interpretative problem as well. The laconic, simple, predictable answer from economists and courts is 'a compensation according to **fair market value**'; an answer that is likewise unconvincing because a market-value compensation will be a mere 'compensation', and not a 'just compensation', and will thus prove to be insufficient, given the interplaying factors of subjective value and endowment effect. In fact, market value can sometimes be significantly less than what the



owners would willingly accept to part with their land, The problem with a willingness-to-accept measure of compensation, however, is that it is *not observable* and hence is subject to misrepresentation on the part of the owners; in contrast, market value is an *objective* measure that is relatively easy to observe.

It is the use of market-value compensation, however, that in effect makes eminent domain a forced sale: identifying the just compensation with a market-value compensation will only lead to **under-compensation** and to an **overuse of eminent domain**, as the State, knowing that the awardable compensation will be simply equal to the market value, consequently undervaluing land in private use, will resort to **excessive** (and, to some extent, superfluous and useless) **public acquisition**. As a matter of fact, if the government makes its acquisition decisions based on a comparison of the public value of the land to the *amount it actually has to pay* (rather than to the true opportunity cost), then it will acquire a number of land parcels which exceeds the efficient level.

An alternative solution, that is far more persuading than the previous one, is matching the standardized 'just compensation' with the concrete **above-market compensation**, consisting in a rough approximation towards what seems to be a fair compensating amount (ex. 150% of the market value). This possibility hence implicates to fix a conventional threshold.

The Assassin's Bequest case (1963)

After the assassination of JFK in 1963 the government, in the urgency of collecting evidence, took title to things possessed by the murderer Oswald. Items were thus picked up, but Oswald's widow deserved a *just compensation*. And it was inconvenient to calculate the latter according to the **market value** of the taken things because it has **increased** thanks to their connection to the crime (ex. the model of the gun used by Oswald was valued more simply because it was the one used for the crime). Initially, the district court awarded \$3000 of damages according to the *fair market value of similar items*. Then, the Appeal increased the damages up to \$17000, calculating them according to the *fair market value of the same items*.

→ one reason that the district court cited for refusing to award the higher amount was the fear that it would only increase the incentive for individuals to commit unlawful acts: in effect, if market values of crime-linked items are going to augment because of such a particular connection, then this could constitute an encouragement to commit crimes; contrarily, by denying this gain, at least the monetary incentive to commit such crimes would be removed. It is not surprising that someone lucubrated that, actually, Oswald has premeditated all the crime structure and one of his specific purpose was to benefit his widow with higher compensation; in the sense that, of course Oswald's widow was not herself culpable, but Oswald may have acted out of a bequest motive.



REGULATORY TAKINGS

Government can regulate property regarding the ways in which it can be used, in particular by imposing a **restricted use of property**. The primary economic justification for government regulation is to **internalize external costs**: for example, *zoning ordinances* segregate incompatible land uses, *environmental laws* restrict activities that generate pollution, and *safety regulations* limit unreasonable workplace risks; in addition, the government restrict property for reasons *unrelated to efficiency*, for instance to protect the rights of the disabled or to ensure equal opportunity for disadvantaged groups.

Historically, courts have granted the government broad powers to enact regulations in the public interest, but occasionally, a regulation is so restrictive as to cause a substantial reduction in the value of the regulated property. Under the US constitution, given that this governmental act doesn't constitute a *taking*, but rather a mere *regulation*, **compensation is not awarded** to the limited owners. Yet, inevitably a disputable position, a debate blasted concerning how to distinguish between *non-compensable* regulations and *compensable* regulations. The latter, also known as **regulatory takings**, are all regulations that rise to the level of a taking. So as to answer to the *compensation questions*, scholars and courts have carried out different tests:

- a. physical invasion of property = government actions that involve physical invasion of private property (ex. by means of electric wires) are *compensable*, no matter how minor the invasion. However, this test is of limited usefulness, because it says nothing about those regulations, comprising the bulk of government actions, that involve no invasion;
- b. noxious use of property = the state has the right to regulate, *without compensation*, the so-called *noxious uses*, that is, activities deemed injurious to the health, morals, or safety of the community;
- c. diminution of value = the noxious use doctrine authorized the government to enact a broad range of actions without running afoul of the takings clause, regardless of the loss in value to the landowner (after all, what regulations cannot be seen as somehow protecting health, morals, or safety?). This changed, however, when the Supreme Court advanced a new test for compensation in what is probably the most famous regulatory takings case.

