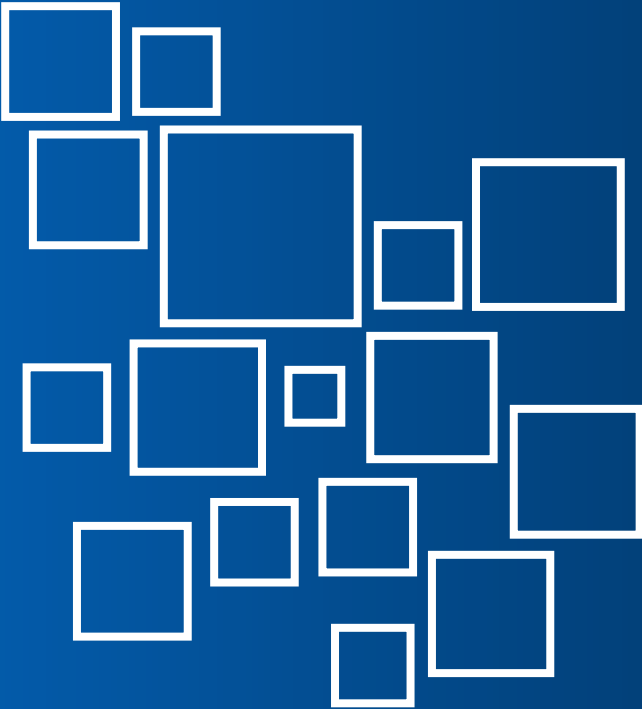


ISSN 1022-4057

Português

English

Español



ECONOMIC ANALYSIS OF LAW REVIEW

abde
Associação Brasileira
de Direito e Economia

 Universidade
Católica de Brasília


EDITORA
universa

www.ealr.com.br

Economic Analysis of Law Review

Rationality in Law and Economics

Jasper Doomen¹
Department of Law
Leiden University

RESUMO

Alguns pressupostos da Análise Econômica do Direito têm sido criticados à medida que pesquisas empíricas questionam sua viabilidade. Em particular, a premissa de que agentes consistentemente agem de forma racional e com seu interesse próprio em mente parece problemática. O que as críticas significam para a defensabilidade da Análise Econômica do Direito depende em grande parte das perguntas: (1) se alguns elementos são inatacáveis face às objeções de teoria alternativas e (2) se a alternativa compõe um todo sistêmico. Acredita-se que a Análise Econômica do Direito pode ser recuperada se for minimizada e suas ambições temperadas, o que significa focar em seus elementos *a priori*, estáveis e inerentes à metodologia.

Palavras-chave: Racionalidade, Interesse Próprio, Viés, Previsibilidade.

JEL: K00, D03

ABSTRACT

Some of Law and Economics' basic claims have come to be criticized as a result of empirical findings that question their viability. Particularly, the premise that agents consistently act rationally and with their self-interest in mind seems problematic. What the consequences of the criticism mean for Law and Economics' tenability depends largely on the questions whether (1) some elements are unassailable to the alternative's objections and (2) the alternative is a systematic whole. It is argued that Law and Economics may be salvaged, if it is minimized and its ambitions are tempered. This means focusing on the stable, *a priori*, elements inherent to it.

Key words: Rationality; Self-interest; Biases; Predictability.

R: 2/3/11 **A:** 19/7/11 **P:** 16/11/11

¹ Lecturer at Leiden University, Department of Law. The author can be contact at J. Perkstraat 4 A, 2321 VH Leiden, The Netherlands or through e-mail: jasperdoomen@yahoo.com.

1. Introduction

In order to produce viable and efficient policy and laws, the legislator needs to know, at least roughly, how people will respond to legislation and what the optimal outcome of new measures may be. In the field of economics, a model has gradually emerged that is relatively transparent and has come to be accepted by many. Crucial in this model is the assumption of the rational agent, *i.e.*, the agent that has a rational perspective on the basis of which he can consider the possible consequences of his actions. This account is usually supplemented by the notion that the agent acts solely on the basis of his self-interest. The Law and Economics movement has used the model to realize predictions with respect to legislation reforms.

These assumptions have increasingly become subjected to harsh criticism, the opponents maintaining that they are unrealistic. Most importantly, it is argued that a number of observations made in the field of psychology need to be incorporated into the models, if the models are to be salvaged at all. The various points of view from which this criticism has emerged have come to be collected in the guise of Behavioral Economics, *i.e.*, the research that incorporates various cognitive elements in its focus on behavior in economically relevant fields.

In this article, I try to show that it is difficult to reconcile the different perspectives that ‘classical’ Economics and Law and Economics on the one hand and Behavioral Economics on the other display into a single account. It will be pointed out what their respective roles can be.

In the first section, the two approaches are briefly dealt with, focusing on the mutually exclusive distinguishing features. Law and Economics’ research is characterized by an *a priori* method of research, in which a number of behavioral presumptions are not problematized. In Behavioral Economics, conversely, people’s factual behavior is enquired with the goal to come up with predictions that are presumably more accurate than those reached on the basis of the model that Law and Economics’ proponents utilize. A number of refinements are necessary to paint a representative picture.

The second section explains how ‘rationality’ is conceived from the different perspectives. A differentiated set of views will emerge from this. In the third section, the role of self-interest in the coming about of actions – supposedly a crucial element – is inquired. The fourth section deals with the relevant aspects of predictability, giving attention to chaos theory. Section 5 addresses a representative issue, *viz.*, employer liability.

