

Arlindo Donário

The Economic Analysis of Law

The Effects of Liability on Road Safety

The Portuguese Case

(2015)



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In memory of Santos Pastor

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Preface

This study was based on a more general work published in Portuguese¹ (2007) and Spanish² (2007) where, in addition to the analysis of liability, we analyze social regulation in the context of road safety.

Encountering Santos Pastor, a professor at the *Universidad Complutense of Madrid*, was fundamental to the achievement of the overall research work in the context of road accidents, a encounter that was provided by Francisco Pedraja a professor of the University of Extremadura.

Santos Pastor was very critical and argumentative, and during the years of our collaboration we warmly discussed the arguments of each other in order to reach conclusions, at least temporarily – as the essence of scientific knowledge is.

Santos Pastor and I had intended to develop a theme that were useful to society and what emerged from our discussions was the issue related to the causes and consequences of road accidents. As Santos Pastor³ said:

¹ Donário, Arlindo (2007) – ANÁLISE ECONÓMICA DA REGULAÇÃO SOCIAL. Causas, Consequências e Políticas dos Acidentes de Viação – Universidade Autónoma de Lisboa.

² Donário, Arlindo (2007) – ECONOMÍA DE LA REGULACIÓN Y POLÍTICAS DE PREVENCIÓN DE LOS ACCIDENTES DE TRÁFICO. El Caso de Portugal y el Contexto Europeo. – Instituto de Estudios Fiscales. Ministerio de Economía y Hacienda, Madrid.

³ Preface, in: Donário, Arlindo (2007) – ANÁLISE ECONÓMICA DA REGULAÇÃO SOCIAL. Causas, Consequências e Políticas dos Acidentes de Viação – Universidade

“Just like in modern day warfare, automotive accidents result in casualties and bloodshed affecting in particular younger members of society. We therefore find ourselves confronted with a social dilemma that implies massive social costs, translated as the loss of human life, injury, incapacitation and a substantial amount of material losses. Should we as a society passively bear this burden considering such inherent to modern day society going hand in hand with progress?”

In this book, after an analysis of the liability system, we analyzed the effects of law enforcement by the courts and by insurers with respect to claims for damages arising from road accidents, in particular, the effects due to the variability of tort awards granted by courts for similar cases, as well as the effects due to judicial delay, which combined with the variability of tort awards granted by courts for similar cases, which tend to decrease efficiency leading to a lower level of care, especially for drivers, with consequences on a larger number of accidents and therefore in more deaths and injuries.

This study seeks to highlight the importance of law enforcement, to the functioning of society in general and for the reduction of road accidents in particular.

The tort system is an important instrument that can affect the number of accidents. A viable tort system should be able to contribute towards general deterrence while providing equitable compensation to accident victims.

Lisboa, 2 de Janeiro de 2015

Arlindo Donário

I – INTRODUCTION.

ECONOMIC ANALYSIS OF ACCIDENT LAW

In this work we studied the effects produced by the civil liability system and thoroughly evaluated the different forms of compensation for damages resulting from automotive accidents namely permanent incapacitation and death.

We also analyzed No-fault Compensation Systems. “No-fault plans”, which are applied in various parts of the world, namely in New Zealand, Australia and some provinces of Canada, establishing its comparison with the tort system.

Compensations are catalogued into two categories, compensations set judicially by courts and compensations that result from *out-of-court settlements* with insurance companies.

An econometric analysis revealed that monetary compensations vary, generating repercussions on the level of driving care. We also looked into the negative effects that the variability of compensations set by courts for similar civil liability cases has on the behaviour of drivers. The variability of judicial compensation for similar civil liability cases is known as *judicial lottery*, reflecting the existence of high risk. For risk-averse individuals the risk premium increases with the variability, which in turn leads victims to

seek agreements with insurers and accept lower compensations than those they would receive in average assigned by the courts.

Tort liability is private in nature and works indirectly since it influences the behavior of individuals through expected costs (i.e. deterrent effect of damage actions). It is employed *ex-post* in relation to damages⁴. Furthermore, the internalization of externalities is carried out by the initiative of private parties and most of the elements that compose external costs are assessed in accordance to market criteria.

For tort rules to apply there must be an actual occurrence of harm to the victim. Victims corroborate in identifying tortfeasors because they expect to obtain compensation, and thus, contribute towards the efficacy of these rules. Liability is one of the means of controlling risks in a theoretical model of the occurrence of accidents. The other is safety regulation of behavior.