Pennsylvania Coal Co. v. Mahon case (1922)

The case concerned a law passed by the State of Pennsylvania, called the **Kohler Act**, which required coal companies to leave a certain amount of coal in the ground in order to prevent damage to surface structures as a result of cave-ins (**otherwise, surface grounds would have fallen down**). The Pennsylvania Coal Company brought suit for compensation on the grounds that the law was a taking of its mining rights. At the end, the Court awarded compensation.

→ writing for the majority, Justice Holmes began by noting the government has the right to regulate *without compensation*, as government could hardly go on if to some extent values incident to property could not be diminished without paying for every such change in the law. This was clearly a nod toward the prevailing **noxious use doctrine**, but he went on to note that a general rule of not paying compensation would, given the natural tendency of human nature, result in overreaching by the government until at last private property *disappears*. To limit this threat of government excess, Holmes therefore argued that while property may be regulated to a certain extent, if regulation goes too far away it will be recognized as a taking, and therefore compensation must be awarded. Thus, the **impact of the regulation on the landowner** matters when deciding the compensation question. The court did not go on to specify the precise point at which a regulation goes *too far*, leaving it to be decided instead on a case-by-case basis.

Contrariwise, Justice Brandeis for the dissenting opinion, simultaneously using the noxious test, objected that restrictions imposed to protect the public health, safety or morals from dangers are not takings, therefore no compensation is needed.

Miceli's solution routes, instead, for a **determining and efficient compensation rule**.

Consider a developer who has a parcel of vacant land for which there are two possible uses: **use A**, which will refer to as *development*; and **use B**, which we will call *recreation*. Suppose that use A requires an initial, non salvageable investment of x dollars, which includes the cost of planning for



development, site preparation, obtaining permits, and the like. Once x has been spent, if the landowner is allowed to proceed with use A, his net return is:

$$V_A - x > 0$$

Land use B, on the other hand, requires no preparatory investment and yields a private return to the land owner of:

$$V_B \geq 0$$

We assume that: $V_A - x > V_B$, which implies that in the absence of a regulatory threat, the landowner will maximize his profits by spending x and pursuing use A.

The purpose of regulation in this model is to prevent a possible external cost, denoted E , that might be associated with development (use A) **for example, development of beachfront land might result in beach erosion, toxic runoff, or damage to a wildlife habitat**. Once the regulator learns E , it is efficient to prohibit development (use A) if the external cost is positive and exceeds the loss to the land owner; that is, if:

$$E > V_A - V_B$$

At this point, compensation must be calculated by comparing the **loss to the landowner (i) from the regulation** and the **savings in external costs (ii) (in terms of health, safety, etc.)**. Therefore, it derives that:

NO COMPENSATION IF (i) < (ii), that is if $E < V_A - V_B$
COMPENSATION IF (i) > (ii), that is if $E > V_A - V_B$

To translate it in words, no compensation will be paid if the loss to the landowner from the regulation is less than the savings in external costs; in other words, no compensation will be paid if the regulation was efficiently enacted. In contrast, full compensation will be paid if the loss from the regulation exceeds the benefits; in other words, compensation will be paid if the regulation was inefficiently enacted.

In this way, the State is incentivized in operating only those regulations which are strictly necessary. The efficient threshold rule for compensation has several implications for our understanding of the law of regulatory takings. First, note that the general form of the rule resembles the diminution-of-value standard advanced by Justice Holmes in *Pennsylvania* case in that it sets a standard, based on efficiency, for when a regulation 'goes too far'. Specifically, a regulation goes too far, and hence triggers compensation, when $V_A - V_B < E$; that is, when it is inefficiently enacted.

Similarly, the compensation rule provides a standard for applying the noxious use doctrine. Specifically, if noxious uses are defined to be those that are *efficiently* regulated, the nonpayment of compensation for such regulations is consistent with efficiency. Based on this interpretation, the **diminution-in-value** test and **noxious use** doctrine are really *two sides of the same coin*: whereas the diminution-of-value test defines what regulations exceed the efficient threshold and hence trigger compensation, the noxious use doctrine defines regulations that meet the efficiency standard.

