



Research bulletin Series
On
Jewish Law and Economics

**The Economic Approach to the Jewish Law of Damages:
The Case of Damage by Fire**

Jacob Rosenberg*

Abstract

This paper presents an economic approach to understanding Jewish law by analyzing Jewish laws (*halachot*) relating to damages by fire. The paper shows that the relevant laws provide individuals with incentives to exercise proper care that minimizes the social costs of potential fire accidents. These social costs include both the expected damages of accidents and the costs of preventing accidents.

As a result of an economic analysis of these *halachot*, it is shown that the principle of economic efficiency, from the viewpoint of society as a whole, is consistent with the laws under consideration.

* Bar-Ilan University, Israel

Introduction

The purpose of this paper is to present an example of using economic analysis to understand Jewish law. The analysis presented in the paper is an application of the economic analysis of the law¹, which is increasingly occupying a prominent position in the philosophy and analysis of law. The innovation of the economic analysis of the law is reflected by the fact that this approach does not deal only with those fields of law that are usually regarded as purely “economic,” but rather with general fields of law such as laws regarding property rights, torts, and family law- in fact, with all parts of civil and criminal law.² In line with this new approach, this paper seeks to apply the economic analysis of law, to Jewish tort law, specifically to laws relating to fire damages.

Three Basic Jewish Laws of Fire Damages

The economic approach to understanding Jewish law can be illustrated by the economic analysis of three basic *halachot* of fire damages:³

¹ The economic analysis presented in the paper is based mainly on Shavell (1980), (1987) and Posner (1972). (See also Calabresi and Hirschhoff (1972)).

²The best-known work that presents this new approach is that of Richard Posner, *The Economic Analysis of Law*, which was first published in 1973. In the introduction to the third edition of this book, Posner writes:

Perhaps the most important development in legal thought in the last quarter century has been the application of economics to an ever increasing range of legal fields, including those at once so fundamental and apparently non-economic as torts, criminal law, family law, procedure and constitutional law.

³The sources for these *halachot* will be cited below.

3. An individual who has lit an oven in his house, which then causes a fire in an adjacent neighbor's house, is liable for fire damages even if he exercised the proper level of care over his fire.

Three questions can be raised regarding these three *halachot*:

1. Why does "proper care" exempt the damager from fire damage when the fire spread to a neighboring field? After all, the damager was the source of the damage-why should the harmed party bear the costs?
2. If "proper care" exempts the damager in the case of fire that spreads from one field to the next, why does it not exempt the damager in the case of fire that spread from his house to an adjacent house?
3. Why is the damager exempt from damages to objects hidden in a stack of corn, while he is nevertheless liable for damages done to the stack of corn itself?

Talmudic commentators and modern researchers of Jewish law have dealt with the first question: why does "proper care" exempt the damager? The dominant answer is "*force majeure*." (*oness*) More specifically the damager who has used proper means of care never considered that the fire can cause harm to another. In this circumstance, he is considered "unwillingly compelled." (*anuss*)⁴

This answer is based on the understanding that the principle of *force majeure* is explained in the Talmud, and is learnt from the Torah. As such, it is a basic principle in Jewish law and therefore should apply to Jewish tort law in general and to fire damages in particular.

This is typical kind of explanation proffered when using the legal approach to understanding civil laws (*dinei mamonot*) in the Talmud. The method applied by this

⁴Shalom Albeck sees in this claim a general explanation of all the laws of damages in the Talmud. See Shalom Albeck, *Pesher Dinei Nezikin (The Interpretation of the Laws of Damages)* (Tel-Aviv: Dvir, 1990).

The economic approach to the understanding of Jewish civil law-which, as noted above, is part of the economic analysis of the law-is different from the legal approach sketched above. According to the economic approach The origin of the legal principle is not the collection of cases treated in the Talmud, but the relevant economic theory which determines what is the law that would guide individuals to behave in a socially optimal manner, behavior which is termed “efficient.’ In other words, according to the economic approach, the main objective of the law is to provide individuals with an incentive to behave in a specific, desired manner, and to avoid other, undesired behavior⁵. Therefore, the “explanation” that an individual who causes damage, in spite of exercising proper care, is “compelled” and therefore he is exempt from damages, is not an explanation at all unless we find that this principle induces the relevant parties to adopt socially optimal behavior. The same can be said regarding the concept of a “Torah decree” (*g’zairat hakatuv*). Such a decree is not an explanation in the sense of a statement of cause, and we are permitted to look, at least in the case of civil law, for an explanation of the Torah decree.

