The Simple Economics of Class Action: Private Provision of Club and Public Goods*

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Abstract: This article uses economic categories to show how the reorganisation of civil procedure in the case of class action is not merely aimed at providing a more efficient litigation technology, as hierarchies (and company law) might do for other productive activities, but that it also serves to create a well defined economic organization ultimately aimed at producing a set of goods, first and foremost among which are justice and efficiency.
Class action has the potential to recreate, in the judicial domain, the same effects that individual interests and motivations, governed by the perfect competition paradigm, bring to the market.
Moreover, through economic analysis it is possible to rediscover not only the productive function of this legal machinery, but also that partial compensation of victims and large profits for the class counsel, far from being a side-effect, are actually a necessary condition for reallocation of the costs and risks associated with the legal action.

Keywords: class action, collective litigation, mass tort, club, liability, deterrence
JEL Classifications: K41, D71, D74, K13, H41

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1. Introduction

In recent decades, class action litigation has attracted growing attention from citizens and legislators around the world, by virtue of its ability to extend the protection of victims where traditional methods—i.e. individual civil action and regulation--have proven vulnerable.

First introduced in the US legal system in 1938, through Rule 23 of the Federal Rules of Civil Procedure, it then took nearly three decades for class action to be fully implemented into US civil procedure, with the 1966 issuing of the new version of Rule 23 by the Supreme Court. Since then, class action has been fiercely criticised by a number of opponents, to the point of starting, in the 1970s, what has been described as a "holy war" (Hensler et al., 2000) [1]. However, despite these negative stances, it has over the years become "one of the most ubiquitous topics in modern civil law" in the US, and nowadays one of "[t]he reason for the omnipresence of class actions lies in [its] versatility" (Epstein, 2003 p. 1) which, according to a great many commentators, can make it an effective means for serving justice and efficiency in a broad sense.

The collective litigation system thus continues to operate, and its utility remains undisputed in the North American judicial system. The most recent amendment, brought by the Class Action Fairness Act (CAFA, 2005), though aimed according to some authors at curbing some of its pernicious features (Willging and Lee, 2007), carefully avoided criticising collective litigation as a whole, and in fact reaffirmed its substantive validity, strongly asserting that "class-action law suits are an important and valuable part of the legal system when they permit the fair and efficient resolution of legitimate claims of numerous parties by allowing the claims to be aggregated into a single action against a defendant that has allegedly caused harm" (CAFA, 2005, sect.2) [2].

The purpose of this article is to examine the productive nature of class action as a litigation technology, identifying its peculiarities and the conditions under which this "legal machinery" can produce a socially efficient outcome, and highlighting any critical aspects.

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[1] Of course class action, like all juridical tools, is not *per se* a panacea for every possible situation. Critical concerns have been repeatedly addressed by scholars; among others, see Klement and Neeman (2004).

[2] Pub. L. No. 109-2, 119 Stat. 4, 2005.

In particular, the traditional tools of economic analysis enable us to identify the characteristics and "productive" conditions under which this judicial mechanism can create a specific risk market aimed at producing two instrumental goods, a profit for the attorney and protection of the victims, and one objective good consisting of deterrence, serving to promote efficiency.

Adopting this perspective, we find not only that the ultimate goal of efficiency can be attained even without full compensation of victims, but also that this eventuality, coupled with the attorney's appropriation of expected benefits, is in fact the currency that permits reallocation of the risk associated with the legal action.

The article is organised as follows: section 2 sets out the principal features of class action, and discusses its idiosyncrasies with respect to standard civil procedure. Section 3 reinterprets these features through the lens of economic theory, also with references to analogous situations that have led to the emergence of ad hoc institutions; this is followed in section 4 by an examination of the economics of this particular juridical technology that successively produces private, club and public goods. Section 5 discusses possible alternative solutions to class action for extending liability and protection of victims. Section 6 sets out the conclusions.

2. Class action: key procedural features

The first effect of class action is to permit the adjudication of meritorious claims that would otherwise not be litigated due to imperfections in the legal systems (Rodhe, 2004). In fact, class action is a legal device employed today for tackling torts in a wide array of cases, including financial market and securities fraud in recent times (Porrini & Ramello, 2005 & 2011; Ulen 2010). However, from its inception class action was infused with a broader political agenda, extending beyond the tort domain to embrace matters such as civil rights (in particular segregation), health protection, consumer protection, environmental questions and many others (Hensler et al., 2000).

As a whole, class action has the effect of altering the balance of power and the distribution of wealth among the various social actors –e.g. firms vs. consumers– thereby extending its scope in terms of overall impact on society. All the above elements, taken together, thus play an important role in guiding the legislator's decision of whether (or not) to adopt class action and, ultimately, the battle in favour of or

against the introduction of class action into the different legal systems is played out on a purely political terrain (Porrini & Ramello, 2011)[3].

Nonetheless, it is the procedural technicalities that have for the most part given sceptics grounds for criticising class action, and questioning its ability to be implemented in legal systems different from those where it arose. These are often specious arguments which disregard the simple fact that any "juridical technology" intended to achieve certain outcomes must be adapted, in its design, to the constraints of the target legal system, if it is to provide regulatory solutions that are effective and compatible with its context. The heart of the problem, therefore, consists in opportunely adapting the "legal machinery" to each jurisdictional setting in a manner that obtains the desired results without prejudicing its essential features[4]. In the case of class actions, these characterising features are:

(i) The aggregation of separate but essentially cognate claims, united by design and not by substantive theory.
(ii) The indirect representation of absent parties.
(iii) The provision of entrepreneurial opportunity to an attorney, who thus becomes the main engine of the civil action.

If we combine the three above elements, class action can essentially be described as a form of representational lawsuit that eliminates duplications in related claims, by aggregating all the potential claimants into a group--the class--and by giving a lawyer--the class counsel--control over all of them. In other words, what makes class action a special legal device within civil procedure is the unusual feature of binding individuals with related claims, even if they were not originally named parties in the proceedings. As a result, once a judgment is handed down, it extinguishes all claims included in the

[3] For example, the introduction of class action has generally been opposed by mass production firms as it would substantially increase their costs and likelihood of being prosecuted, as also by the insurance firms who would have to settle high claims (Hensler at al., 2000). In general "[g]iven their potential to transfer massive amounts of wealth and to reorganise important institutions, it should surprise no one that class actions are politically controversial" (Silver, 1999, p. 195).

