Tim Frihe

Precaution Incentives in Accident Settings
Die ökonomische Analyse des Rechts untersucht Rechtsnormen auf ihre gesellschaftlichen Folgewirkungen und bedient sich dabei des methodischen Instrumentariums der Wirtschaftswissenschaften, insbesondere der Mikroökonomie, der Neuen Institutionen- und Konstitutionenökonomie. Sie ist ein interdisziplinäres Forschungsgebiet, in dem sowohl Rechtswissenschaftler als auch Wirtschaftswissenschaftler tätig sind und das zu wesentlichen neuen Erkenntnissen über Funktion und Wirkungen von Rechtsnormen geführt hat.

Die Schriftenreihe enthält Monographien zu verschiedenen Rechtsgebieten und Rechtsentwicklungen. Sie behandelt Fragestellungen aus den Bereichen Wirtschaftsrecht, Vertragsrecht, Haftungsrecht, Sachenrecht und verwaltungsrechtliche Regulierung.
Tim Friehe

Precaution Incentives in Accident Settings

With a foreword by Prof. Dr. Laszlo Goerke
Law and economics has been established as an important sub-discipline of economics. Looking at the field, it is undisputed that the economics of tort law has been the subject of much study early on and continues to be. The analysis in that realm is centered on the internalization of external effects by the means of liability law, i.e. the allocation of a liability burden possibly depending on the behavior of parties involved in an accident.

In the by now standard framework, introduced by path-breaking contributions such as Calabresi (1970) and Brown (1973), the outcome with regard to care-taking (and possibly the level of activity) under several liability rules, which are actually observed in practice, is compared to what is socially desirable. The objective of society usually is assumed to be wealth maximization. The set of results which may be called the central theory show that liability rules can indeed induce first-best behavior by parties, as long as several core assumptions hold. After the central theory of the economics of tort law had been settled, contributors to the literature started to test the robustness of the conclusions obtained when these core assumptions are varied.

The existent literature on the economics of tort law is rich and diverse. Yet, without doubt, there are still numerous questions in the field which need to be answered and therefore require scholarly attention. The present book rightfully goes along that path. In a collection of chapters, different subjects are examined from a theoretical standpoint.

One central aspect taken up in this book is that of imperfect information. Taking the set of all potential accidents into account, the level of harm suffered by victims varies to a large extent and often courts as well as injurers, and, possibly, even victims are not sure about the level of harm suffered in a particular accident. The usual approach courts take is trying to assess the precise magnitude of harm in order to fully compensate the victim. In this regard, courts often rely on expert testimony. An alternative way to deal with this variation in harm levels is to set compensation that is to be paid by the injurer equal to the expected harm. If the injurer cannot anticipate the precise harm level, imposing expected harm as compensation level can imply the same behavioral incentives as the costlier assessment of precise harm on every occasion (Kaplow and Shavell 1996).
can hold because the assessment of harm after the accident has occurred cannot improve the information available to injurers ex ante. This book, for one, investigates whether this result will continue to hold if the injurer as well as the victim can decide on precaution, and, for another, contributes to the literature by establishing that the expected harm measure can dominate accurate compensation even in the absence of assessment costs. This possibility arises due to behavioral implications the use of expected harm has for victims. If victims can decide on the value of the object put at risk, for instance the value of the car used in traffic, accurate compensation can imply inefficient victim choice because the accident eventuality is disregarded by victims. This feature indeed favors the use of the average measure. Furthermore, the book entails a chapter that gives an analysis of victim incentives to misrepresent harm suffered if compensation levels are contingent on specific due care levels for victims. It is established that courts’ asking for a higher level of victim care as a prerequisite of the compensation of a high level of harm can in some instances suffice to obtain the first-best outcome. Variation in harm levels implies uncertainty for the injurer if he cannot anticipate the victim type. The book also considers another kind of uncertainty. There are accident contexts in which individuals cannot be sure whether, in an eventual accident, they will be the injuring or the injured party. The car traffic setting is again exemplary for such contexts. Individuals in such settings are imperfectly informed with regard to the role in an accident. The author discusses similarities between the case with unilateral harm and role-type uncertainty, and the case with bilateral harm. It is established that role-type uncertainty creates bilateral harm in expectation terms, which may create incentives very aligned with those in the case of bilateral harm.