A nuanced stance is attempted throughout the paper, in that it is my purpose to avoid simplistic reductions; I will forego any pretence of resolving all of the difficulties arising.

2. The rational agent assumption and Behavioral Economics’ observations

The rational agent assumption is often promulgated, sometimes implicitly, in economic theories. Roughly put, the idea is that people always, or at least in general, act rationally self-interested.² Such a position can be found with a ‘classical’ economist such as David Ricardo (1951:88): “Whilst every man is free to employ his capital where he pleases, he will naturally seek for it that employment which is most advantageous; he will naturally be dissatisfied with a profit of 10

² *Cf.*, *e.g.*, Shavell (1980:2). I will use ‘self-interest’ throughout the article; there is, in my opinion, no difference between it and ‘selfishness’ (this is no idiosyncratic position; Korobkin and Ulen (implicitly) equate the notions; *cf.* Doomen (2005), and I will not use the latter formulation myself as some seem to contribute a negative connotation to it, so that its presence might needlessly complicate matters.

per cent., if by removing his capital he can obtain a profit of 15 per cent.” This does not detract from the fact that there has been room for balanced views from the beginning, as Adam Smith’s position demonstrates (cfr. Doomen, 2005).

The danger of a simplistic reduction looms here; it is easy to criticize the rational agent assumption if one considers it in a procrustean way, assaulting it without leaving it any viable means to fend for itself, having taken these away prior to the confrontation. In such a situation, a straw man is facilely constructed. It is, of course, necessary to know how Law and Economics deals with rationality. In the second section, I will try to present a representative picture of this.

The basic idea in (neo)classical Economics and Law and Economics is that agents are able to rationally assess the options that are presented to them, so that the optimal outcome may be calculated and facilitated through legislation. This qualification is somewhat simplistic in that such movements are often named once individuals have established positions, in order (for outsiders) to be able to classify them, rather than the other way around. Legal realism may serve as an example here: Llewellyn (in hindsight, *viz.*, after a number of individuals had established their points of view) noted a number of common points of departure without being able to provide a general theory into which all individual perspectives could be integrated (Llewellyn, 1962:54, 55). Behavioral Economics itself may also be mentioned in this regard. The pattern is found amply in virtually every branch of thought. This is not a problem, as long as the limitations of such naming are accounted for. It is possible – and I will do so in the course of this article – to continue to speak of (neo)classical Economics and Law and Economics, but merely as tools; as long as the limitations of a common denominator are accounted for, the danger of addressing a straw man is avoided.

Important Law and Economics thinkers include some of the authors mentioned in this article, as well as, *e.g.*, Coase and Polinsky. The position of Calabresi, who is also frequently associated with this movement, is actually difficult to assess. On the one hand, he uses a number of analyses that resemble those characteristic for Law and Economics. On the other hand, he emphasizes the importance of fairness (Calabresi, 1970:24),³ and he takes the limitations on human rationality seriously, exemplified in his remark that “[...] the whole “rational economic man” approach strikes me as so unreal that I cannot fully believe that men as practical as judges often are could fully buy it.” (Calabresi, 1961:515).

The basis of the economic approach, *i.e.*, individuals rationally balancing different outcomes in order to find the optimal one, is said (by Behavioral Economics’ proponents) to be insufficient to account for actual behavior; the detailed analyses that are put forward in the Law and Economics approach – based on the idea that people always act rationally self-interested⁴ – allegedly start from too simplistic a premise. This straightforward model needs to be supplemented by empirical analyses in order to account for the decisions that are actually made. The criticism of the rational agent assumption is rooted in a number of psychological observations. It turns out that a number of judgmental heuristics result in cognitive biases, which make the rational agent assumption problematic. Some important biases⁵ are the hindsight bias and the overconfidence bias. Of the heuristics, the availability heuristic needs to be mentioned.

³ Cf. Calabresi (1968:430): “[...] Fairness is ultimately a goal which any system of accident law must meet.”

⁴ Acting strictly minimally rationally, *i.e.*, without a motive for acting being specified, needs to be distinguished from acting rationally with one’s self-interest in mind, in which case the rational course of action would consist in obeying one’s self-interest; these variants will be discerned below.

⁵ This is a selection, not a comprehensive list, of the actual biases.

The hindsight bias can be expressed as follows: “In hindsight, people consistently exaggerate what could have been anticipated in foresight. They not only tend to view what has happened as having been inevitable but also to view it as having appeared “relatively inevitable” before it happened.” (Fischhoff, 1982:341). This bias appears to be a particularly tenacious one (Korobkin and Ulen, 2000:1097). Its concrete outcome is that one will take more measures than necessary (Jolls, Sunstein, Thaler, 1998:1526).

On the basis of the overconfidence bias (Slovic et al., 1982:468, 470), people tend to assess the chance that something will occur unrealistically in that they are too optimistic: “[...] Most people think that their probability of a bad outcome is far less than others’ probability, although of course this cannot be true for more than half the population.” (Jolls et al., 1998:1523).

The latter bias is exemplified by the results from questionnaires presented to 300 people, a little less than half of whom usefully responded, who were about to be married (and had not been married before). They were asked (*inter alia*) how they estimated their chances of ultimately being divorced compared to people on average. They turned out to reckon – correctly – that 50% of married couples in the U.S. will divorce, whereas the (median) response to the likelihood that they themselves would divorce was 0% (Baker and Emery, 1993:443).