[4] The efficacy of legal transplant has been widely debated, here again with advocates and detractors, starting from the seminal contributions of Watson (1974). The practice is however current, and there are many instances--beginning with antitrust law--showing that, with the needed adjustments, legal institutions can be transferred from one system to another.

class, and not just those of the named parties. This means that everyone falling within the class is considered an absent class member and thus included *de jure* in the lawsuit, unless there is a specific opt-out request, as will be discussed below (Dam, 1975).

The obvious main consequence is that, by aggregating similar claims, class action increases the possibility of litigation, and so also the liability of wrongdoers who would otherwise not be sued by victims; hence, it may redress the imbalance which exists between plaintiffs and defendants in several areas of litigation.

The indirect representation stems from the fact that the attorney is not appointed directly by each individual claimant, but rather through a specific set of procedures established by law, which essentially rely upon the initiative of a minority among them, and the subsequent acceptance by the judge, to start the trial (Hensleret al., 2000). In fact, the civil action is filed by an individual or a small group of victims assisted by an attorney. The class is then certified by the judge who consequently also 'appoints' the attorney as a representative of all the class members (Dam, 1975).

It is worth noting that the mere appointment of a class counsel does not, of course, *per se* assure attainment of any efficient outcome, nor does it rule out opportunistic behaviours (Harnay & Marciano, 2011). It is only a first step for making the desired outcomes possible and, as usual in tort litigation, demands a well designed set of incentives for the lawyer in order to work properly (Klement & Neeman, 2004; Sacconi, 2010). On the other hand, indirect representation and the need for proper incentives are likewise found in regulation, where the public agency acts as a *parens patriae* on behalf of interested parties, and is charged with pursuing the public (rather than the individual) interest by means of a specialised bureaucracy (Glaeser & Shleifer, 2003). Accordingly, the puzzle cannot be solved by fostering regulation as a substitute for litigation.

This last is a significant point because class action does bear some similarities—albeit limited to the civil procedure domain—to regulation: in fact, where the judge determines that individual actions may not be sufficiently effective, yet the litigation is in the collective interest, on request of a representation of victims she reallocates the individual rights over that particular prospective litigation. Thus, also in this case, an agent is nominated to represent the interests of a group, but with a narrower scope compared to fully fledged regulation. Here, the indirect representation serves merely to exploit the possibility of aggregating related claims without bearing the costs of searching for and coordinating a huge number --often a "mass"-- of potential plaintiffs, that would otherwise make bringing the lawsuit unaffordable.

Finally, there is one last feature that makes collective action possible: it is the creation of a specific entrepreneurial space for the class counsel, who undertakes to identify an unmet demand for justice and, acting self-interestedly, restores access to legal action for the victims. The class counsel is generally driven by the purely utilitarian motives of a "bounty hunter", who offers a service in exchange for recompense. It is thus a behaviour consistent with the paradigm of methodological individualism, and which is sometimes regarded with suspicion by those who consider private interests unsuitable for representing the collective interest. Such misgivings have, moreover, helped give support to regulation over individual civil action on the grounds that, as Justice Robert Young suggests (2001, p. 3) "in the judiciary, the process, though public in name, is private in essence" [5]. Yet this mechanism, endorsed by economic theory starting from the paradigm of the invisible hand, also underpins the economic analysis of law, given that many institutions, beginning with property rights, are designed to promote the collective interest through individual initiative (Ramello, 2011).

Hence, the reluctance to pursue collective welfare through private interest is not only theoretically unfounded (and in fact contradicts decades of scientific investigation), but also assumes the peculiar and unproven hypothesis that it is possible to select for particular roles–such as regulators or public prosecutors– special human beings entirely unmoved by individual utility, and who are on the contrary able to exclusively promote the collective interest without any eye to their private benefit. The reality appears to be greatly different[6].

Class action thus has the particular merit of aligning the private interest of the case attorney, who seeks to obtain a profit, with that of the victims, who seek redress of the harm and promotion of justice, and with that of society which instead benefits from a system that internalises the externality. This in fact creates a deterrent to wrongdoing and ultimately works to minimise the social costs, in accordance with Hand's rule. In

[5] This is in fact an old debate that has for at least one hundred years pitted the administrative against the judiciary, and helped trigger what has been termed the 'rise of the regulatory state' (Glaeser & Shleifer, 2003) .

[6] Judges, public prosecutors and regulators are individuals who have the same motivations and behaviours as other economic actors. Therefore, there is no solution in which the methodological individualism assumed by economic theory can be eliminated. For example, with respect to judges, the scholar and "judge" Posner (1994) notes that not only is this a mythological category populated by heroes, titans and saints, but also that all its members, as the title of his essay states, "maximise the same thing everybody else does".

this light, therefore, the miracle of the invisible hand is again renewed, and the self-interest of the victims and class counsel can play a role of public relevance.

3. What can economics further tell us about class action ?

The tools of economic analysis and efficiency are further brought into play when we consider the wider effects of class action on the judicial system and on the economic system. In particular, economic science offers two complementary routes for conducting such an analysis. The first concerns the manner in which class action can serve efficiency and collective welfare; the second provides the analytical framework for representing the legal machinery and studying its workings, thus determining under what conditions and in what way class action promotes social welfare.
However, for the investigation to be fruitful, we have to specify the initial conditions, i.e. the circumstances under which regulation and individual action are not effective. In other words, we must define the context that gives rise to a failure to protect victims, which is the prerequisite for introducing a new legal device (Silver, 1999; Ramello & Porrini, 2005). The conditions for this failure are the following:

- Existence of *fragmented claims*, very often worth less to each plaintiff than the individual litigation cost, or which in any case entail a prohibitively costly individual litigation.
- Sufficient *homogeneity of claims* for the court to issue a "one size fits all" decision, and for the victims to be able to adhere to the collective action.
- A *judicial market failure*, as a result of which some claims, no matter how meritorious, are not brought, so that certain individuals are unable to exercise their rights.
- A *failure of regulation* which thus does not offer a practicable alternative for resolving the preceding issues.