With this perspective in mind, we can reinterpret the conflicting opinions of Holmes and Brandeis in *Pennsylvania* case as reflecting a **disagreement over facts rather than over law**. In particular, if we suppose that both judges were employing the afore-described compensation rule to make their decision, then their opposing conclusions could simply reflect Holmes' belief that $V_A - V_B > E$ and Brandeis' belief that $V_A - V_B < E$. Thus, they disagreed regarding compensation even though they agreed about the applicable legal standard.



MARKETS VS LAW: THE GENERAL TRANSACTION STRUCTURE

Economic analysis can provide a unifying theory of law that emphasizes its role, in conjunction with markets, in achieving an efficient allocation of resources. The power of this approach is its ability to identify commonalities across different fields of law. Equipped with the tools that we have developed — particularly, the Coase Theorem and its corollaries — we can now lay out a framework called **General Transaction Structure**.

		ASSIGNMENT	
		RANCHER	FARMER
ENFORCEMENT RULE	PROPERTY RULE	(I) rancher is free to impose harm	(II) farmer can seek an injunction against harm
	LIABILITY RULE	(III) rancher can seek damages for cost of reducing harm	(IV) farmer can seek damages for harm suffered

This table lays out the basic structure, which involves a dichotomous choice: an *assignment of rights* and an *enforcement rule*. In terms of the farmer-rancher conflict, the right is assigned to either the rancher (the *producer* of the harm) or the farmer (the *recipient* of the harm), and it is protected by a property rule or a liability rule.

Recalling a previous example, we illustrate the four combinations and how they internalize the external harm from straying cattle. Hypothesize that both parties have an initial wealth of \$200, that the farmer suffers a loss of \$120 if the cattle stray, but the rancher can prevent straying by erecting a fence at a cost of \$100. Thus, in the efficient outcome, *aggregate wealth* is \$300, which equals the initial wealth of \$400 minus the cost of the fence.

- under combination I, the rancher has the right to allow his cattle to stray, and the right is protected by a property rule. In this case, the farmer can prevent straying cattle only by **bargaining** with the rancher. Thus, the farmer pays the rancher \$110 and the rancher erects a fence. This is a sufficient offer because the cost of the fence is \$100, therefore the rancher will have a surplus of \$10. The result will be:

FARMER WEALTH	$\$200 - \$110 = \$90$
RANCHER WEALTH	$\$200 - \$100 + \$110 = \210
AGGREGATE WEALTH	\$300

- under combination II, the farmer has the right to be free from straying cattle, protected by a property rule. In this case, the farmer can obtain an injunction against straying cattle, so the rancher has to purchase the right to let his cattle stray. However, since the farmer will demand an amount in excess of \$120 (that is the value of his loss), the rancher will simply go ahead and build the fence for \$100. The result will be:

FARMER WEALTH	\$200
RANCHER WEALTH	$\$200 - \$100 = \$100$
AGGREGATE WEALTH	\$300



- under combination III, the rancher has the right, protected by a liability rule. In this case, the rancher has the right to let his cattle stray, but the farmer can force him to erect a fence by paying 'damages' of \$100 (the cost of the fence). The result will be:

FARMER WEALTH	$\$200 - \$100 = \$100$
RANCHER WEALTH	$\$200 = \200
AGGREGATE WEALTH	\$300

- under combination IV, the farmer has the right, protected by a liability rule. The rancher has thus the choice to let his cattle stray and pay damages of \$120, or to erect a fence. Since the fence is cheaper, he will erect it. The result will be:

FARMER WEALTH	\$200
RANCHER WEALTH	$\$200 - \$100 = \$100$
AGGREGATE WEALTH	\$300

This example has shown how each of the 4 combinations of an assignment of rights and an enforcement rule can achieve the **efficient allocation of resources**. Combinations I and II relied on bargaining between the parties and therefore required *low transaction costs*, while combinations III and IV relied on *court-imposed damage payment*. **Aggregate wealth was invariant** across the cases as required by the Coase Theorem, but the **distribution of wealth varied** depending on the initial assignment of rights.

The general transaction structure as just described represents the foundation of the economic approach to law, characterized by the simultaneous application of tort, contract and property law.