The core essence of Economic Analysis of Social Regulation is based on uncertainty, risk, the value of non monetary goods such as the good life per se, the limitations or biases of public intervention and the role of pressure groups. (Pastor, 2007: Preface)

ECONOMIC ANALYSIS OF ACCIDENT LAW

The goal of this section is to concisely outline the basic fundamentals of the economic analysis of law⁵ with the intent of further use in subsequent chapters of our empirical study.

⁴ For more on this subject see: Shavel, S. Liability for Harm versus Regulation of Safety. Working Paper No. 1218. National Bureau of Economic Research, 1983. Blomquist, C. G. The Regulation of Motor Vehicle and Traffic Safety. Kluwer Academic Publishers, 1988.

⁵ The economic analysis of law is mentioned in the works of Adam Smith and Jeremy Bentham however, it officially became a branch of economic thought in the 60's through the works of Ronald Coase, Guido Calabresi, Richard Posner, Gary Becker and Henry Manne (Chicago Trend).

In the field of *Economics* it is important that we determine the motives that lead individuals to act in a certain way. We assume that human beings pursue happiness (i.e. welfare) in different ways taking into account available information and their own set of values and beliefs. If individuals act rationally then they will seek to serve their own interests while maximizing the utility of material and non-material goods that satisfy their needs. However, because utility is subjective each person knows best the value that goods represent to them and the satisfaction retrieved from the “consumption” of each good. The purpose of the economic analysis of law is to determine the implications of rational maximizing behavior in and out of markets and to verify the legal implications of such behavior on markets and other institutions. Gary Becker⁶ states:

“All human behavior can be viewed as involving participants who (1) maximize their utility (2) from a stable set of preferences and (3) accumulate an optimal amount of information and other inputs from a variety of markets”⁷.

Although Gary Becker has broadened the scope of the economy, he continues to consider the tastes and preferences invariant to the social context in accordance with the principles of neoclassical economics. Stigler and Becker point out:

⁶ Gary S. Becker (1976) *The Economic Approach to Human Behavior*, 14 (1976).

⁷ The concept of rationality has been much criticized by the tenant of *Bounded Rationality*. Herbert A. Simon first introduced the concept in 1957 in his work entitled *Behavioral Model of Rational Choice* describing it as the fact that individuals tend to behave near optimum in relation to their objectives in function of available information and resources. See also: Kahneman, Daniel, Tversky, Amos. (1979) *Prospect Theory: An analysis of decision under risk*. *Econometrica*, Vol.47, March 1979; Richard H. Thaler, *Doing Economics without Homo Economicus*, In *Foundations of Research in Economics: How do Economists do Economics?* pp. 227, 230-235 (Steven G. Medema & Warren J. Samuels eds., 1996).

“The establishment of the proposition that one may usefully treat tastes as stable overtime and similar among people”⁸

In a critique of this position of constant preferences, Akerlof and Kranton refer:

“The research then focuses on how prices and income, not tastes, affect behavior. This approach, of course, corresponds to traditional economics experiments, which focus on monetary incentives, and differs from the new experiments, which show how social context matters”⁹

In the same vein Tversky and Thaler¹⁰ state that preferences vary in accordance to context and a reference point.

Since it is difficult to determine objectively the utility that goods proffer to each individual and since interpersonal comparability is virtually unfeasible we opted to observe behavior that in general conveys an individual's *revealed set of preferences*. On a basic conceptual level, in this field we study the repercussions of rational choices of individuals who attempt to achieve objectives by maximizing their benefits at a minimum cost.

The employment of the economic analysis of law method that acknowledges the legal apparatus as a system of incentives allows us to examine the impact of statutes and legal institutions on human behavior. Aside from this, it reveals how individuals respond to changes in the judicial system. The economic analysis of law as one of the innumerable methods and techniques used in our empirical study is based on the fundamentals of *human rationality and behavioral incentives* allowing for the connection of the diverse fields of law to a common theoretical structure. Moreover,

⁸ Stigler, George J.; Becker, Gary – De Gustibus Non Est Disputandum. – *The American Economic Review*, Vol. 67, No. 2 (Mar., 1977), p. 76

⁹ Akerlof, George A.; Kranton, Rachel – (2010) *Identity economics. How our identities shape our work, wages, and well-being* – Princeton University Press • Princeton and Oxford. P.33

¹⁰ Tversky, A.; Thaler. (1990) – Anomalies: Preference reversals. – *Journal of Economic Perspectives*. Vol.4 (2), 201–211.

it allows us to analyze from an economic stand point of view the effects of property law, torts, and criminal law among others, perceiving them as a *system of incentives* that sway human behavior both positively and negatively. In sum, not only is human behavior determined by explicit costs but it is also determined by implicit costs which are designated as *shadow prices*.