The conditions under which class action is potentially useful are those where certain rights established by law are not exercised, or only imperfectly exercised, due to a misalignment between what is theoretically asserted by the law and the concrete

incentives provided to individuals. Such a circumstance is by no means new to the law and economics literature, and for example also emerges in the case of property rights: the mere possession of the right does not necessarily result in its being exercised, even when this would be opportune and socially efficient. This condition creates a discontinuity in the laws, and renders them incomplete (Barzel 1997). In the case of property, for example, the described situation occurs where there is excessive fragmentation of rights, or in the presence of market imperfections which push up the costs of the exchange, resulting in a market failure[7].

The solution involves an institutional reorganisation to produce a lowering of these costs and/or promote the--sometimes forced--reallocation of the rights. Examples of this are the aggregation of rights in the case of patent pools (Gallini, 2011), and the compulsory licensing systems established for intellectual property, or for essential facilities in antitrust, as also the takings of private land (Nicita & Ramello, 2007; Mercuro, 1992)[8].

By thus regarding victims as owners of "property rights" over a specific litigation, whose enforcement may incur costs exceeding the expected individual benefits, we can interpret class action as a system that follows a comparable judicial path to that described for property, aggregating the individuals' rights when their exercise on the judicial market is precluded (or limited) by contingencies which make the net benefit of the action negative.

In general, these contingencies arise from the aforesaid fragmentation and its attendant coordination costs, from the limited size of the individual damages (so-called “small claims”), and also from the existence of asymmetries between the would-be plaintiffs and defendant (i.e. availability of information, capacity to manage the litigation risk, access to financial resources, and more).

Creating a pool of rights thus enables victims to access a less costly litigation technology, and thereby pursue justice. The productive efficiency of a static character concerns the overall production of "justice", on the demand and supply sides, since on

[7] The example here essentially refers to situations such as the anticommons, where a lack of coordination connected with the cost of using the market for excessively fragmented rights, or the strategic use of property by some right holders in order to extract all the surplus created by the exchange--the so called “holdout problem”--frustrates achievement of a socially desirable outcome (Heller, 2008).

[8] The law and economics literature shows, for example, how property laws are designed to smooth the workings of the market, restoring rights to their legitimate holders where possible, or reallocating them to new actors when the previous solution is not practicable.

the judicial market both jointly concur to its production, albeit for different reasons. Class action in fact allows a so-called "judicial economy" to emerge, which on the demand side, through aggregation of small claims, produces economies of scale in litigation that cause individual costs to decrease with increasing number of plaintiffs (Bernstein, 1977). On the supply side, there is likewise a reduction in costs if the aggregation permits overall savings in resources compared to multiple individual actions, provided though that the savings afforded by aggregation are not offset by an increase in the number of lawsuits[9].

There is, then, a second level of efficiency connected with the economic nature of class action, and which has the purpose of aligning different interests to achieve the previously stated goal. In effect, the system, if properly applied, has to introduce a set of distinct incentives which together concur to produce three different outputs: a profit for the attorney, redress of the harm for the victims, and deterrence of wrongdoing (thereby minimising the social cost) for society.

In other words, the role of class action is to reconcile the conjoined individual interests of victims with the collective interest of society, by passing through the private interest of the class counsel. It thus has the nature of a *private good* for the attorney, who takes on the entrepreneurial role of setting in motion the collective action, which is in its turn aimed at obtaining redress of the harm (Dam, 1975). Though this ultimately has an effect on each victim, it can only be produced as a local public good for the cohort of all victims, and thus takes the form of a *club good*. Finally, the transfer of the cost of the wrongdoing from the victims to the injurer has the consequence of re-establishing a higher level of deterrence, thereby resulting in production of a *public good*. This deterrence, it is worth noting, pertains to what is generally termed dynamic efficiency, since its production in a given time frame is also instrumental to the intertemporal optimal production of other goods.

The described mechanism thus works to promote various economic interests, and at the same time enhances efficiency by favouring the internalisation of externalities,

[9] This aspect is naturally ambiguous with respect to the supply side, due to the need to balance the judicial costs with the social costs. Thus class action brings about a net saving if it reduces the number of lawsuits, but may also increase their number if it makes possible suits that would otherwise not have been brought. Even so, however, it can still produce a net saving if the deterrence effect, as we shall discuss, reduces the social cost. Naturally this requires that it doesn't produce another externality, connected with court congestion (Chappe, 2011).

reconfirming the instrumental role of tort law in reducing the risk of accidents (Calabresi, 1970).

Therefore, the points discussed thus far can fully account for the economic role of class action, whose characteristics and workings can be investigated through the customary analysis tools provided by the theory.

4. Class action and the production of goods: the analytical framework

As discussed above, class action works by rearranging property rights over a specific claim, to promote the attainment of an efficient organisation in litigation. Through the attorney, it restores the incentive for claimants to bring the suit, thereby reinstating access to justice and, in consequence, enhancing deterrence.

Using the traditional categories of economic analysis, we can represent the described situation and interpret the "productive" roles of the various actors taking part in the class action. For simplicity, let us image a scenario where the injurer has unilateral control over the level of care, and the level of activity is extensive, thus better handled by a strict liability regime in which the cost of the accident is borne by the defendant, irrespective of the level of precaution taken. According to law and economics theory, the rule of strict liability with perfect compensation thus causes the injurer to internalise the costs and benefits of precaution, which gives the injurer an incentive for efficient care. Full internalisation of the damage by the tortfeasor fulfils Hand's condition, under which the social marginal cost of care equals its social marginal benefit, and so makes it possible to minimise the expected social cost of accidents (Calabresi, 1970; Brown, 1973).

The class as a club

The organisation of plaintiffs into a "class" corresponds to what in economic theory is termed a "club", that is to say a "group of individuals who derive mutual benefit from sharing one or more of the following: production costs, attributes of the members, or goods characterised by excludable benefits" (Cornes & Sandler, 1996, p. 347).