Efficient behavior, in the context of accidents, is the taking of actions-specifically, preventive care-by the potential injurer and by the potentially harmed party that will minimize the social costs of the accident-prone situation. These costs include the cost of the accidents themselves and the costs incurred in the prevention of accidents.⁶

Since the objective of the law is to cause the parties, who take into account of the costs of breaking the law, to behave in a socially efficient manner, a formal law is

⁵ According to the Coase Theorem (Coase (1960)), in the absence of transaction costs and well-defined property rights, the parties may negotiate an efficient contract without intervention by law. The economic analysis of law assumes this is not the case in the common events of accidents. (See Calabresi and Melamed (1972)).

⁶A detailed definition of “efficient behavior” will be given below.

rational, will take full account not only of the benefit of the fire for the purpose of heating, cooking, or burning of waste, but also of the potential damages of the fire in spreading to his other fields. His behavior—the timing of the fire, the means of prevention of spreading of the fire to adjacent fields and his watching over the fire—will be determined by both elements, the benefit of the fire and the potential damage. In other words his behavior will be efficient. But the same assumption cannot be made if other individuals own the neighboring fields. In this case, in the absence of a law, the individual lighting the fire will be inclined to watch over his fire in a minimal manner, and this would not be socially efficient. Therefore the law must be determined so as to induce the potential damager (and the party who may be harmed) to take the efficient actions in order to minimize the costs of an accident.

Let us present an additional example to illustrate the concept of efficient behavior. Suppose an individual carries two jugs, one containing honey and the other, wine, and suppose further that the jug containing honey is cracked. It is possible to prevent the loss of the honey only if the individual pours out the wine from its jug, and pours the honey into that jug. Will he take this action? If the honey is worth more than the wine, the answer is “yes,” but if the wine is worth more than the honey, the owner of the jugs will not pour out the expensive wine in order to keep the cheap honey. This is efficient behavior, since it preserves the liquid, which is more expensive, i.e., the liquid that is more important in terms of human valuation. There is no need for a law in order to provide an incentive for such behavior.

If, however, the jug containing the wine is owned by one individual and the jug containing the honey is owned by another person, one can hardly expect that the owner of the wine will sacrifice his wine in order to save his counterpart’s honey, even if the honey is worth more than the wine. But efficiency, from the viewpoint of society as a whole, would mandate such behavior. How can we induce such an action by the wine-owner if the wine is less expensive, while preventing such an action if the wine is more expensive? Here is the answer:

Therefore, the wine-owner will obtain full compensation from the honey-owner if the honey is worth more, and therefore will not hesitate to pour out his wine and save the honey. If, on the other hand, the honey is worth less than the wine, the wine-owner will not be able to receive full compensation, and therefore will not save the relatively cheap honey by destroying the expensive wine.

We can now be more specific. In order to apply the economic approach to understanding the laws that were listed above, we must show that individuals will take the socially desirable and efficient preventative actions if the damager is made unconditionally liable when the fire spread from his house to his neighbor's adjacent house. Moreover, we must show that if the damager's fire spread from his *field* to his neighbor's *field*, it is socially desirable that he be made liable only if he did not exercise "proper care." We must also show that it is socially desirable to exempt the damager for damages done to objects hidden in a stack of corn, even if he did not exercise "proper care," so that preventive actions taken by the parties will be socially efficient. In order to carry out this task, we must first clarify the concept of "proper care" and sharpen our understanding of the essence of "efficient care."

Proper Care

When Jewish law exempts the damager from damages he caused, it usually makes this exemption conditional on "proper care." Proper care is "due care", the level of care determined by a Court of Law. For example, an individual who has lit a fire in his field is exempt from damage caused to his neighbor's field if he sufficiently distanced his fire from his neighbor's field, according to the requirements of Jewish law. The outstanding characteristic of "proper care" is that it is an intermediate level of care, in the sense that

⁷Tosephta, Tractate Baba Kamma, chapter 10 (our emphasis). See the Tosephta, op. cit, for further examples of the principle that an individual, who saves the property of his counterpart by sacrificing his own property, can claim full compensation for his loss.

exempt from damages. The Mishna states:⁸

What distance does a fire pass (so that one who lights a fire will be liable for the damage caused by it)? Rabbi Elazar... says: We see it (the fire) as if it were in the center of a field that is seeded by a *kur* of seed. Rabbi Eliezer says, 16 *ammoth* ... Rabbi Akiva says, 50 *ammah*. Rabbi Shimon says, ...it depends on the characteristics of the fire.

Clearly, each of the sages of the Mishna was aware that the greater is the distance of the fire from the neighbor's field, the smaller will be the risk of fire in the neighbor's field. Nevertheless, each of these sages exempts the potential damager from exercising a higher level of care than the distance he defines as proper care.