This leads the researchers to conclude: “[...] Those who are about to be married [...] have relatively accurate, if sometimes optimistic, perceptions of both the likelihood and the effects of divorce in the population at large. [...] These same individuals express thoroughly idealistic expectations about both the longevity of their own marriages and the consequences should they personally be divorced. [...]” (Baker and Emery, 1993:445). Importantly, “[...] increasing individuals’ knowledge of divorce statutes does not diminish the unrealistic optimism of their expectations for their own lives” (Baker and Emery, 1993:446). Still, such issues must be treated with care (Armor and Taylor, 2002: 346).

Calabresi (1970:89, 90) addresses the general problem that most people don’t have an adequate overview of statistical data and deals with the issue, in line with the overconfidence bias, that they may be psychologically incapable to see themselves as potential victims. Employees in particular underestimate the chance that an accident will happen (Calabresi, 1968:441). As for the availability heuristic:⁶ “[...] If a particular hazard has materialized recently, people are likely to attach a higher probability to its occurring in the future.” (Jolls et al., 1998:1518).

The fact that biases and heuristics lead people to a less stable and rational course of action than Law and Economics predicts seems to require rethinking the rational agent assumption.⁷ A number of premises in Law and Economics are still viable, as even its critics grant,⁸ but its claims are relativized by the outcomes of empirical research, such as the investigations referred to above. This involves not only the rationality aspects already mentioned, but also the other important presumption, that self-interest is the starting-point for behavior, needs to be inquired critically in the wake of similar investigations, as will become clear in sections 2 and 3.

⁶ Kahneman (1982a), p. 11; Kahneman (1982b), p. 164.

⁷ Incidentally, one must be careful not to overvalue Behavioral Economics’ findings (cf. Ulen, 1998:1757): “The current state of our learning seems to suggest that any shortcoming in cognitive abilities that we discover applies to everyone in similar circumstances. [...] Surely this implication goes too far.”).

⁸ E.g., Jolls et al. (1998:1486).

3. 'Rationality'

As was indicated in section 1, the Law and Economics approach starts with the assumption that rational considerations and self-interest are decisive for agents' choices. A number of nuances have to be taken into account here.

First, Law and Economics doesn't propose to accurately describe how people actually behave, but is focused on a method of analysis rather than on actual motivations.⁹ Applied to tort law, for instance, the following is said: "Ours is a theory of the rules of tort law rather than of the consequences of those rules for behavior" (Landes and Posner, 1987:13).

Becker (1976:6, 7) maintains that an incomplete knowledge of what may be relevant to reach a decision is a different given than irrationality: "The economic approach does not assume that all participants in any market necessarily have complete information or engage in costless transactions. Incomplete information or costly transactions should not, however, be confused with irrational or volatile behavior." Furthermore, he accepts that subconscious elements may be decisive in agents' decisions: "[...] The economic approach does not assume that decisions units are necessarily conscious of their efforts to maximize or can verbalize or otherwise describe in an informative way reasons for the systematic patterns in their behavior. This is consistent with the emphasis on the subconscious in modern psychology and with the distinction between manifest and latent functions in sociology."

On the other hand, one might advance that, if Law and Economics fails to account for actual behavior, the fact that detailed analyses of possible behavior are propagated by its adherents would be difficult to explain. They don't seem to want to present a formal theory, merely trying to realize a consistent model, but explain – albeit perhaps, merely by and large – why choices are made as they are made. Their approach can still be defended, but the ambitions have to be adjusted to acknowledge the limitations it carries with it. A minimized version of rationality, which I will address below, needs to be opted for.

Second, it is necessary to consider that the notion 'rationality' has various meanings. As Posner (1987:1) rightly remarks, the word 'rational' lacks a clear definition. This is also promulgated by some who are critical of the Law and Economics approach (Jolls et al., 1998:1488). This means that it has to be made clear how Law and Economics deals with 'rationality'. Becker (1976:153) clings to the following position: "[...] Rational behavior simply implies consistent maximization of a well-ordered function, such as a utility or profit function." A similar stance is taken by Shavell (1987:2), albeit without, at this point, explicating the rationality premise.

That there are different ways of dealing with the issue becomes especially clear when the different conceptions of 'rationality' are contrasted. Thus, one may define economics as the science of rational choice and equate rational choice with the attempt to get the most from scarce resources (Landes and Posner, 1987:23), but this seems to cover 'rationality' in merely one sense.

In that respect, the versions that are presented by Korobkin and Ulen (2000:1061) may be helpful. They distinguish two 'thin' and two 'thick' conceptions of rational choice theory, the thinnest being that people seek means to ends, rendering a definition that is tautological and not falsifiable.¹⁰ The expected utility version they put forward as an expanded one corresponds with Landes' and Posner's statement (1987:55) that "The rational individual will choose that prospect

⁹ Becker (1993:385). Shavell grants that models render an inexact understanding of reality (1987:3).

¹⁰ The falsifiability thesis dictates that statements must be falsifiable, *i.e.*, potentially refutable empirically, in order to be qualified as scientific (Popper, 1962:40-42).

with the greatest expected utility.” This version is not falsifiable either (Korobkin and Ulen, 2000:1064). A minimized version of rationality can still be maintained, then, not by pointing to experimental evidence but by showing that such evidence is irrelevant.