This results in the production and ensuing consumption of specific goods that would not otherwise be produced: the club good is an excludable but non-rivalrous public good for

the club members. Therefore it is congestible, in the sense that an increase in the number of members will at some point negatively affect their benefits.

In the case of class action, the club good is the reinstated access to justice and the resultant redress of the wrong, which is then naturally shared out among the individual members. Though the compensation is ultimately private, its collective production is a club good. In accordance with the literature on clubs, collective litigation and damages are non rivalrous for the victims once the lawsuit has been started, but excludable through certification by the judge (Silver, 1999). The role of excludability here is twofold: on the one hand, in accordance with club theory, it is needed in order to provide the proper incentive to the club members, as otherwise free-riding would be possible (Cornes & Sandler, 1996); and on the other hand, excludability is the element which distinguishes the judiciary from regulation, since in the absence of exclusion the class could conceivably include everyone, making it no different from regulation. It is worth noting that we are assuming here a failure of regulation, so that any equivalence between regulation and litigation cannot be envisaged without necessarily implying a negative outcome also for the latter.

Compared to traditional clubs, opt-in for class action is partly determined by the injurer, who "creates" the category of potential victims, and subsequently refined by the judge who certifies the class, i.e. defines those who have the right to take part in the litigation (Issacharoff, 1997). This peculiar situation places a limit on the number of members, and is consequently useful for remedying the potential congestion that is a typical problem of clubs. Opt-out then permits a further fine-tuning, also benefitting the victims' choices. In fact, each member of the class has the residual right to express his or her will by opting out, and thereby exiting the collective litigation. This solution thus preserves the voluntariness requirement which generally characterises membership of a club, and would otherwise be of necessity violated (Cornes & Sandler, 1996).

What is more, opt-out provides a sanity check for the undemonstrated assertion that the class action is the proper solution for protecting individual rights. In fact, if the class action were not the optimal solution for safeguarding the individual victims (or if the certification of the class were incorrect, which is an equivalent situation) the members of the class would still have the opportunity to opt out and choose individual litigation instead. This solution therefore introduces a sort of competition between different

litigation technologies, and hence assures optimality–i.e. maximising of the expected net benefit–to the individual members[10].

It is interesting to note that, compared to the difficulties highlighted by club theory, class action presents a fairly manageable case since it groups together homogeneous members–victims who have suffered a comparable harm. Legal practice bears out this assertion, since in cases of significant dissimilarity of victims and harms the judges do not certify the class, or have the possibility of invalidating the action in progress[11].

Thus, given a population of $N = \{1,...,m\}$ individuals--i.e. all of humanity--only a part of these will possess the characteristics for being included in the subset of victims V, that is to say $V \subset N$. Formation of the club, from a legal standpoint, in fact requires certification of a class of size n, which may of course be smaller or greater than the actual number of victims. The judge's discretionary power stems from the need to define a group of claimants that is sufficiently homogenous to make collective action possible. For each victim, the alternative options are to file an individual suit against the injurer, or to do nothing. The cost of the litigation $c(n)$ is zero if no lawsuit is brought, and otherwise generally increases with the number of individuals for values $n \geq 1$. The representation can thus be expressed as the following dichotomic formula, which assumes a linear relation between costs and number of victims:

$$c(n) = \begin{cases} 0 & n = 0 \\ f + nz & n \geq 1 \end{cases}$$

Where f is the fixed cost for embarking on the litigation, and z is the marginal cost for each individual member of the group. The fixed cost can be regarded as the price of admission to the judicial market, which must be paid whenever a legal action is brought; it might for example include expenses such as expert surveys or other technicalities specific to the litigation, and is essentially a set-up cost for establishing a club of any

[10] A similar evaluation of whether the class action is superior to individual litigation is also made by the judge at the time of certification.

[11] This is for example what happened for two proposed class action settlements for asbestos litigation that were invalidated by the US Supreme Court on these grounds, in Amchem Products Inc. v. Windsor 521 U. S. 591, 1997, and in Ortiz v. Fibreboard Corp. 527 U. S. 815, 1999, and which nevertheless were able to benefit from consolidated litigations.

size, having 1 or more members. Therefore, if each victim n pursues the route of individual litigation, f will be incurred n times.

The described cost function therefore exhibits increasing returns to scale for the number of joint plaintiffs, that is to say $AC(n) = \frac{f}{n} + z$ with $AC'(n) < 0$. This hypothesis is consistent with the literature, which in fact interprets clubs as a method for pursuing cost-sharing arrangements and producing economies of scale (Cornes & Sandler, 1996).

The described situation thus qualifies efficiency from the standpoint of demand, since it makes individual participation more accessible with increasing number of club members. According to the literature, economies of scale legitimately arise from the presence of significant indivisibilities in production, resolvable only through the creation of extensive productive hierarchies that can, in the case under study, take the form of a class (Edwards and Starr, 1984). What is more, the nature of a club, as a more efficient instrument for providing members with an excludable but non rivalrous good, equally presupposes the existence of indivisibilities in production (as otherwise individual production would be more efficient).

The harm h, once it has taken place, has a finite value and is uniformly distributed among the victims; a substantial homogeneity of the victims, as noted above, is a prerequisite for certifying the class, without which the litigation is invalidated. This likewise strengthens recourse to the club as an instrument for redressing a harm common to all the members.

For simplicity, let us hypothesise also that the claimants are neutral to risk and that their utility is therefore described by the expected total gross benefit $b(n)$, concave and twice differentiable. This simplification merely assumes that enlargement of the class will at some point negatively affect the expected gross benefit, so that the potential profits for the class members do not increase with increasing class size, in line with the congestible nature of clubs. The function thus described represents a sort of gross return, before payment of litigation costs, that is hypothesised to be non-negative at least for a wide range of values of n. These returns, net of the costs (and of any top up for the attorney, as we shall discuss) are then divided equally among the members of the club.