The requirement of an "intermediate" level of care is enacted also with respect to other means of care. For example, the higher is a wall that divides between the field of one who lights a fire and the field of his neighbor, the better will be the protection from fire damages. Does Jewish law therefore require an extremely high wall? The Mishna specifies:⁹

If [a fire] passed over a fence that is four *ammoth* high, or through a public domain, or over a river: the damager is exempt from damages.

The fact the "proper care" is an intermediate level of care is clearly indicated also by the law that the means of prevention of the spreading of a fire need to be able to prevent a fire only in the case of an average wind. If an abnormally strong wind appears, which was not present when the fire was lit, and therefore could not have been anticipated to appear after the lighting of the fire, then the individual who lit the fire is exempt from damages that were caused by the fire being carried by this wind. This law

⁸Tractate Baba Kamma, 61b, Mishna.

⁹Tractate Baba Kamma, 61a, Mishna.

wind, 50 *ammah*. Rabbi Akiva says, 50 *ammah*; when there is a wind, 300 *ammah*. There was an evening in which a fire spread more than 300 *ammah* and caused damage. There was a case in which a fire crossed the Jordan River, because [the fire] was strong.

The end of this passage of the Tosephta is not simply a story of an unusual natural event, but is intended to indicate that despite the existence of rare cases--in which “proper care”, indicated by the first part of the passage, would not have prevented the damage--the Law is satisfied by this level of “proper care.” The level of care in the presence of a wind is greater, but it is still an “intermediate” level of care. To summarize, proper care is “due care”--the level of care determined by the court. In practice proper care is an intermediate level of care and it is a necessary condition to exempt the damager from damages he caused.

We turn now to explain in detail what is meant by “efficient care,”

Efficient Care

Efficient care is a level of care that minimizes the *total expected costs* of situations that potentially could lead to an accident¹¹. Let us explain the concept of “total expected costs.” People light fires in their fields for various, important purposes, from the disposal of wastes to the lighting of a bonfire for heating and cooking. The lighting of a fire, unfortunately, can easily cause damage, but the probability of damage depends on the level of care exercised by the potential damager (the “injurer”), as well as by the

¹⁰Tosephta, Baba Kamma, chapter 6, 11th paragraph..

¹¹ The benefit from lighting a fire is assumed to be independent on the level of care. In this case, efficient behavior from society’s point of view is to minimize the total accident costs. Using a more general definition, efficient behavior maximizes the net benefit from fire (where net benefit is the benefit minus total accident costs). In the case of fixed benefit, both definitions are equivalent.

reduce the risk of damage, for example by building a wall around their fields, but here again there is a cost in reducing the risk of damage. *The higher the level of care, the lower will be the probability of damage, but the cost of care will increase.*

Let us give an example of how one can quantify the total cost of a accident-prone situation. Suppose that the injurer distanced his fire 30 *ammah*, and this distancing cost him 10 monetary units. The owner of the neighboring field built a wall around his field, which also cost 10 units. These actions reduced the probability of an accident to 3 percent, meaning that out of 100 fires that are lit in the field of the injurer, we expect that 3 will cross over the means of prevention of an accident (i.e., the distance to the neighboring field and the wall). Assume that if an accident does occur, the value of the damage will be 1,000 units. What, then, is the “expected damage”? We multiply the probability of damage by the cost of the damage (1000×0.03), and we find that the expected damage is 30 units. If we add the combined costs of care by the two parties, we obtain that the total cost of the accident-prone situation is $30 + 10 + 10 = 50$ units.

It is important to emphasize that the *total* cost of an accident-prone situation does not necessarily decrease if the injurer or the victim increase their level of care. The expected damage will indeed be reduced, but it is possible that the costs of care will increase by more than this reduction in expected damage. For example, suppose that each party increases his level of care so that the combined cost of care increased from 20 to 40, while the probability of damage declined, says from 3 percent to 2.5 percent. Thus the expected damage decreased from 30 to 25 (1000×0.025). Despite this reduction in the expected damage, the total cost of the accident-prone situation increased from 50 to 65, since the reduction in expected damage by 5 units cost, in turn, increased the cost of care by 20 units.

To summarize, the total cost of an accident-prone situation is the sum of the costs of care of both the injurer and the victim, and the expected damage of the accident. This total cost does not necessarily decline when the level of care is increased.

Efficient Care and the Effect of Law: The Case in which the Victim is Passive

Having understood the concept of “efficient care,” let us consider a numerical example that illustrates the relationship between the level of care, the expected damage, and the total cost of an accident-prone situation. The numbers to be used in the example are arbitrary, but are consistent with the characteristics that are assumed by the economic analysis of the law, with respect to the relationship between the level of care and total cost. When we examine this relationship, the efficient level of care will be immediately apparent. Then we will have to clarify how Jewish law provides the parties in the accident-prone situation with incentives to choose specifically this level of care.