Bounded rationality, the idea that various other elements than reason are decisive for the coming about of an action (e.g., Simon, 1983:17-23), strikes only the position that people are actually guided by reason in the sense that they would be able to decide with the long-term in mind and weigh the alternatives without being hindered by cognitive biases and heuristics. The just mentioned expected utility version of rational choice is not struck by it, *inter alia* as it is not falsifiable. This follows from the fact that the agent’s preferences are the only standard. After all, there seems to be no other standard when it comes to deciding whether something has utility. So if an agent should act in a way that would conflict with acting on the basis of a more expanded notion of rationality than this, it could be argued that he has still acted in such a way that his preferences (at that moment) were decisive. This can be maintained for any situation, thus rendering a non-falsifiable outcome.

If Law and Economics’ ambitions were the same as Behavioral Economics’, Etzioni’s observation (1988:140) that “The trouble with the neoclassical concept of rationality is that it either does not differentiate at all or differentiates very poorly. [...] Rarely are attempts made to empirically verify the assumptions introduced”, would be correct. However, considering their divergent ambitions – Law and Economics being content with¹¹ outlining a minimum that is ever decisive in people’s actions,¹² Behavioral Economics focusing on actual behavior in detail –, it would seem that the force of such an attack is strongly mitigated.

The discrepancy between Law and Economics’ a priori presumptions and Behavioral Economics’ observations is relativized, or perhaps even resolved, once the fact that differing conceptions of ‘rationality’ are adhered to is taken into account.

4. Self-interest as the decisive motive

Another premise that is part of the rational agent assumption is that self-interest is constantly decisive. In this case, Korobkin and Ulen (2000:1065) argue, a falsifiable stage is reached, as a ‘thicker’ conception than the two ‘thin’ ones mentioned above is at stake. As I will argue, however, self-interest may be considered to be an a priori element that decides the action. The minimized version of rationality proffered in section 2 can, then, be expanded to include this aspect.

To start with an example of research performed to elucidate agents’ motives, an experiment conducted by Jolls et al. (1998:1490) makes it clear that financial gains are not the only objective involved in strategic decisions. The experiment consisted of the ‘ultimatum game’: one player, the proposer, suggested dividing an amount of money between himself and the responder; the ultimatum part of the game consisted in the fact that no negotiations could take place in which a division could be bargained – the proposal would be one of all-or-nothing. A failure to strike a bargain would result in neither party obtaining any money. If financial gains were all the agent (in this case, the responder) is interested in, any proposal would be accepted: the smallest amount of money is still better than nothing at all. The results of the experiment show that such a stance is not

¹¹ This has no unanimous support in Law and Economics adherents’ writings, but seems to be the only way to find a refuge against Behavioral Economics’ criticism.

¹² In order not to be accused of using a procrustean standard here myself, I must add that I merely point here, and elsewhere in this article, to the a priori *basis* of Law and Economics, without implying that no empirical data would be involved in economic investigations.

realistic: if offered too small an amount (usually, 20 percent or less), responders decline the offer. One may argue that this indicates that people want to “[...] punish unfair behavior, even at a financial cost to themselves.”

This evaluation of the outcome needs, I think, to be nuanced. ‘Fairness’ is a difficult notion and may even be argued to have no meaning. Since it would diverge too much from the present inquiry to deal with this, I will not go into it here. Suffice it to say that the notion as it is commonly taken (leaving it unanalyzed) is used here; its presence may be merited on the basis of the meaning that agents attribute to it, perhaps implicitly. More problematic is the fact that relinquishing the money offer is taken to mean that the unfairness should be punished. It may just as convincingly be propagated that this gesture is motivated by a desire to take revenge in order to ‘punish’ the other party simply because one enjoys this.

Still, these are mere secondary points of criticism whose minor import is clear if their consequences are considered. Since the parties are supposed to play the game just once, it would mean exerting a revenge that is not supposed to be beneficial to the agent himself.¹³ Furthermore, the fact that, *e.g.*, many people tip the waiter in a restaurant they don’t intend to visit again¹⁴ seems to corroborate the general conclusion reached by these authors (from the other side this time, revenge not being the issue but, conversely, a ‘fair’ treatment of those who have acted in a beneficial way). This outcome may, however, also be interpreted differently; I can think of at least two alternatives. The first interpretation is similar to the motivation to insure oneself, the tip – a relatively small amount, just as an insurance fee – being left to take into account the remote chance that one will visit the restaurant again.

The second one, if the intention not to return is taken to mean that one will (virtually) certainly not return, and one maintains that “[...] people will often behave in accordance with their financial self-interest and no one will know.” (Jolls et al., 1998:1492), is that people pay to alleviate their feeling of ‘guilt’; the self-interest then consists in the fact that they would rather pay than experience that feeling – the fact that the feeling arises in the first place is no indication of altruism but merely points to the character of the agent in question.

One might adduce here that ‘guilt’ has a ‘moral’ meaning, another dimension than self-interest being at stake. In that perspective, one may appeal to a ‘moral order’, referring to shared values (Etzioni, 1996:84), or ‘the moral voice’, which is said to be “[...] a peculiar form of motivation: It encourages people to adhere to values to which they subscribe.” (Etzioni, 1996:120) Without going into all the problems concerned from a meta-ethical point of view here, the fact that it is not explicated what ‘moral’ means (and this is not peculiar to this writing but can amply be found) is unsatisfactory. One may point to conscience and similar instances, but to qualify such things as ‘moral’ presupposes that it is clear what that means.