Victims' cost-benefit analysis

The condition which determines the failure of individual litigation is when $b(n) < c(n)$ for values of $n \geq 1$. It is of course intuitively apparent that such a situation depends both on the size of the expected return and on the cost: for very small values of f, that is to say when the price of admission to the litigation is low, it is easier for the failure condition to be averted. Likewise, if $b(n)$ is small–the typical example being that of small claims–the failure of the individual action is more probable.

In particular, for a judicial market failure of individual litigation to occur, the condition $b(1) < c(1)$ must be met, and the condition which remedies the failure is the definition of a class of size n such that:

$$b(n) - c(n) \geq 0 \qquad (1)$$

The above condition thus has the nature of a participation constraint, which justifies the introduction of class action to reinstate the efficacy of tort law. However, if due to some error individual action is able to produce a greater net benefit than collective action, each class member--as we have seen--has the opportunity of opting out, which also yields the incentive compatibility constraint, according to the condition:

$$b(n) - c(n) > b(1) - c(1) \qquad (2)$$

The above thus confirms the possibility of certifying a class of size $\bar{n} \leq n \leq \hat{n}$, for which the collective action produces a non-negative net benefit, representing the set of all values for which class action is a solution.

At the endpoints of the range, the expected net benefit for claimants is zero, since the gross benefits are equal to the costs, while for intermediate values there is a profit to the class for litigating the claim. Figure 1 shows a graphical representation of the case where the conditions for failure of individual litigation apply, while it is possible to define a population $n \in]\bar{n}, \hat{n}[$ for which the collective action is profitable. For convenience, given the cost function, the origin of the abscissa corresponds to the case of one victim.

Figure 1 approximately here

Minimising the social cost of accidents requires applying the criterion of full internalisation derived from the strict liability rule (Brown, 1973). Such an outcome depends essentially on the determination of the external cost, and then of the damages d, which are not univocally defined, but rather contingent on specific evaluations and, in part, on the prevailing judicial system. In particular, the level of damages established by the judge or jury reflects the concept of harm that is adopted, and the number of identified victims.

Let us for now hypothesise a strictly cost-based compensation for the class counsel (i.e. no positive profits are possible for the attorney): technically, the damages awarded should be equal to h if the American Rule is applied, as usually happens for US class actions[12]. This definition stems from a specific interpretation of "external cost" that focuses exclusively on the specific harm, without for example including the externality of the litigation. In such a case, full compensation of the victims can never be achieved, since by definition $b(n_h) - c(n_h) < h$; such a situation also frequently arises in individual litigation, and is unrelated to full internalisation of the damage by the injurer.

Some legal systems seek to partly overcome this problem by adopting the English Rule, which is a mechanism for cost-shifting to the losing party. This system thus enables plaintiffs who win the dispute to obtain greater benefits, but also renders the nature of the costs probabilistic, with a probability distribution that can significantly impact upon the constraints (1) and (2) which determine the choices of the would-be plaintiffs. In any case, there is a wide range of values for which the expected net benefit for victims (and, as we shall see, the net compensation expected by the class counsel) remain unaltered, preserving the favourable outcome of the collective litigation[13]. The

[12] The English Rule, adopted in many jurisdictions, provides that the losing party must pay the winner's reasonable fees, while the American Rule requires each party litigating the dispute to be responsible for paying its own attorney's fees. Whether the former or the latter is better suited for promoting efficiency is outside the scope of the present paper (ref. e. g. Eisenberg & Miller, 2010).

[13] Intuitively, the cost function will be zero with a certain probability $0 < \phi < 1$ if the suit is won (increasing the net benefit), or will increase by a coefficient $\mu > 1$ if the suit is lost. Therefore, there exist values for which the two components cancel each other out. For example a plausible relation is $\phi = 1 - 1/\mu$, which implies, for instance, that with a 50% probability of winning, the costs in case of losing will be double those directly incurred.

consequences can in fact be more onerous for the defendant, who in the event of losing is forced to pay damages equal to $h + c(n)$.

Yet this last-mentioned situation is still compatible with the American Rule if we consider the possibility, in the US system, of introducing punitive damages. These can be considered, in whole or in part, as a way to internalise the litigation cost imposed on the class, thereby reconciling the system with a broader definition of external cost[14]. In this situation the model requires defining a class of size n_r such that $b(n_r) - c(n_r) = h$ which in figure 1 makes it possible to cover all external costs. Therefore punitive damages (as also application of the English Rule under certain conditions) can lead to the definition of a larger class, compared to the case without this remedy. Yet if we consider the bounded rationality that generally impinges on legal action, the risk of defining an overly large club is less than that of underestimating its size, which would make the legal action as a whole inefficient, as we shall discuss below.

Consider, furthermore, the following different scenarios for punitive damages (or English Rule), in which maximising of the net benefit occurs with a class of size $n*$ for which the condition $b'(n*) = z$ is met. It is possible that this class corresponds to that which fully internalises the overall harm $h + c(n)$, in which case it represents the optimal and maximum size of the class. When this is not true, for example because full internalisation is not possible in any case (imagine a downward shift of the curve $b(n)$ in figure 1) the class of size $n*$ will nevertheless still represent an second best. Finally, there is the case where the damages granted either produce full internalisation of the harm before maximising of the net benefit takes place, or follow the American Rule: the class certified by the judge will in any case be of size $n < n*$, for example in the figure for n_r or n_h.

With respect to the three possible scenarios, $n*$ represents the upper limit for certification of the class by the judge, irrespective of the criteria followed for internalising the damage[15].

The above reasoning applies equally to the case of settlement, if the value agreed between the parties reflects what was has been discussed previously; it is thus possible to imagine an equation for the expected net benefits that incorporates a possibility of

[14] For an in depth discussion of punitive damages ref. Cenini, Luppi and Parisi (2011).

[15] Naturally, it is assumed that in case of punitive damages the plaintiffs will be able to include these in the function $b(n)$ which will have a higher or lower maximum depending on the criterion used.

paying "discounted" costs in the case of early settlement. Under certain conditions, similar to those discussed for the English Rule, the outcome may produce an expected net benefit comparable to what has been described. Though the transactions will generally be for lower sums than the potential damages, the costs will also be correspondingly reduced. This, of course, provided that the settlement does not lead the class counsel to act opportunistically toward victims, in collusion with the defendant. However, settlements, too, are generally scrutinised in detail and approved by the judge only after submitting the proposal to the victims and considering any objections, in order to minimise the likelihood of adverse outcomes, which as a consequence are not the norm (Koniak & Cohen, 1996).