In the case under consideration in the numerical example, the victim cannot take any action to prevent damage; the level of care is entirely determined by the injurer. Possible examples of such a situation include a bullet that missed its mark, or the case of an individual who digs a hole near an existing wall and thereby weakens the wall.

Consider Table 1, which presents the relationships that are of interest. The bold-faced numbers indicate the expected damage, which is calculated as the product of the probability of damage and the cost of the damage. Suppose, for example, that the cost of damage is fixed at 1,000 units, and that if the injurer chooses a low level of care, the probability of damage is 5 percent. Therefore, the expected damage if the level of care is low, is 50 (1000×0.05).

If the injurer chooses, instead, a medium level of care, the probability of damage is reduced from 5 percent to (say) 3 percent. Therefore the bold-faced number is 30 (1000×0.03). Thus, we again find that the expected damage declines as the injurer chooses a higher level of care.

The expected damage declines (from 50 to 30 to 28) as the level of care increases (from 0 to 10 to 20). The *rate of decrease* of the expected damage, however, declines. This phenomenon is an example of a general principle in the theory of production, and

That is the lesson taught by Table 1. When we go from a low to a medium level of care, we observe a decline in both the expected damage and the total cost of the accident-prone situation-which is the sum of the expected damage and the cost of care. But when we move from a medium to higher level of care, while the expected damage again declines, the total cost of the accident-prone situation *increases*. The reason for this increase in total cost is the increased cost of care, by 10 units, while the expected damage decreased only by 2 units.

It is important to reiterate that in the present example, the cost of care by the victim is not taken into account, since we are examining a case in which the victim cannot take any action to protect his property from damage.

Table 1: Expected Damage and Total Cost by Level and Cost of Care

<i>Level and Cost of Care</i>	<i>Expected Damage of Accident – bold face</i> <i>Total Cost – bottom</i>
Low: 0	50 50
Medium: 10	30 40
High: 20	28 48

then he will clearly choose a low level of care. Since he would be exempt from any damages he caused, why should he choose even a medium level of care, which costs him 10 units? The other party, of course, will suffer from this low level of care, but this is of no concern to the injurer. Since such a *halacha*, which unconditionally exempts the injurer, would lead to an inefficient level of care, we expect that this will not be the *halacha* in the case under consideration.

Suppose, on the other hand, that the *halacha* is strict liability: that is, the injurer is liable, without regard to the level of care that he has exercised. Such a liability would make the injurer bear the entire costs of the accident-prone situation, both the expected damage and the costs of care. Consequently, in terms of Table 1, the total costs that appear below the bold-faced numbers become costs that the injurer bears, and the precise level of cost will depend on the level of care he chooses. The injurer will therefore look for the lowest possible total cost, which will occur at the medium level of care, which is precisely the socially efficient level.

We therefore find that strict liability induces a socially efficient level of care, in cases where the victim is unable to take action to reduce the likelihood of an accident. As will be demonstrated in the following section, this is the key to understanding the *halacha* in the case of fire damages that are caused to a neighboring house. It must be emphasized that this finding does not apply when the victim can also contribute to the prevention of an accident.¹²

Strict Liability: The Case of Fire from One House to an Adjacent House

We are now able to return to the specific *halachot*, which we listed above. We will first discuss the case of fire, which passes from one house to an adjacent house, and then

¹² The reason is as follows: given that the victim expects the injurer to choose an inefficiently low level of care, he will adopt a too high level of care and the level of care of both parties will not be efficient. The following sections will elaborate on this point.

likelihood that the fire from the story below will cause serious damage. Therefore, strict (unconditional) liability is efficient from an economic viewpoint. As was demonstrated above, such a liability will induce the injurer to exercise an efficient level of care. And this is the *halacha*:

A person shall not set up an oven in his house, unless there is a space above the oven [to the ceiling] of four *ammoth*. If he sets it up in the upper story, he must leave a clay plaster underneath, three *t'fachim* [deep]. In the case of a *kira* (a smaller oven), [the plaster] must be one *tefach*. *And if he causes damage, he must pay the cost of the damage.* Rabbi Shimon says, the above specifications were only stated so that if he abides by them, he is exempt from payment.¹³

The language of the view of Rabbi Shimon indicates that according to both opinions (that of the first part of the Mishna and that of Rabbi Shimon), the specified distances represent a level of “proper care.” The difference in opinion in the Mishna consists only in that, according to the first (majority) opinion, the principle that “proper care exempts the damager” does not apply in this case, and therefore that the damager is liable even when he exercised proper care.