The same problem can be observed in the ‘free rider’ situation, which is characterized by people acting in such a way that they profit disproportionately from the contributions of others: “A

¹³ Thomas Hobbes illustrates this position: “A seventh [law of nature] is, *That in Revenges*, (that is, retribution of Evil for Evil,) *Men look not at the greatnesse of the evill past, but the greatnesse of the good to follow*. Whereby we are forbidden to inflict punishment with any other designe, than for correction of the offender, or direction of others. [...] Besides, Revenge without respect to the Example, and profit to come, is a triumph, or glorying in the hurt of another, tending to no end; (for the End is alwayes somewhat to Come;) [...]” (Hobbes, 2007:106). Importantly, he defines ‘law of nature’ as follows: “A LAW OF NATURE, (*Lex Naturalis*), is a Precept, or generall Rule, found out by Reason, by which a man is forbidden to do, that, which is destructive of his life, or taketh away the means of preserving the same; and to omit, that, by which he thinketh it may be best preserved.” (Hobbes, 2007:91).

¹⁴ Jolls et al. (1998:1493); *cf.* Korobkin and Ulen (2000:1128).

large number of experiments, under different conditions, most of them highly unfavorable to civility, show that people do not take free rides, but pay voluntarily as much as 40 percent to 60 percent of what economists figured is due to the public till if the person was not to free ride at all. The main reason: the subjects consider it the “right” or “fair” thing to do” (Etzioni, 1988:59). The question pertains *why* they consider it thus, and what ‘right’ or ‘fair’ means (to them, or in general). They should, in their own view, act thus, but one may ask whether this is a ‘moral’ should – and, if so, what does that mean? –, or simply a word without a corresponding meaning to which they cling unreflectively, whatever the reason may be?

This matter cannot be explicated here, but it must be remarked that including ‘fairness’ in the reasons why one acts necessitates that one clarify it, if it has any meaning at all. To return to the issue: if ‘guilt’ – leaving the matter whether this has a ‘moral’ connotation or not – is one of the factors that (may) decide actions, a simple, ‘mechanistic’ way of acting would at any rate be more difficult to argue than the proponents of the rational agent assumption maintain.

Accordingly, the assumption that subjects display self-interested behavior, presumably in order to optimize economic benefits (Becker, 1976:14), must be analyzed critically. It is, in general, a crucial element in rendering a simple and applicable economical model.¹⁵ Here, too, the idea that agents only act self-interested may be maintained, as long as an account is provided in which the actions that are commonsensically qualified as ‘altruistic’ are explained (Doomen, 2005:113), but in a semantic sense: all actions, including those dubbed ‘altruistic’ by some, are then covered. Such considerations are, from the empirical perspective, irrelevant: as Korobkin and Ulen (2000:1065) observe, “[...] expanding the conception of “self-interest” to include other-regarding preferences in addition to selfish ones would rob the notion of “self-interest” of all its predictive value.” Still, this approach remains valuable, at least to obtain clarity with regard to the notions that are used.

This value is illustrated as follows: depending on the definitions of the notions, it can be argued that pleasure and pain are the only reasons why people act (Bentham, 1962:1). This would render an explanation that covers all situations. Indeed, this seems to follow from Becker’s stance (1976:8) when he states that “[...] the economic approach is a comprehensive one that is applicable to all human behavior [...]”. Such a viewpoint is, as I said, important, but merely at the basic (*i.e.*, non-falsifiable) level; its applications for inquiries into behavior are limited.

If someone acts with the mere prospect that his self-interest be optimized, different outcomes may ensue than in a situation in which he has the interests of others¹⁶ in mind, but the considerations leading to the actions are all qualified on a par when considered from the a priori perspective. As I said, such a perspective will at least offer a clear conceptual basis that can serve as a background to an empirical superstructure.

¹⁵ Vaihinger argues that Smith’s assumption that all human actions are dictated by selfishness is an artifice (‘Kunstgriff’), prompted by the fact that what one experiences is too complicated to arrange without it (Vaihinger, 1922:29). Strictly speaking, Vaihinger maintains, Smith’s assumption doesn’t amount to a fiction, but rather, since it partly expresses something factual, to a hypothesis; the hypothesis is, however, too general to correspond with reality (Vaihinger, 1922:147). (Incidentally, Vaihinger seems to have only Smith’s position in *An Inquiry into the Nature and Causes of the Wealth of Nations* in mind here, and not to account for that which Smith maintains in *The Theory of Moral Sentiments*.)

¹⁶ The issue is somewhat difficult if one considers those with whom one shares a special relationship, such as friends (*cf.* Doomen, 2005:112-114).

5. Predictability difficulties

The observations presented hitherto lead to the conclusion that some of the elements defended by Law and Economics adherents may be salvaged, by clinging to an a priori stance, but that these are insufficient to predict actual behavior. Does Behavioral Economics fill the void? Law and Economics adherents may be criticized for using too straightforward models, actual agents acting on the basis of more – and more varied – factors than they acknowledge. Reality is, in other words, more complex than Law and Economics allows. A variety of this criticism may be directed at Behavioral Economics itself. Ironically, this is caused by the fact that its purpose is to account for (and predict) actual behavior. It seems to have a rather optimistic outlook on predictability: “Behavioral economics does not suggest that behavior is random or impossible to predict; rather it suggests, with economics, that behavior is systematic and can be modeled.” (Jolls et al., 1998:1475).