On a more technical level, the economic analysis of law method broadens our horizons in relation to the *real effects* emanating from legal norms, judicial institutions and finally moral norms which merit attention given that human behavior is not *compartmentalized*. Noticeably, an important criterion used to assess such effects has been the Kaldor-Hicks *potential efficiency* criterion. However, even if the standard used to measure the effects of legal statute implementation is *potential efficiency* proposed by the authors Kaldor and Hicks, it should remain overt to social values and standards. On this view, we ought to interpret the concept of efficiency along the lines of society's values of equity (i.e. Aristotle's concept of justice as commutative and distributive – horizontal and vertical equity) and human dignity as proclaimed by the Universal Declaration of Human Rights and upheld by mostly all democratic countries in their respective constitutions.

Furthermore, in the economic analysis of law there is a major distinction to be made, one that separates *positive* from *normative* economics. As a result, there are two sets of primordial questions, one set is *descriptive* and refers to the *objective* effects of legal norms while the other set is *prescriptive* and refers the *subjective* or intended social effects of norms. The modeling of these two will allow us to obtain objective answers providing a better understanding of the effects that the legal system has on human behavior. Above all, it facilitates the implementation of political measures that promote the minimization of social costs (i.e., are seen as efficient political decisions).

In a *descriptive* perspective – scientific view – it is thought that individuals act rationally and that they are able to randomly predict the effects of different decisions and policies. As a result, it comes as no surprise that individuals are capable of anticipating the results by weighing expected costs and benefits while considering all the information at their disposal¹¹. Alternatively, in a *prescriptive* perspective the valuation of social policy and legal norms will be guided by what “ought” to be in accordance to a state of social well-being¹².

A) CONCEPT OF RATIONALITY IN A BROAD SENSE

Human rationality in its core essence assumes that individuals when confronted with conflicting general and personal interest will be more likely to satisfy self-interest in detriment of general well-being. However, to assume that individuals pursue self-interest does not imply that they are “cold” and “egoistical” people, morally speaking. Instead, it signifies that human behavior is based on rational choice and that people whether motivated by ideological convictions or the benefit and satisfaction retrieved from benevolence to others may just as well be satisfying their own personal interest (i.e. utility function). Perhaps not surprisingly is the fact that many times the happiness of others can contribute to our own satisfaction. In more technical terms, consider for example individual A who acts in benefit of individual B and from such generosity retrieves pleasure and personal satisfaction.

Since A retrieves pleasure from his goodwill his utility function increases due to the utility of B integrating that of A¹³. Moreover, it is important we understand that the rationality concept which serves as the basis for the

¹¹ The theory of rational expectations was developed by Robert Lucas.

¹² Shavell, Steven, (2003) *Economic Analysis of Accident Law*, pp. 1-2- Working Paper No. 9483- NBER.

¹³ If we consider U as the utility function and $x^1, x^2 \dots x^n$, as ordinary goods we construe the following formal equation: $U=U(x^1, x^2 \dots x^n)$.

economic approach does not infer a conscious calculation for all situations and for all the decisions adopted by individuals. As Becker underscores:

“(...) Human behavior cannot be compartmentalized: sometimes based on maximizing, sometimes not, sometimes motivated by stable preferences, sometimes by volatile ones, sometimes resulting in an optimal accumulation of information sometimes not.”¹⁴

B) SELF-INTEREST AND PREDICTIONS

The premise that human beings pursue self-interest (i.e. rationality) permits the social analyst to predict individual behavior in response to changes in stimuli (incentives) allowing for the elaboration of a behavioral model. Nevertheless, the model's utility will depend on the capacity to explain social phenomenon, that is, proof of its efficacy will be obtained by contrasting the outcomes of its application to observed human behavior. To avoid confusion, the model aforementioned does not limit itself to envisioned and quotidian individual models nor does it limit itself to a small geographic region or to a short period of time. Instead, as far as the theory goes, we are implying a global model that gathers a limited set of characteristics common to human behavior in general.

C) EVERY INDIVIDUAL APPRAISES

It is a universal fact that individuals are interested and concerned with just about everything in life: knowledge, independence, well-being of others, environment, honor, personal relationships, status, love, friendship, social standards, conduct, culture, wealth, time, music, art, religion and so on. Still, we are continuously making choices and substitutions offering a certain quantity of a given good in exchange for a quantity of another good and/or goods with greater value to us whether it be material or non-material (e.g. money, honor, safety). In this perspective appraisal is

¹⁴ Becker, Gary. (1996) *The Economic Way of Looking at Behavior*. Hoover Institution, Revolution and Peace, Stanford University, 1996.

always relative given that the marginal value of a good tends to decrease as its quantity increases. On these grounds proponents of such view have defended the transitivity of preferences¹⁵.