Similar *halachot* can be found in the previous Mishna:¹⁴

A person shall not dig a pit near the pit of his fellow... unless he distances his pit from the side [of the pit of his fellow] three *t'fachim*. ... The waste of olives and other refuse ... must be distanced from the wall of one's fellow three *t'fachim*, or the pit in which this refuse is deposited must be plastered with plaster.

¹³Mishna, Baba Bathra, chapter 2, Mishna 2.

¹⁴Mishna, Baba Bathra , chapter 2, Mishna 1.

Note that if the distance specifications of these Mishnayot (pl. of Mishna) constitute proper care, then the injurer will abide by them, if the Law is according to Rabbi Shimon. But if the proper care represents also the efficient care, he will abide by them whether the law is according to the majority opinion¹⁵ or according to the opinion of Rabbi Shimon. Nevertheless, from the viewpoint of economic analysis, the majority opinion is “preferred” to that of Rabbi Shimon,¹⁶ since in special circumstances the proper care determined by the Law may not be consistent with efficient care. The principle of Strict Liability that the “damager pays the cost of the damage independent of his level of care” induces the injurer to take account of such special circumstances. If the fire above the oven is very high, or the material used in the walls of the house is particularly flammable, then “efficient care” would require a larger degree of distancing than that specified in the above *halachot*. It is clear that only strict liability will induce the injurer to adjust his behavior to the special circumstances. Knowing that he will be unconditionally liable, he will carefully consider the probability of damage, on the one hand, and the cost of care, on the other, and will thus choose the efficient level of care. And, indeed, the *halacha* has been decided in favor of the majority opinion.

Fire Damages from a Field to a Neighboring Field

In our opinion, the key to understanding the difference in the *halacha* of fire damages when the fire spreads from one dwelling to another, and the *halacha* when the

¹⁵ If the specified distances represent efficient care it means that this level of care minimizes total accident costs. Since, according to the majority opinion, the injurer is strictly (unconditional) liable he will choose the level of care that minimizes his costs, which are identical to total accident costs.

¹⁶This seems to be the case, *prima facie*. It appears, however, that the difference of opinion between Rabbi Shimon and the Sages, both here and in the case of fire spreading from one field to the next, stems from other considerations. This paper does not deal, primarily, with the dispute between Rabbi Shimon and the Sages; rather, we content ourselves with explaining the law according to the accepted *halacha*.

again use a numerical example. In this example, however, we must consider the behavior of both parties—the injurer and the victim. Let us assume that both parties have three alternative levels of care. The columns in Table 2 indicate the alternative levels of care of the victim, while the rows represent the levels of care available to the injurer. The bold-faced numbers, as before, indicate the level of expected damage. As we saw above, these numbers are calculated as the product of the probability of damage and the amount of the damage. For example, let us assume that the amount of the damage is fixed, and equal to 1,000, and that if both parties choose a low level of care, the probability of an accident is 10 percent. In Table 2, the upper-left-hand cell represents the case in which both parties exercise a low level of care. Therefore the expected damage appearing in this cell is 100, which is the product of the probability of damage and the sum of the damage when both parties exercise a low level of care (1000×0.10).

Let us now suppose that if the victim moves alone to a medium level of care, the probability of an accident is reduced from 10 percent to 5 percent. Therefore, the bold-faced number appearing in the middle cell of the first row is 50 (1000×0.05). If we continue in the same row to the right-hand cell, the expected damage again declines, since the victim has moved to a high level of care, and the probability of an accident has declined to 3.5 percent. Along the first row, then, the expected damage decreases as we move from low to high care by the victim. As before, however, there is a decrease in the *rate of change* in the expected damage. That is, as we move from a low to a medium level of care by the victim, the expected damage declines by 50, while if we move from a medium to a high level of care by the same party, the decrease in expected damage is only 15. This well-known law of economics (diminishing returns) was introduced in the previous discussion, in which the victim was passive.

Similarly, as we move down a given column in the table, the expected damage decreases, since, in this case, the injurer increases his level of care. For the sake of simplicity, we have assumed that the effects of changing levels of care by the two

		<i>LEVEL OF CARE-VICTIM</i> →		
<i>LEVEL OF CARE-INJURER</i>		<i>Low</i> <i>0</i>	<i>Medium</i> <i>10</i>	<i>High</i> <i>20</i>
↓	<i>Low</i> <i>0</i>	100 100	50 60	35 55
	<i>Medium</i> <i>10</i>	50 60	30 50	28 58
	<i>High</i> <i>20</i>	35 55	28 58	22 62

The bold-faced numbers, then, indicate the expected damage, in each of the possible combinations of care. We already know, however, that the expected damage is only part of the total cost of an accident-prone situation. The cost of care by the two parties must be added to the expected damage, in order to obtain the total cost of the accident-prone situation. The costs of care for each level of care appear alongside the labels of each row and column. If we add these costs of care to the bold-faced expected damages, we obtain the total costs of the situation in each cell of the table, which appear below the bold-faced numbers. For example, the total cost in the lower right-hand cell, 62, is the sum of the expected damage (22) and the costs of care of the two parties ($22 + 20 + 20 = 62$). In the upper left-hand cell, in contrast, the expected damage equals the total cost, since the costs of care for both parties are zero.

of care is socially efficient.