It may, however, be advanced that the situation is more difficult to assess than both Law and Economics and Behavioral Economics assume. Chaos theory in particular leads to this thought. Predictability in the social sciences is under pressure as a result of insights from chaos theory (Gregersen and Sailer, 1993:797), and preferences are not constant (Rosser, 1999:200). Thus, “[...] chaos theory implies that the self-organization of economic agents leads to unpredictable and emergent outcomes.” One may even state that this is a more important issue than the presence of psychological factors: “What actually matters in real-life situations is not the bounded rationality of decision makers, but the unpredictability of the world.” (Hayward and Preston, 1999:179, 180). Francis Bacon’s consideration, if taken broadly, seems to have lost little of its acumen: “The human intellect, from its characteristic, easily supposes a greater order and equality in things than it finds.”¹⁷

Chaos theory thus necessitates relativizing the claims made by the social sciences. This does not, of course, mean that the social sciences can no longer function, but it does entail that caution is indispensable. A (partially) a priori stance, in which the difficulties are also present, but less vehemently than in one that bases its conclusions on empirical data, becomes attractive in the light of what has just been observed. The a priori part would consist of the minimized version of rationality presented in sections 2 and 3.

6. An illustration: employer liability

If one should apply what has been presented above to a concrete situation such as employer liability, Law and Economics charts the various outcomes of different models by stipulating that a rational (broadly speaking, thus including self-interest) course of action is followed, in which the financial costs would be minimal, thus providing a clear overview of the legislator’s or policymaker’s options.

The merits of strict liability,¹⁸ (simple) negligence,¹⁹ and their subdivisions can be weighed, thus rendering the optimal outcome. It must be remembered that these demarcations are merely useful aids: “It would be a mistake to dichotomize negligence and strict liability. Negligence has a strict liability component (and [...] strict liability has a negligence component).” (Posner, 2003:181).

¹⁷ “Intellectus humanus ex proprietate sua facile supponit maiorem ordinem, & aequilitatem in rebus, quàm invenit [...]” (Bacon, 2004:82); cf. Aphorismus I (p. 64), Aphorismus X (p. 66).

¹⁸ Strict liability puts the burden on the injurer; he is to compensate the victim’s damages irrespective of his or the victim’s behavior; this position is, accordingly, also known as no-fault liability.

¹⁹ Negligence (or simple negligence to distinguish it from the other variants that may be discerned) means that the injurer must compensate the damages if and only if he has not taken reasonable care to prevent these from occurring.

Vicarious liability points to the responsibility of one party for the actions of another,²⁰ in this case the responsibility of the employer for the employee's actions. The 'respondeat superior' ('let the superior party respond') doctrine is, as a species of vicarious liability, an application of strict liability to the employer-employee relationship in that the employer is liable to a third party for an employee's tortuous acts (insofar as these are performed within the scope of employment).

The 'fellow-servant rule' is an exception to the 'respondeat superior' doctrine and specifies that an employer is not liable to his employees for damages caused by a fellow employee's negligence. The Law and Economics explanation for this rule is that employees are best equipped to notice a careless colleague and are especially motivated to act on this if they are aware of the fact that any injuries to themselves resulting from the colleague's behavior will go uncompensated (Posner, 1972:44).

Strict liability would be preferable if the employer is the only one who can take efficient precautions.²¹ However, employees would be presumed to be sufficiently informed about the risks to which they may be exposed, and to be able to avoid these risks – they will simply not work at firms with unsafe working conditions – or said risks can be factored in by stipulating higher wages to compensate for the dangers (Shavell, 1987:51).

Calabresi (1970:18, 65, 97) opposes the view that monetary considerations are in every case decisive. Landes and Posner do state, in their criticism of strict liability: "Under strict liability (with no defense of contributory negligence²²), the potential victim, A, has no incentive to take care, because he is fully compensated for his injury [...]"²³ It is granted that financial motivations are not the only ones involved, but they rebut the position that this would decide the issue: "[...] Realistically speaking, [the potential victim in a regime of strict liability] may have some incentive, because tort compensation is not always full compensation; but his incentive would be greater if there were a defense of contributory negligence."²⁴ Similarly, Shavell (1987:11, 228) acknowledges that financial incentives are not all-decisive, but defends the analysis by pointing out that the effect of strict liability would still lessen the potential victim's care.

Behavioral Economics adherents would further relativize the role of financial incentives (*e.g.* by pointing to employers' care for their employees), and, more generally, maintain that the biases and heuristics that their investigations show distort such a straightforward picture. They would, observing the complexities inherent to actual behavior, rightly point to the need for more strongly diversified policies than Law and Economics suggests,²⁵ without, all the same, being able to provide definite predictions.

The limitations that Law and Economics faces must not detract from Behavioral Economics' own shortcomings. Notably, it must be clarified which rational elements are still present. As for self-interest in particular, the employer may simply care for his employees because he considers their

²⁰ The Latin 'vicis' means, *inter alia*, 'place' and 'exchange'.

²¹ Cf. Landes and Posner (1987:70) and Posner (1973:207).

²² Strict liability with contributory negligence is more nuanced than strict liability. The injurer is held accountable, just as in the case of strict liability, but this is mitigated in that the victim's failure to take precautionary steps to prevent the damages, indicating his negligence, will undo this, leaving the victim uncompensated.

²³ Landes and Posner (1987), p. 63 (*cf.* p. 80). Cf. Posner (2003), p. 172: "[...] The law must be careful not to impair the incentives of potential accident victims to take efficient precaution. [...] If the defendant is liable, the plaintiff will have no incentive to take preventive measures because he will be fully compensated for his injury, and the efficient solution will not be obtained."

²⁴ Landes and Posner (1987:80); *cf.* pp. 310, 311 with regard to the employee's incentive in particular.