A fistful of dollars: the entrepreneurial role of the attorney

The hypothesis of a strictly cost-based compensation for the class counsel, though convenient for the discussion thus far, is not consistent with the rationale of class action, which relies on the attorney's animal spirits as an instrument for triggering the litigation (Dam, 1975).

In fact, the notion of transferring the initiative to the class counsel requires creating sufficient economic incentives to motivate the counsel to act. It is naturally crucial, in this context, to define a suitable mechanism for appropriating part of the benefits of the legal action on one the one hand, and for reallocating the risk and, subsequently, the expected benefits/costs on the other hand (Backhaus, 2011). In effect, the failure of individual action depends on a negative balance between expected costs and benefits for individual victims, and the same thing can also happen in the case of a collective action, if the costs are known but the benefits highly uncertain. In such a case, the victims' decision to bring the civil action is also dependent on their combined capacity (generally rather limited) to manage the risk.

Class action has developed a system for managing risk which, similarly to what happens with productive organisations, shifts it to those actors who are best able to manage it (Porrini & Ramello, 2011). This aspect clearly emerges if we consider the scheme for compensating the class counsel. In effect, the traditional fee-for-service determination here appears somewhat problematic, due to certain inherent features of collective litigation: the victims are dispersed and the class action, to circumvent the

insurmountable costs of finding and coordinating all the class members (most of whom are absent), relies on indirect representation. Therefore, it is not possible to collect a per-capita fee ex ante; and if it were possible to do so ex post, the absent club members, once identified, could in case of failure of the litigation avoid payment by choosing to opt out.

The only practicable solution thus appears to be to grant a right to appropriate potential returns in exchange for known costs; this solution is called a contingent fee reward scheme, because it sets benefits discounted by a probability of less than 1 against known costs, and in order to be economically acceptable to the attorney requires the attribution of profits far exceeding the costs in case of success.

Now, considering that the damages must cover the costs, remunerate the class counsel and provide at least a minimal compensation for the victims, they will generally need to be considerably high.

If, for example, the expected gross benefit of the class counsel $x(n)$ is a probabilistic value that permits appropriation of a share $0 < \theta < 1$ of the expected benefits, the following condition must be met:

$$x(n) = \theta b(n) \geq c(n) \qquad (3)$$

That is to say, the amount must be non negative, and thus its minimum value corresponds precisely to the expected cost-based fee. Jurisprudence shows that appropriation occurs for a positive coefficient θ, defined in consultation with the judge, having a value $0{,}2 - 0{,}3$ (Klement & Neeman, 2004; Eisenberg & Miller, 2004).

Therefore, rewriting equation (3) as $b(n) \geq \frac{c(n)}{\theta}$ and considering the values indicated by legal practice, we obtain a sort of "golden rule" showing that class actions generally require an expected gross benefit for the class of at least 3 times the litigation cost; in other words, the class action must generally produce an amply positive surplus.

This result first of all shows that the requirement of a non-negative profit for the counsel forces overly costly and unprofitable class actions out of the market. We can thus formulate a first efficiency criterion, and namely that class action litigation technology is not a panacea for every harm.

A second criterion is the de facto requirement for total returns that amply exceed costs, and which serve partly to cover the costs and partly to compensate victims, whilst

leaving a further reserve of appropriability for the entrepreneurial attorney, who is the trigger that makes class action effective where individual action fails.

In effect, the logic of class action presupposes the creation of a sort of legal monopoly for the counsel over the specific collective litigation. Now, even though such a monopoly is regulated by the judge's intervention in defining the coefficient θ, the very structure of litigation leads the class counsel to extract a substantial quasi-rent. Given that there is an opportunity cost of foregoing other profitable activities, potentially having a higher likelihood of yielding benefits, the attorney must not only fulfil (3), which represents his participation constraint, but also secure a return such that:

$$x(n) - c(n) \geq \bar{x} \qquad (4)$$

Where $\bar{x}$ corresponds to the foregone profit of alternative activities. Equation (4) is the incentive compatibility constraint for the attorney.

Without loss of generality, assume for example that the alternative activity is paid through a fixed fee established ex ante (for example a standard legal action with no contingent fee), and rewrite equation (3) expressing the probability, i.e.

$$x(n) = px^* \qquad (5)$$

Where the probability is $0 < p < 1$ and x^* is the fee effectively received if the case is won. We can now substitute (5) into (4) and rewrite it as $x^* \geq \frac{\bar{x} + c(n)}{p}$. This shows not only that the effective fee received by the class counsel in case of winning must be sufficiently large to cover costs and foregone alternative profits, but also that, to take into account the risk that is borne, this amount must be multiplied by a factor $\frac{1}{p}$ which is by definition always greater than 1, and increases with diminishing probability of winning[16].

The class counsel in effect takes on the claimant's risk in exchange for the right to appropriate a share of the returns that is far greater than the costs. This mechanism,

[16] It is easy to see that the external lower bound is $\lim_{p \to 1} \frac{1}{p} = 1$. Now, since by definition $p < 0$, the multiplier is consequently always greater than 1.

which transforms the attorney into a bounty hunter, should not be considered suspect and is in fact the second strong point of class action, because it creates a market for allocating the risk to the actor best equipped to manage it. The standard equation here is that the entrepreneurial attorney fosters the protection of the victims' rights in exchange for a share of the awarded damages, as a reward for the risk. On the whole, this possibility--which in general works better with contingent fees--alters the cost-benefit ratio for the individual and provides the incentive to proceed (Dam, 1975; Eisenberg & Miller, 2004).

The reasons for the class counsel's superior capacity to manage the risk stem from a number of factors, the most significant being specialisation, and the ability to create a portfolio of diversified risks which, taken together, lower the average risk.