The author also discusses possible shortcomings of tort law in internalizing interdependencies between the injurer and the victim. The possibility of injurers having assets less than the harm done, the so-called judgment-proofness problem, is an important matter in this realm. Injurers whose assets fall short of harm do not take the harm level into account when they decide on cost-efficient precaution (Shavell 1986). The contribution in this regard is the result that potentially judgment-proof injurers may actually take more
care than injurers with sufficient assets. This is in contradiction to the discussion in the literature heretofore which has always argued that, if care costs are conceived of as non-monetary, for example, due to effort of cautious driving, then potentially judgment-proof injurers will choose less care than other injurers. The argumentation in this chapter relies on injurers being risk averse, an assumption less often applied in the literature on the economics of tort law. Moreover, another reason for the imperfect functioning of liability rules with regard to inducing first-best behavior is considered. Injurers might invest in activities which cause lower expected liability but do not change expected harm, which the author labels avoidance activities. In the context of car traffic, for instance, one might think of hit-and-run accidents or the attempt to falsely prove a contributory negligence of the opponent. The opportunity for injurers to decide on an individually optimal mix of avoidance and care in the pursuit of minimal individual costs allows the comparison of the absolute and relative performance of liability rules from a totally new perspective.

All in all, this book offers, in a very readable fashion, the derivation of several results which are interesting and of great importance for the further development of the economics of tort law.

Laszlo Goerke

References


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Chapter 1

1 Introduction

1.1 General Introduction

This book deals with law. Generally, law stipulates rights and duties and thereby often effects the coordination of individual behavior in highly complex societies. In relation to a famous setting, we would judge the need for law to be far less apparent if Robinson were the sole inhabitant of an island. As soon as Friday enters the stage, however, the potential for conflict arises and this obviously allows for a valuable contribution of law.

Law can be analyzed from a multitude of standpoints and by using a variety of different methods. This book is a contribution to the law-and-economics literature. The discipline of law and economics uses the economic approach to predict behavioral consequences of norms. In addition, in a normative sense, it offers insight into the content and structure of norms that attain outcomes which serve some given objective. The objective usually considered is efficiency. Thus, law and economics helps to evaluate existing law and to design law inducing efficiency. In doing so, the economic analysis of law comprises analyses on both traditional areas of law, such as torts, contracts, and property, as well as other areas of law.

This book contributes to a single branch of this burgeoning field of research, namely the economic analysis of tort law. This area is of undisputed empirical importance. For instance, Dewees et al. (1996) report that 25 percent of all Americans are injured every year and that the costs of injuries in the year 1985 have been estimated to be $182 billion (in 1988 dollars). The analysis of tort law from an economic stance has attracted scholarly attention early on (Calabresi 1970), but still leaves many important questions unanswered. This latter fact and the importance of accident settings for the well-being of so many individuals motivates this study.

The most basic function of tort law, at least seen from an economist’s perspective, is the internalization of external effects (e.g., Endres 1991: 2). For instance, if drivers
do not have to compensate harm done to cyclists in the event of an accident, they will not consider these losses when optimizing individual behavior. The lack of internalization in accident settings is due to the high transaction costs, preventing internalization via bargaining among parties (Coase 1960). Tort law is one way aiming at and eventually achieving that the driver takes account of a broader set of consequences of his activity.

The central interest throughout this study is with individual incentives to take precautionary measures. The most natural conception is that precaution affects the probability of an accident and/or the magnitude of harm suffered in the event of an accident. For example, the driver of a car can decide whether to use the indicator in all circumstances or to adhere to speed limits. Decisions such as these are likely to influence the probability and/or the magnitude of the harm in the event of an accident with a pedestrian or a fellow driver. The next section will present a brief sketch of results we offer with respect to individual incentives for precaution.

1.2 Contribution

The book is composed of two parts. The first part comprises a review of the law-and-economics literature. In that section, we present the stock of knowledge which we took advantage of. The second part encompasses our own analyses. Stated alternatively, we present literature on selected themes in the survey and later on provide analyses that relate to these themes and contributions. The survey comprises not only literature which is intimately close to our analyses but instead allows for a wider focus. A more restricted presentation of literature with a more direct link to the respective analysis at hand will be given before the respective model and analysis are presented in the chapters following the survey.

In the following, to set the stage, we will present a sketch of the building blocks of the second part of this book, i.e., our own projects. The outline of these projects will be somewhat crude at this point as its purpose is to give a general idea of what makes up this book. Further details will follow in due course.