There is, however, no assurance that this is the level of care that the two parties will actually choose, since each party takes account only of his own costs. Suppose, for example, that the law in this case was the same as the law where the victim is passive, i.e., strict liability--the injurer is always liable, without regard to the level of his care. Then the victim will not exert any effort, and will choose the low level of care, which costs him nothing. The injurer, who is aware of this fact, looks for *his* optimal level of care, given that his counterpart chooses a low level of care. In terms of Table 2, the injurer scans only the left-hand column, which corresponds to the level of care chosen by his counterpart, and chooses the level of care, which minimizes his cost. According to the strict liability rule, all the costs are borne by him, and these costs are minimized (as can be seen by inspection of the first row of the table) when the injurer exercises the high level of care. Thus the injurer will choose the high level of care, while the victim will choose the low level of care. This division of the burden of care is not efficient, since the total cost of the situation is then 55, and not the lowest total cost of 50, as noted above.

We thus conclude that the *halacha* of strict liability does not induce efficient behavior in the case of fire that may spread from one field to the next. In contrast, the negligence rule stating “the injurer is exempt when he exercises the proper level of care” *does* induce efficient behavior. To see this, suppose that the court knows the efficient levels of care of the two parties and determines the “proper” level of care--the due care--to be identical to the efficient level of care of the injurer. In our example the proper level of care, applied to the injurer, is determined by the court to be the medium level of care. Now, the injurer, who is exempt from damages if he chooses this level of care, will unhesitatingly choose this level of care. For he will then bear only his own cost of care, which is 10 and less than *his* expected cost if he chooses a different level of

50, while his expected cost is 48 if he chooses a high level of care ($20 + 28 = 48$). Thus the victim minimizes **his** expected cost by choosing the medium level of care.

We conclude that, given that “proper care” determined by the court is the medium level of care (the efficient level of care), the combination “injurer: medium level of care; victim: medium level of care” is rational from the viewpoint of both parties, given the negligence rule. As shown above, this combination is also socially efficient, since this allocation of the burden of care minimizes the total cost of the accident-prone situation. Thus, from an economic standpoint, it is desirable to determine the *halacha* that a injurer who exercises the proper level of care over his fire is exempt from damages. The level of “proper care” is equal to the injurer’s efficient level of care, and it is specified in the Mishna in Baba Kamma cited above.

What, however, is the opinion of Rabbi Shimon regarding the specification of “proper care” in the case of fire that spreads from one field to the next? In the cited Mishna, Rabbi Shimon states that “it depends on the characteristics of the fire,” and the Gemara asks “does not Rabbi Shimon have a measure of the fire that makes the damager liable?” After all, Rabbi Shimon provided such a specification in the case of a one who lights an oven in his house (see the Talmudic discussion and the Mishna in Baba Bathra cited above). The Gemara answers its question by interpreting Rabbi Shimon’s statement that “it depends on the characteristics of the fire” as meaning “it depends on the *height* of the fire.” From an economic viewpoint, if the Court of Law (*beit din*) can ascertain, *ex post*, the height of the fire, Rabbi Shimon’s opinion is to be preferred to the opinion of the other sages. Proper care, that follows the efficient level of care, will mandate a low level of care if the fire is lit from a few chips of wood, and a considerably higher level of care if the fire is lit from a pile of logs. And, indeed, in this case the opinion of Rabbi Shimon that “it (the proper level of care) depends on the height of the fire” is determined by the Gemara to be the accepted *halacha*.

¹⁷In terms of Table 2, 10 is a lower cost than any of the numbers appearing in the table.

however, exempt from damages to other objects, such as a purse or clothes, hidden in the stack of corn. In contrast, if the damager lit the fire in his own field, he is liable only for damages to the stack of corn in his neighbor's field and to the field itself, but exempt from damages to *all* objects hidden in the stack of corn, even if he did not exercise the proper level of care.¹⁸ We seek to give an economic explanation of these laws. We will preface the discussion by explicating the special character of fire damages and introduce the concept of differential care that is required in the case of such damages in order to minimize cost. Next we will explain the concept of "a place where people usually hide objects," and then deal with the laws in the case of objects hidden in a stack of corn.