The described solution has a secondary consequence that is equally useful for realigning risk and its management among the parties to the proceeding, since class counsel and defendant are placed on a more equal footing, also in this respect, compared to the relation between victim and wrongdoer.

What is more, the imperfection of capital markets generally make access to external financing impracticable for the victim, who likewise has limited personal liquidity, whereas here again the class counsel is better placed and can more easily secure or obtain the resources required for the legal action (Dana & Spier, 1993).

Overall, we thus see the emergence of a new organisational configuration, indispensable for making the civil action possible, which recreates in the judicial sphere a sort of financial market provided with all its own instruments: in the final analysis, therefore, the contingent fee, with its attendant uncertainty, can be interpreted as a stock option that makes it possible to align the interests of the attorney with those of the represented clients, who here become stock holders of the legal action (Backhaus, 2011; Dam 1975)[17].

The above discussion therefore shows that: (a) partial compensation for victims can still be consistent with the efficiency paradigm, if defined as an equilibrium on the risk market, and (b) even where there is only partial compensation, the public good of deterrence can still be produced. In this case, the club good becomes merely

[17] The literature concurs on the fact that "if the attorney were paid either a fixed fee or an hourly fee, then she would have little financial incentive to reveal to her client that the case had a low expected return. Instead she might lead the plaintiff blindly into litigation regardless of the case's merit" (Dana & Spier, 1993, p. 350).

instrumental to the existence of the legal action, and so long as the victims express at least a minimum of satisfaction, even if only because "justice is done", and thus do not choose to opt-out en masse, the mechanism works perfectly and the injurer is forced to internalise the social costs, even if a significant portion of the damages are in practice appropriated by the class counsel.

In the worst case there will be a pure economic loss which, in accordance with what has been discussed in the law and economics literature, pertains strictly to the distribution of wealth without detrimental consequences on collective welfare (Porrini & Ramello, 2005)[18].

Obviously, this consequence is somewhat puzzling for those who maintain that tort law should be first and foremost concerned with compensation, to restore the original utility of the victim; instead, what emerges here once again is the pro-efficiency function of tort law, even in the absence of full compensation.

That said, it is worth noting that when the victims' compensation is zero, class action again comes to resemble regulation, with the class counsel acting on behalf of claimants in a manner comparable to regulators, and the victims receiving nothing more than protection.

5. Are there alternatives to class action ?

The criticisms of class action presuppose that there exist better alternatives for pursuing social welfare through internalisation of the damage. By definition, the existence of class action stems from a failure of both regulation and individual litigation. The practicable alternatives which remain are therefore suing for damages in a criminal court, or successive civil actions to create a sort of intertemporal club that brings together all the victims under the aegis of a precedent.

In the alternative of criminal proceedings, the principal actor is the public prosecutor, who plays a similar role to that of the class counsel, by bringing the action on behalf of the victims, even if absent. The public prosecutor therefore bears the fixed costs, and makes civil protection more practicable for the individual plaintiffs, who will pay a value closer to the marginal cost z. This situation can effectively reinstate the cost-

[18] What is more, full compensation is also often not achieved even in individual actions, where the attorney in any case always has an incentive to appropriate part of any benefits.

benefit balance.

However, there are certain caveats which make this a weaker solution than class action: first of all, the objective function of the public prosecutor may differ from that of the victims, in the absence of those mechanisms for realignment of interests which class action instead incorporates. After all, we are dealing with a criminal proceeding that has the civil remedy as its externality, which leaves optimal choices very much to chance. For example, the choice of which offences to pursue (albeit in accordance with guidelines), and the amount of effort devoted to the lawsuit, are decisions taken by the public prosecutor independently of the wishes of the victims.

Secondarily, the actions of the public prosecutor are necessarily restricted to offences pursuable in a criminal court, and so do not cover those wrongdoings which, though not classed as criminal offences, are nevertheless significant and punishable through tort law. In consequence, the route of criminal prosecution cannot be a substitute for class action, and at best can only serve to complement it.

Furthermore, considering the starting hypothesis of a regulation failure, and given that public prosecutors have many elements in common with regulators, it is likely that the criminal action will also suffer from the same problems.

The second available option is that of successive civil actions, forming a kind of intertemporal litigation pool, in which an attorney launches a pilot action and, if successful, follows it up with a series of individual actions. Also in this case, the subsequent actions need only pay the marginal cost, benefitting from the precedent which provides greater assurance of success. However this scheme is practicable only if the attorney is able to recover the fixed cost incurred for the first litigation. Therefore, if not all the victims take legal action, the intertemporal club will necessarily be of a smaller than optimal size, and the attorney will collect a fixed per capita fee that is necessarily lower. This will result in a lower incentive for the attorney.

Moreover, if the attorney does not have a legal monopoly on the follow-on legal actions, once the precedent has been produced it is foreseeable that free-riding colleagues will enter and crowd out the market, at a lower price that does not include the share of fixed costs. This is in essence the argument in favour of the natural monopoly, which in specific contexts is resolved precisely through the granting of legal monopolies; the law and economics literature has, for example, widely debated the case of knowledge and of the promulgation of specific intellectual property rights (Ramello,

2011) [19].

Naturally, an alternative to class action, as also more generally to regulation and tort law, is provided by an insurance system. Now, such a system is particularly effective when the assets of the injurer are not able to cover the damages, and thus produce the problem of the 'disappearing defendant', which in practice implies limited liability and hence a suboptimal level of precaution (Summers, 1983). In this case, insurance is a further means for transferring the risks and costs in exchange for a known benefit. This solution is sometimes the only accessible one (hence the financial insurance mandated by law, as in the US) for activities that may result in environmental damage, precisely to prevent certain subjects from being judgment proof (Boyd, 2002).

However insurance is at best a complement and not a substitute for the instruments and systems of tort law--including class action--for a number of reasons, the most obvious being that a frequent instances of collective actions have dealt precisely with insurance fraud (Issacharoff, 1997).

Hence the availability of a number of alternative protection instruments, among which is class action, is better able to cover all the areas at risk.