The basic accident setting involves an injurer and a victim. Both individuals can be
characterized by different aspects. One important dimension is the level of harm suffered by a victim in the case of an accident. We pick up the heterogeneity of victims with respect to the magnitude of harm consequent to an accident in ‘On the Incentive Effects of Damage Averaging in Tort Law’, ‘On the Superiority of Damage Averaging in the Case of Strict Liability’, and ‘Screening Accident Victims’.

In the first of these, we investigate the efficiency consequences of using an average measure built across different victim types. In practice, harm is assessed in every occasion. This undoubtedly causes administrative costs of significant magnitude. For instance, courts may call on experts to testify on the harm estimate in the case at hand. It has been established that the average can be utilized without negatively affecting efficiency in the case that the injurer is the only party able to affect expected harm and cannot anticipate the type of the victim (Kaplow and Shavell 1996). Our analysis delves into circumstances in which both parties to the accident can affect expected harm and inquires whether the previous conclusion holds for this setting. We find that it is no longer unambiguous which measure gives the average in such a setting. Most importantly, it is established that there is an average measure which indeed induces efficient behavior under the considered circumstances.

The section ‘On the Superiority of Damage Averaging in the Case of Strict Liability’, in contrast, starts from the basic model in which only the injurer can choose precaution to affect expected harm. However, an additional optimization is introduced, being the victim optimizing over the value of the good put at risk. The possibility of an accident is real and needs to be incorporated when considering the utility that an object of a given value conveys. We show that victims do not follow this efficiency prescription if they are fully compensated for any harm suffered. In contrast, if injurers are obliged to compensate average harm, social interests are better reflected in the individual optimization of affected parties so that efficient precaution and investment choices are induced.

The averaging of damages is no longer of interest in ‘Screening Accident Victims’, where we inquire into the potential of designing damage awards in a way that makes type-adequate behavior optimal for victims instead. Above, we have already alluded to
the fact that victims usually differ with respect to harm and that the accurate assessment of this heterogeneity in court often absorbs considerable resources. Victims are often better informed on the magnitude of harm suffered. It then becomes a question whether this informational advantage can be used by courts. Arguing against the unquestioned use of information provided by victims is the fear that victims might misrepresent the magnitude of harm to increase the compensation. Consequently, it is of interest to search for circumstances in which victims do not have an incentive to misstate the level of harm suffered. It is shown that this desirable property does not require any manipulation of damages away from compensatory damages in a number of cases, i.e., compensating precisely the harm suffered suffices for the self-selection of victim types. For the case in which the circumstances prove this to be insufficient, we specify a simple adaptation of the compensation levels of respective victim types which once again ensures that victims behave according to their type.

Speaking of victims which vary in the harm suffered consequent to an accident, the injury an accident inflicts upon a victim is very often of considerable magnitude. As a consequence, the assets of injurers available to compensate the harm done often fall short of the harm itself. This has important effects on the behavior which liability law can instill. In fact, under the standard set of assumptions, injurers who are potentially judgment-proof take less care than individuals who can dispose over sufficient assets. Individuals who are potentially judgment-proof externalize the part by which harm exceeds assets. In 'A Note on Judgment-Proofness and Risk Aversion’, we establish that this may no longer hold true if risk aversion of actors is taken into account. The paper shows that potentially judgment-proof injurers who are assumed to be risk averse may very well take more care than affluent individuals.

Thinking of real-world accidents, one comes across occasions not only in which the injurer is unable to compensate the harm due to limited assets but also those in which both parties suffer harm. The standard accident model assumes that one party, the injurer, inflicts harm upon another party, the victim. In many accident contexts, it is more descriptive of reality to acknowledge that both parties to the accident suffer harm. For
instance, every car accident usually entails that both cars are damaged. The literature has argued that such situations can be disaggregated into two different lawsuits. Incentives thus created are similar to incentives in the simple setting. In 'On the Similarity of Bilateral-Harm and Unilateral Harm with Role-Type Uncertainty', we provide a characterization of the similarity taking account of role-type uncertainty. i.e., that individuals may be uncertain as to their role in an accident. In fact, a recent contribution to the literature has identified a circumstance in which the incentives of the bilateral-harm setting are markedly different from the unilateral-harm framework (Dharmapala and Hoffmann 2005). We point out that this contrast can disappear if the unilateral-harm framework is enriched by role-type uncertainty.