²⁵ Cf., *e.g.*, Korobkin and Ulen (2000:1092, 1107, 1115).

(financial) value in the long-run, or – if one wants to eliminate every financial factor – may want to prevent the workplace atmosphere suffering from the impact of incidents. If he qualifies his relationship to his employees in a special way (even friend-like), it will be in his self-interest (if taken broadly) to protect theirs.

For now, “[...] law and behavioral science [...] lacks a single, coherent theory of behavior.” (Korobkin and Ulen, 2000:1057). Support theory, which “[...] addresses the *coherence* of a set of probability judgments rather than their *correspondence* to the actual likelihood of outcomes.” (Brenner et al., 2002:498.), cannot at present replace the models based on the rational agent assumption. Satisficing, looking for “[...] *good enough* solutions rather than insisting that only the best solutions will do.” (Simon, 1983:85), may be an alternative, but it carries the same burden as support theory, having to assimilate empirical data into a model, a burden that the theories departing from the rational agent assumption don’t have, arguing from an a priori viewpoint. Law and Economics and Behavioral Economics are, then, at least for the time being, in lieu of a single satisfactory approach, mutually dependent.

In order to fill the gap, one might argue for the realization of “[...] a collection of situation-specific minitheories [...]” (Korobkin and Ulen, 2000:1073). This does not take away the predictability problems mentioned in section 4, but it may be a realistic alternative to ambitions consisting in replacing Law and Economics by (presumably) full-fledged behavior-explaining theories.

Law and Economics may not predict entirely correct outcomes in each case, certainly when the situation is complex, but to replace it by Behavioral Economics is premature, as it suffers from the aforementioned difficulties. Furthermore, additional research is needed, because induction in the social sciences is more problematic than in the exact sciences as a result of their respective subjects.²⁶ It needs to be mentioned here that the biases addressed in section 1 have their limits (cf. Korobkin, 2005:782). At present, there is no clear model that can function to predict outcomes; rather, observations have been made that still have to be molded into a single account. The lack of unity, the presence of which in Law and Economics is criticized as being crude, makes it hard to provide such an account at this time.

Furthermore, the fact that Behavioral Economics is a multidisciplinary enterprise – a remark that, to be fair, applies to Law and Economics as well, albeit to a lesser degree, fewer disciplines being involved – makes an overview hardly obtainable, at least for now.

7. Conclusion

The remarks in this article that Law and Economics’ ambitions must be tempered are not novel. The inquiries of those who are critical of its premises have already frequently led to this outcome. What I have attempted to do here is to give an answer to the question how one should deal with the fact that Law and Economics can no longer be considered to explain agents’ behavior. It would be too simple to dispose of it altogether, all the more so since the competing models display neither the coherence nor the quantity of results needed to justify such a radical step, if such a transition is to be ventured at all. The difficulties involved in social sciences in general pointed out in section 4 add to the difficulties empirical approaches face.

²⁶ The contrast between Law and Economics and Behavioral Economics may also be pointed out in this respect (Korobkin, 2005:786).

Rather than replacing Law and Economics with an allegedly more viable alternative, I have argued that its basis – *i.e.*, that which it puts forward a priori and is not refuted (nor refutable) by empirical evidence – must be retained, in order to give the empirical investigations solid starting-points. It would be presumptuous to claim to know beforehand whether the goal of (in time) replacing Law and Economics with a model such as support theory is too ambitious.

The a priori elements that were pointed out in sections 2 and 3 are, first, rationality in the minimized version, according to which people act in such a way that their utility is optimal (the version of section 2), and, second, self-interest, which serves as an explanatory element why they act as they do (the expanded version of section 3, which adds self-interest to the minimized version). The minimized version of rationality has little to contribute to empirical research in economics. It can only be used to account for the agent's prospect at the time of acting, not to explain the action when the long-term is considered; the empirical inquiries are needed here. Their own merits are problematic in the light of what was touched upon in section 4, namely, the implications of chaos theory.

The increasing intricacies in the field of Economics require a continually critical assessment; how it will develop and to what extent a further multidisciplinary collaboration will be indispensable is hard to predict.

8. References

- Armor, A., & Taylor, S. (2002) 'When Predictions Fail: The Dilemma of Unrealistic Optimism.' In: Th. Gilovich, D. Griffin, D. Kahneman (eds.), *Heuristics and Biases. The Psychology of Intuitive Judgment*, pp. 334 – 347. Cambridge: Cambridge University Press.
- Bacon, F. (2004). *Novum Organum* [1620]. The Instauration magna. Part II: Novum Organum and Associated Texts. Summary of the second part, digested in aphorisms: aphorisms concerning the interpretation of Nature, and of the kingdom of man. Ed. by G. Rees and M. Wakely. Oxford: Oxford University Press.
- Baker, L. , & Emery, R. (1993). 'When Every Relationship Is Above Average.' *Law and Human Behavior* vol. 17, no. 4, pp. 439 – 450.
- Becker, G. (1993). 'The Economic Way of Looking at Behavior.' *Journal of Political Economy* vol. 101, no. 3, pp. 385 – 409.
- _____. (1976). *The Economic Approach to Human Behavior*. Chicago, IL: The University of Chicago Press.
- Bentham, J. (1962). *An Introduction to the Principles of Morals and Legislation* [1789]. The Works of Jeremy Bentham. Vol. 1. Ed. by J. Bowring. New York, NY: Russell & Russell.
- Brenner, L., Koehler, D., & Rottenstreich, Y. (2002). 'Remarks on support theory: Recent advances and future directions.' Th. Gilovich, D. Griffin, & D. Kahneman (eds.), *Heuristics and Biases. The Psychology of Intuitive Judgment*, pp. 489 – 509. Cambridge: Cambridge University Press.
- Calabresi, G. (1961) 'Some Thoughts on Risk Distribution and the Law of Torts.' *Yale Law Journal* vol. 70, no. 4, pp. 499 – 553.
- _____. (1968). 'Does the Fault System Optimally Control Primary Accident Costs?' *Law and Contemporary Problems* vol. 33, no. 3, pp. 429 – 463.
- _____. (1970) *The Costs of Accidents*. New Haven, CT/London: Yale University Press.