6. Conclusions

The different legal systems have gray areas, in which meritorious claims of victims may fail to be brought due to imperfections in the legal system, rather than due to lack of legitimacy. This is tantamount to a regulatory gap, which in practice leaves certain victims unprotected and certain wrongdoers unpunished. It therefore has a serious negative impact on the overall level of justice provided by a given system.

Yet, alongside the problem of justice, there emerges an equally serious problem connected with efficiency and individual behaviour: impunity creates an incentive to engage in harmful actions a source of profit, thanks to the possibility of transferring their cost to third parties. This has repercussions on the optimal number of accidents and

[19] An eloquent example is Germany's 2005 enactment of the Capital Markets Model Case Act ("Kapitalanlegerthe Musterverfahrensgesetz" or "KapMuG"), specifically designed enhance investor protection through a system of test trials and linked actions. Interestingly, in order to solve the afore-stated free-riding problem through the free market, there is also a complex proviso measure expressly devoted to avoiding opportunistic behaviour by spreading the fixed cost of the test litigation among all the plaintiffs (Vorwerk & Wolf, 2007).

on their social cost. As a result, the economic system becomes less efficient, and some investments are directed toward the production of accidents, i.e. the level of care moves away from its optimal point.

Class action is one of the possible remedies, which through an amendment of civil procedure makes it possible to reinstate the completeness of tort law in a large number of cases.

This article uses economic categories to show how the reorganisation of civil procedure is not merely aimed at providing a more efficient litigation technology, as hierarchies (and company law) might do for other productive activities, but that it also serves to create a idiosyncratic economic organization ultimately aimed at producing a set of goods, first and foremost among which are justice and efficiency.

It is thus possible to rediscover, through economic analysis, not only the productive function of this legal machinery, but also that partial compensation of victims and large profits for the class counsel, far from being a side-effect, are actually a necessary condition for reallocation of the costs and risks associated with the legal action.

Therefore, even though some commentators are uncomfortable with the idea of "selfish" individual interests being used as an instrument for promoting collective welfare, class action has the potential to recreate, in the judicial domain, the same effects that individual interests and motivations, governed by the perfect competition paradigm, bring to the market.

Class action can thus re-establish the alignment between public and individual interests where there are no credible alternatives. This potential makes it--notwithstanding the implementation difficulties and possible distorting effects of its attendant economic opportunities--a desirable instrument for many insufficiently protected victims and, on the other hand, a fearsome adversary for the many injurers that continue to operate almost with impunity in many jurisdictions (and naturally fuel the opposition to the adoption of class action).

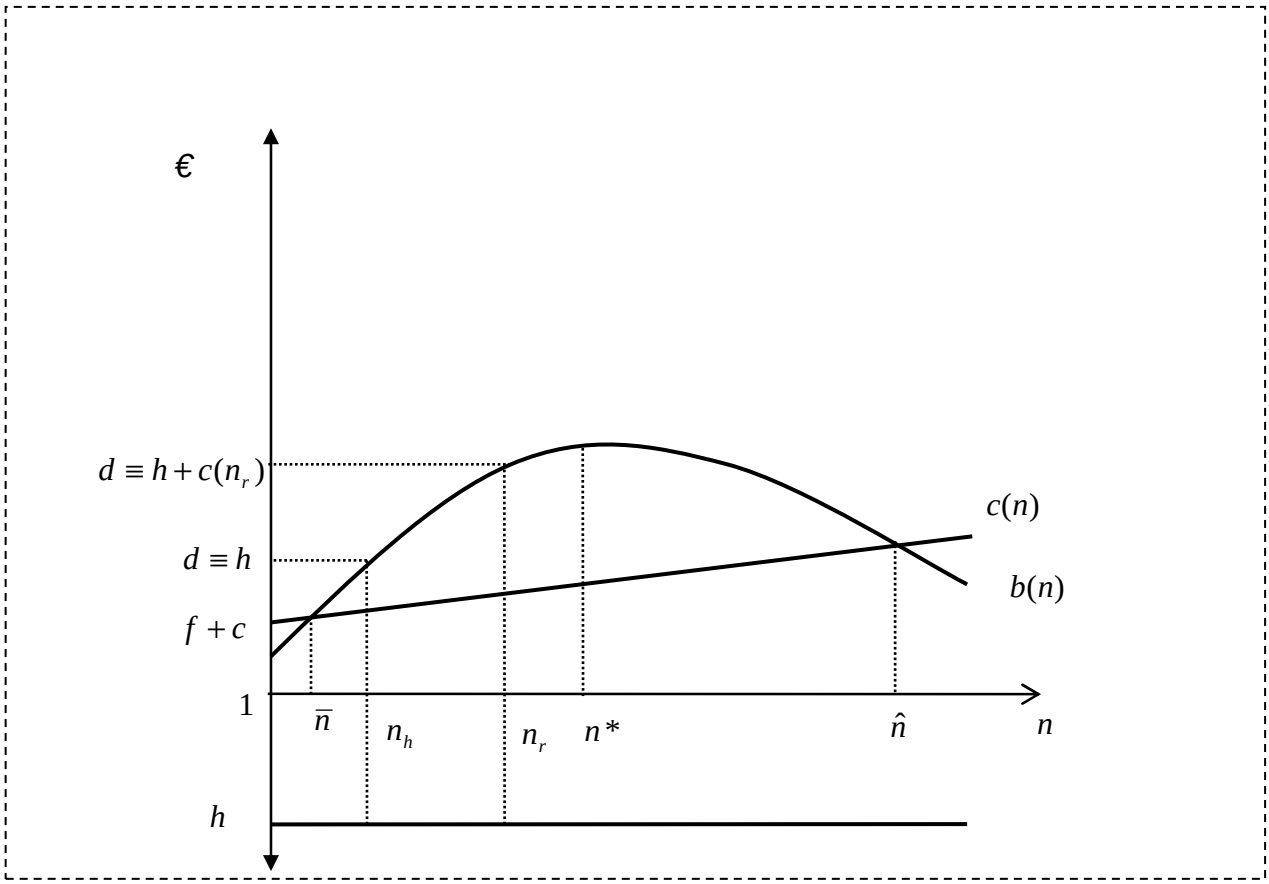

Figure 1

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