D) INDIVIDUALS ADAPT TO CHANGE

Everyone recognizes that in general individuals are capable of conceiving change in their surroundings. They are able to predict, although stochastically, the consequences of their actions and choices responding to such with innovation and new opportunities. In this view, the fact that an individual at a given moment may be confined to a limited environment or have limited options and knowledge does not necessarily imply that the person's current situation is immutable, making choices according to context. In fact, human beings are capable of finding alternative means of action partaking in activities that broaden their possibilities and opportunities. Economic theory attributes probabilities – expected values – to diverse actions selecting the one with the greatest value (i.e., expected utility) for the individual.

If we wish to understand the human ability to create new opportunities one way is to observe the effects that imposed legal restrictions enacted by new laws have on human behavior. Legal norms – *substantive* and *adjective* – and the operation of legal institutions yield incentives affecting human behavior in such a manner that on certain occasions not even legislators are able to forecast. When faced with new restrictions, people will seek out substitutive goods replacing the good whose cost – including *shadow prices* – has been altered as a result of legal restrictions, although without confining the search to existing alternatives.

For example, a new provision limiting speed with the intention of saving fuel may entail a lofty increment in the cost of added driving time

¹⁵ The transitivity of preferences was challenged by Daniel Kahneman and Amos Tversky: (1979) *Prospect Theory: An analysis of decision under risk*. *Econometrica*, Vol.47, March 1979.

outweighing the cost of saved fuel. From this angle, a provision may be relatively ineffective in terms of costs due to the individual's selection of substitutive goods. In effect, the individual will now scour for alternative means of transport – train, airplane, bus and so forth. But remember the individual is not circumscribed to existing alternatives and can easily decide to violate the law if the expected cost of violation (i.e., greater risk, fines, driving license withdrawal etc...) is inferior to the expected benefits obtained from speed law infringements.

Reducing the speed limit can also spark other sort of oblique effects. For instance, with the prospect of reducing added costs generated by new legal provisions, telecommunication innovation and development may spur substituting in part road transport. Similarly, new firms providing alternative transport can be established and other forms of energy usage can also be exploited.

E) EFFICIENCY

There is no use in denying the fact that legal norms affect individuals differently, enhancing the welfare (i.e. personal satisfaction) of some while adversely affecting the welfare of others. Since these effects are bound to occur, what is then the criterion upon which lawmakers decide if – on the whole – the net effect of a legal provision is positive or negative? In Economics the concept employed has been that of efficiency. It is a concept with immense explanatory merit and fundamental to the economic analysis of law because it permits the weighing of aggregated costs and benefits of a situation. A full comprehension of efficiency demands the familiarization of two other crucial concepts, scarcity and rationality.

One of the primary functions of Law is to resolve the disputes of conflicting interests emerging from interpersonal jural relations. The fundamental objective of Law is to decide which of the conflicting parties will be entitled to prevail. Moreover, benefits stemming from property rights, contracts, and entitlements to engage in risky activities that endanger third-parties

entail corresponding costs. For example, they imply the cost of property loss, the cost of contractual obligation performance – whether it embodies high or low transaction costs – and the cost of accident avoidance. In sum legal norms hold sway on the costs and benefits resultant of social interdependencies and interactions.

Similarly, Economics is also responsible for solving problems associated to the allocation of scarce resources. As a result, the principal of efficiency has immense explanatory merit when analyzing the effects that legal norms have on the costs and benefits engendered by social interaction – in our particular case automotive driving.

F) LEGAL RESTRICTIONS AND THEIR EFFECTS

An important economic postulate is that individuals live in an environment where resources are scarce and their choices are limited by different factors such as time, income, assets, opportunities, contingencies and risk. Since automotive accidents occur at a given time and in a given space, legal provisions that establish restrictions on driving activity have centered their attention on these two variables, acquiring different relevancies on a case to case basis. It is without a doubt that *time* plays a preponderant role¹⁶ within the social phenomena that automotive accidents represent. As referred to by economic theory, the use of goods is subject to decreasing marginal utility. In more affluent societies, continuous production of a myriad of goods in abundance and of good quality causes their marginal value to drop. Alternatively, considering that “time” is perceived as an ordinary economic good – its scarcity will generate an increase in its marginal value. Time as a scarce resource is a characteristic of modern day life especially in more developed countries where it is held as a crucial factor in the decision making process (e.g. domain of automotive driving).