Besides assuming that only one party suffers harm in the event of an accident, another simplifying assumption of the standard framework is that given victims have a righteous claim they will always sue and be satisfied by a court judgment. This does not need to hold for a multitude of reasons. For instance, the injurer might want to invest resources into reducing the probability that the judge will eventually decide in favor of the plaintiff. This can be achieved, for instance, by hiring a lawyer who makes up a story casting doubt on the identity of the actual injurer. In 'On Avoidance Activities After Accidents', we allow for such investments and investigate into the effects of this change in assumption on various aspects commonly considered in the economics of tort law.

References


Chapter 2

The Economics of Tort Law: Basics and Selected Core Themes

1 Introduction

Life is pervaded by risks of suffering harm to property or personal well-being. An obvious example in everyday life is commuting to work; be it by car, train, or bicycle. Often, discretion to reduce the probability of harm is outside the personal realm; instead it lies in the hands of others. For instance, the probability of suffering harm as a cyclist in an accident is very much affected by the way fellow citizens drive their cars. Tort law deals with situations such as this one. Specifically, it addresses relations between people that are not regulated by private agreement due to high transaction costs broadly conceived (Cooter and Ulen 2004: 310). In contexts of high transaction costs, the allocation of legal entitlements is critical for efficiency (Coase 1960). However, whether tort law purports to aim at efficiency is open to question.

Tort law is frequently said to serve two purposes; the compensation of victims and the inducement of deterrence (e.g., Shapiro 1991). Between these, the focus of economic analysis is more on deterrence, whereas legal commentators, especially from Europe, tend to give more weight to compensation (see Adams 2002: 140 and Schäfer and Ott 2005: 125). Deterrence in this context comprises the allocation of resources to reduce the expected harm of accidents. Thus, we will mainly concentrate on the effects that different legal rules have on the choice of precaution, or on the primary costs of accidents in Calabresi’s terminology. Calabresi (1970) introduced the distinction between primary, secondary,

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1Modern tort law also encompasses product liability and medical malpractice, and thus relationships in which parties have agreed on a contract. Still, the cost of negotiating with every customer (patient) about risk-reducing precautions is presumably prohibitive in many areas. Furthermore, it is often argued that the imperfect information of customers (patients) on risk is a factor lending importance to liability in these areas (see, e.g., Schäfer and Schönenberger 2000).

2That tort law indeed influences care choices has been confirmed empirically. See, e.g., Sloan et al. (1994), Kötz and Schäfer (1993).
and tertiary costs, all of which are affected by the tort law regime. Primary costs comprise the sum of accident avoidance measures and harm due to the accident. Secondary costs arise due to risk-bearing of risk-averse parties, whereas tertiary costs are due to the administration of the liability system. Except for one contribution, we will focus on risk-neutral individuals, leaving the sum of primary and tertiary costs as an objective function, the minimization of which can be interpreted as wealth maximization from a planner’s point of view.

Deterrence and compensation may also be achieved using other policy means such as regulation or insurance. However, we focus on a delineation of the economics of liability law, and will not enter into a comparison of policy instruments (for this see, e.g., Shavell 1993, 2007a, Innes 2004).³

The rest of this survey is structured as follows. In Section 2, the very fundamentals of the economic analysis of tort law will be laid out. The framework on which this analysis builds is simple and delivers strong results. Furthermore, the model of precaution presented is sufficiently general to also be applicable in matters dealing with contract or property problems (Cooter 1985, 1991). Given the numerous assumptions of the basic setting, much attention of the ensuing literature was on the robustness of earlier results under relaxed assumptions. We will discuss several avenues of these extensions and variations in Section 3. The selection of topics is justified by our own contributions in the background. Thus, this discussion comprises an elaboration on the effects of (i) heterogeneity, (ii) uncertainty, (iii) administrative costs, (iv) risk aversion, (v) the limited ability to pay for harm caused, and (vi) bilateral harm. As said, each strand of the literature we cover bears importance for the analyses to follow and is thus presented in some detail. Within each of these sections we aspire to at least refer to the analyses most important for the respective theme. However, due to the richness of the literature on tort law, our coverage is admittedly selective and also shows in our neglect of the empirical contributions to the literature. The presentation in Section 3, however, comprises references to our own analyses and thereby helps to locate our work within the field.

³Consequently, our exposition also does not include an analysis of the appropriate domain of tort law, i.e., whether it should be more or less embracing (see, e.g., Schäfer 2000).