- Doomen, J. (2005). 'Smith's Analysis of Human Actions.' *Ethica. An International Journal for Moral Philosophy* vol. 4, no. 2, pp. 111 – 122.
- Etzioni, A. (1988). *The Moral Dimension. Towards a New Economics*. New York, NY: The Free Press/London: Collier Macmillan Publishers.
- _____. (1996). *The New Golden Rule. Community in a Democratic Society*. New York, NY: Basic Books.
- Fischhoff, B. (1982). 'For those condemned to study the past: Heuristics and biases in hindsight.' D. Kahneman, P., Slovic, & A. Tversky (eds.), *Judgment under uncertainty: Heuristics and biases*, pp. 335 – 351. Cambridge: Cambridge University Press.
- Gregersen, H., & Sailer, L. (1993). 'Chaos Theory and Its Implications for Social Science Research.' *Human Relations* vol. 46, no. 7, pp. 777 – 802.
- Hayward, T., & Preston, J. (1999). 'Chaos Theory, Economics and Information: the implications for strategic decision-making.' *Journal of Information Science* 25, no. 3, pp. 173 – 182.
- Hobbes, Th. (2007) *Leviathan* [1651]. Ed. by R. Tuck. Cambridge: Cambridge University Press.
- Jolls, C., Sunstein, C., & Thaler, R. (1998). 'A Behavioral Approach to Law and Economics' *Stanford Law Review* 50, no. 5, pp. 1471 – 1550.
- Korobkin, R. (2005). 'Possibility and Plausibility in Law and Economics.' *Florida State University Law Review* vol. 32, no. 2, pp. 781 – 795.
- Korobkin, R., & Ulen, Th. (2000) 'Law and Behavioral Science: Removing the Rationality Assumption from Law and Economics.' *California Law Review* vol. 88, no. 4, pp. 1051 – 1144.
- Landes W., & Posner, R. (1987). *The Economic Structure of Tort Law*. Cambridge, MA/London: Harvard University Press.
- Llewellyn, K. (1962). *Jurisprudence. Realism in Theory and Practice*. Chicago, IL: University of Chicago Press.
- Popper, K. (1962). *The Logic of Scientific Discovery*. London: Hutchinson.
- Posner, R. (1972). 'A Theory of Negligence.' *Journal of Legal Studies* vol. 1, no. 1, pp. 29 – 96.
- _____. (1973). 'Strict Liability: A Comment.' *Journal of Legal Studies* vol. 2, no. 1, pp. 205 – 221.
- _____. (1987). 'The Law and Economics Movement.' *American Economic Review Papers & Proceedings* vol. 77, no. 2, pp. 1 – 13.
- _____. (2003). *Economic Analysis of Law*. New York, NY: Aspen.
- Ricardo, D. (1951)., *On the Principles of Political Economy and Taxation* [1817]. The Works and Correspondence of David Ricardo, vol. 1. Cambridge: Cambridge University Press.
- Rosser, Jr., & Barkley, J. (1999). 'Chaos Theory and Rationality in Economics.' L. Douglas Kiel and E. Elliott (eds.), *Chaos Theory in the Social Sciences. Foundations and Applications*, pp. 199 – 213. Ann Arbor, MI: University of Michigan Press.
- Shavell, S. (1980). 'Strict Liability versus Negligence.' *Journal of Legal Studies* vol. 9, no. 1, pp. 1 – 25.
- _____. (1987). *Economic Analysis of Accident Law*. Cambridge, MA: Harvard University Press.
- Simon, H. (1983). *Reason in Human Affairs*. Stanford, CA: Stanford University Press.
- Slovic, P., Fischhoff, B., & Lichtenstein, S. (1982). 'Facts versus fears: Understanding perceived risk.' D. Kahneman, P. Slovic, A. Tversky (eds.), *Judgment under uncertainty: Heuristics and biases*, pp. 463 – 489. Cambridge: Cambridge University Press.

- Tversky, A., & Kahneman, D. (1982a). 'Judgment under uncertainty: Heuristics and biases.' D. Kahneman, Slovic, P., Tversky, A. (eds.), *Judgment under uncertainty: Heuristics and biases*, pp. 3 – 20. Cambridge: Cambridge University Press.
- Tversky, A., Kahneman, D. (1982b). 'Availability: A heuristic for judging frequency and probability.' D. Kahneman, P. Slovic, A. Tversky (eds.), *Judgment under uncertainty: Heuristics and biases*, pp. 163 – 178. Cambridge: Cambridge University Press.
- Ulen, Th. (1998). 'The Growing Pains of Behavioral Law and Economics.' *Vanderbilt Law Review* vol. 51, pp. 1747 – 1763.
- Vaihinger, H. (1922). *Die Philosophie des Als Ob*. Leipzig: Felix Meiner.