Indeed, if we conceive the legal edifice as a *system of incentives and restrictions* then we can subsume the study regarding the effects and

¹⁶ Toffler, Alvin.-(1970) Future Shock.Pp.18-19.

consequences of legal restrictions on human behavior – drivers and potential victims – under an economic approach. Again, the expediency of economic theory results from the manner in which it studies human behavior assuming individuals to be rational beings who usually seek to maximize their well-being (i.e. utility or wealth) while minimizing private costs. In addition, individuals will either adapt or alter behavior in response to alterations caused by legal provisions – whether they impose restrictions or attribute benefits – all with the intention of achieving objectives. Nowadays, the principal of human rationality is widely accepted and applied to virtually all human behavior even criminal! During the 1950's and 60's it was commonly thought that felonies were a product of mental illness and social subjugation.

From this perspective, “criminals” were mere victims of society and the by-product of poor education and family upbringing. This tenet had a profound influence on social policy in particular criminal law where the severity of sanctions was mitigated and more emphasis given to the rights of criminal offenders. As a consequence of this approach it appears that the protection of potential victims tended to decrease¹⁷. Furthermore, Gary Becker believes that people who commit offenses act rationally just like any other individual who uses his time and resources at other activities, that is, criminal behavior is a product of a rational choice that considers a set of individual preferences and available information.

The economic analysis of law allows us – with the help of models and statistics backed up by the touchstone of rational expectations and the existence of ubiquitous incentives – to foretell the effects of legal norms, determine if such are socially efficient, and if not, it allows us to replace them with better-suited norms that minimize social costs. Remember, social norms act as “shadow prices” modifying the probability of conviction for an offense or altering the severity of punishment, therefore inciting individual behavior in relation to the nature and amount of the activity.

¹⁷ Menninger (1966). *The Crime of Punishment*.

G) ACCIDENT COSTS ARE CONTINGENCIES

First and foremost, in the real world mostly all social interaction between individuals is defined, delineated and governed by contracts, however there are cases where such does not occur and “costs” are ambiguous. In the foregoing category we comprise criminal offenses as well as automotive accidents which on the contrary to contracts suppose involuntary interaction. In the domain of automotive driving, individuals do not voluntarily and deliberately choose to be involved in an accident¹⁸; nevertheless the driver may influence his probabilities of crash involvement by means of his decision-making.

For instance, the speed at which he drives, his activity level, the quantity of alcohol consumed before driving, his level of driving concentration (i.e., avoiding distractions such as cell-phone use, conversation with occupants, and smoking) and even the regularity of vehicle inspection – tires, brakes, lights etc... In this view, the driver implicitly agrees to the cost that an increase of accident risk entails in exchange for certain benefits, whether it be reaching his destination faster or gaining pleasure from speeding. In effect, the levels of driving care, safety precaution and consequently risk adopted at each given moment by the driver are all determined in accordance to the cost/benefit ratio extant in each decision.

Laws that regulate driving activity and impose limitations act as potential costs for the driver. They can either be explicit expected costs – in the case

¹⁸ Hammermesh, Daniel; Soss, Neal M. (1974) An Economic Theory of Suicide. *Journal of Political Economy*, 1974 January/February, No. 82 (1), pp. 83-98. Cited in: Becker, Gary. The Economic Approach to Human Behavior. In: Febrero, R. and Schwartz, S (Eds.).(1995) *The Essence of Becker*. Stanford: Hoover Institution Press, Stanford University, 1995. This author infers that behind many “accidental” deaths there lies a “death wish”. Many deaths are to some extent “suicides” in the sense that they could have been postponed if more resources had been invested in prolonging life. In these cases an “accident” may just as well be considered a means to a desired end.

of an offense¹⁹- or so-called “shadow prices” associated with a cumbersome increase of driving care whenever the driver wishes to abide by the law. All in all, these costs constitute a framework of incentives that determine, although mindful of expected benefits, individual behavior.

Once more we reiterate the importance of the economic analysis of law not only to accident deterrence policy but also tort law – strict and negligence liability. Tort law is assigned the task, in our specific case, of determining which of the involving parties of a tortious accident (i.e. injurer or victim) should bear the resulting external costs. In doing so, the decisions adopted by involving parties will be contemplated, specifically the level of care²⁰.

Sanctions foreseen by provisions that regulate driving activity are equally considered in the aspects of structure and probability of enforcement. Finally, the economic approach to law based on its *ex-ante* perspective of things employs a dynamic vision that considers immediate and mediate overall consequences of any given policy or measure.

¹⁹ The driver also contemplates the probability of law enforcement when deciding on which course of action to adopt.

²⁰ The level of precaution varies subjectively and is usually connected with one’s attitude towards risk.