Differential Care

Damages from fire are wide-ranging. This category includes a wide variety of objects and types of property. In the case of a dwelling that burns down, all objects that are left in the house are likely to be destroyed: furniture, clothing, valuables, money, and even the building itself. The case of a field that is burnt by fire is similar: not only the grain in the field is burnt, but also all adjacent objects: tools, border-markers, and of course articles hidden between the ears of grain.

From the discussions in the Gemara dealing with the prototypical types of damages (*avoth nezikin*), it is clear that not all types of damage have the wide range of incidence that is characteristic of fire¹⁹. When the cause of damage has a wide range of incidence,

¹⁸This is the majority opinion, according to the interpretation of Rava, in Tractate Baba Kamma, 61b. Rabbi Yehuda holds that the damager is liable for damages to objects hidden in the stack of corn. Here, again, we will not deal with the explanation of the disagreement between the sages, and only will seek to explain the accepted *halacha*, which is the majority opinion according to Rava's interpretation of that opinion.

¹⁹ For example, a pit in the public domain is likely to cause damage to an animal in the public domain and to utensils that an animal, or a person, carries. It is more rare that falling into a pit will damage a person himself, who is generally careful of his steps. In the case of damages done by the horns

valuables in a safe, while a multi-lock metal door suffices for protecting electronic appliances in the house.

Before metal safes, banks, and other elaborate means of protection existed, individuals hid objects outside their homes, for example in their fields, in order to prevent theft and to reduce the danger of damage due to fire that may break out in their dwellings—a common occurrence in those days. Of course, if the article is used on a daily basis, hiding it outside the house is not efficient, since the benefit in terms of added protection is cancelled out by the cost in terms of availability of the object. For example, the Gemara (Baba Kamma, 62a) states that it is reasonable that a silver chair will be openly left in the houses of the wealthy. Regarding pearls, however, the Gemara is doubtful whether they are usually stored even in a case used for storing money (an early form of a safe), not to speak of being openly left in the house.

Let us focus on articles that are hidden outside of the house, since their regular availability in the home is relatively unimportant. An individual who wants to hide such an object has two alternatives. The first is to hide the article between ears of corn in the field. This is a relatively cheap and reliable place to hide an object, and has the added advantage of easy availability. Alternatively, he can take more trouble and bury the object in a pit dug in the field, or in a fire-proof vessel. The cost, in terms of time lost in hiding the object, is a little greater in the case of this alternative. Which alternative will the individual choose if there is a real risk that his neighbor's fire may cause damage to his field? The answer to this question depends on the law in the case of hidden objects. If the law is that the damager must pay the full cost of the damage, the individual will hide his object between ears of corn. If, on the other hand, the law is

of oxen (goring and the like), the usual incidence of damage is even more limited; such damages are frequent—if at all—only between oxen (not between oxen and other animals or human beings).

greatly reduces the expected damage. We argue that this consideration lies at the basis of the economic explanation of the *halacha* in the case of hidden objects. We must, however, still demonstrate that the exemption in the case of objects hidden in a stack of corn--which will induce people to hide their objects in a fireproof manner--reduces the total cost of the accident-prone situation, even when we take account of the response of the injurer to this law. Moreover, we must explain the difference in law between the case in which the damager lights a fire in his own field or in the field of his neighbor. Before approaching these tasks by investigating the laws relating to hidden objects, we seek first to explain the concept of “a place where individuals usually hide objects.”

A Place where Individuals Usually Hide Objects

The Mishna, Gemara, and B’raitha in Tractate Baba Kamma, 61b-62a, use the term “a place where individuals usually hide objects” in connection with certain objects and places. In our opinion, this term is not a mere description of an inadvertent habit, but rather a statement of efficient placement of objects which takes account of the required availability of the object, the probability that the object will be stolen or destroyed by fire, and the relative costs of keeping the object in alternative locations.

For example, the Gemara (Baba Kamma, 62a) considers the case of an individual who seized a case used for storing money belonging to someone else and threw it into a river. The owner of the case demanded compensation for a pearl, which he claimed, was stored in the case. The Gemara raises the question of whether people normally place pearls in such money-cases. Maimonides (*Mishna Torah, Laws of Wounds and Damages*, Chapter 7, par. 18) states “if it is not the usual practice to hide such objects in such a vessel, then he [the owner of the vessel] did a crime to himself.” In other words, the party suffering the damage did not properly care for such an object and therefore

We are now able to examine in detail the laws regarding objects hidden in a stack of corn. We first consider the case in which the damager lit a fire in his neighbor's field, and then turn to the case in which he lit a fire in his own field.

The Case of an Individual who Lights a Fire in the Field of His Neighbor

The source of the laws of fire damage listed above is the discussion in Tractate Baba Kamma, 61b-62a. Since this Talmudic discussion is complex, we will cite the formulation of Maimonides²¹ and, in parallel, we will point out the Talmudic source for rulings.

[One who lit a] fire that broke out and harmed thorns or stones or dirt, must pay [damages]... If the fire destroyed a stack of corn and there were tools hidden in the stack, then if the tools were, e.g., threshing sledges and tools used to take care of cattle, etc., which those who work in the fields regularly hide in a stack of corn, then the damager must pay the damages. If the vessels [hidden in the stack] were clothes or glass utensils, etc., then the damager is not liable. In which case are the above laws relevant? When the damager lit a fire in the field of his fellow.

According to the opinion of Rava in Tractate Baba Kamma, which is supported by the B'raitha that is cited there, the laws stated by Maimonides in the above passage are the majority opinion. Consequently, the Mishna cited in the Talmudic discussion in Baba Kamma would be dealing with the case of an individual who has lit a fire in his own field, a case which will be treated below.

²⁰Similarly, the Tosfoth (on the cited Gemara) state that the question of the Gemara, as to whether people usually store such objects in such money-cases, was not meant to determine whether the owner of the money-case was telling the truth when he claimed that a pearl was contained in the case. Rather, the Tosfoth understand that the damager is exempt if such articles are not normally stored in such vessels, since "he [the damager] was not required to consider the possibility that this would occur."

²¹*Mishna Torah, Laws of Monetary Damages*, Chapter 14, paragraphs 8-12.

hiding these objects reduces the expected damage to this party. In contrast, he will not be deterred from hiding in a stack of corn (or leaving adjacent to his field) tools whose proximity to the field is required for work in the field, since he knows that the damager is liable if he harms such tools. These two choices made by the victim minimize the total cost of the accident-prone situation.

But what behavior can we expect the injurer to choose, given this *halacha*? Here we assume that an individual who lights a fire in the field of his neighbor will not be deterred even if we add to his liability all objects hidden in a stack of corn.²² In our opinion, this is the special characteristic of the case of an individual who lights a fire in the field of his neighbor, which is relevant in determining the law in this case. Given that such an individual will not be deterred even if we make him liable for all objects hidden in the field, the economic approach will conclude that the accepted *halacha* (which absolves him from liability for objects like hidden glass utensils) is preferable to a law that would make him liable for all objects hidden in the field. For, as we have already stated, the accepted *halacha* has the advantage of reducing the costs of the situation by inducing the victim to use a fire proof hiding place for his article.

The Case of an Individual who Lights a Fire in His Own Field

We cite the law as stated by Maimonides (*op. cit.*) in this case as well:

In the case of an individual who lit a fire in his own field, which spread to his neighbor's field, the damager is exempt from damages to all utensils hidden in a stack of corn, but pays the value of the volume (of corn) taken up by the utensils in the stack of corn; we view the stack as if it were full of corn.

²² "He has no right to do so, and therefore is like one who intentionally destroys his wealth"-Rashi, *ibid.*

height of a separating wall) is the efficient level of care, which takes account of the expected fire damage to the stack of corn and to the objects that field-owners regularly hide there.²³ The injurer will abide by these specifications, knowing that if he does not, he will be liable for damage done to the stack of corn. This threat is sufficient to induce him to observe the specified level of “proper care.” For this purpose, it is not necessary to make him liable for work tools hidden in the stack of corn, and certainly it is unnecessary to make him liable for all objects hidden in the stack.

The victim knows that the specified level of proper care takes account only of damage to the stack of corn and to work tools. He will therefore exercise the appropriate level of care to prevent his field from being damaged by his neighbor’s fire, and will hide valuable objects in a fireproof manner, since if he does not do so, he will have to bear the costs of damage to such objects. We conclude that liability of the damager for damages of caused to the field if he does not exercise the proper level of care (which takes account of care for the field and work tools), together with the law that in any case he is exempt from damages to objects hidden in a stack of corn, will induce an appropriate level of care by victim, including fireproof hiding of valuable objects. Thus the social costs of potential fire accidents between fields are minimized.²⁴

Finally, let us consider what law we would expect in the case of an individual who lights a fire in the house of another person. The considerations discussed above suggest that it would be inefficient if the owner of the house had to take out of the house possessions that he uses on a daily basis. Therefore we expect that the damager will be liable, both for damage to the structure of the house and to its contents. Again we find, in the wording of Maimonides (*op. cit.*), whose source is the Mishna in Baba Kamma:

²³ In other words the term “field” should be interpreted in a broader sense, to include work tools placed in or near the field.

²⁴The Appendix demonstrates this conclusion, using a numerical example.

valuable objects that need not be constantly available, in a maximally safe manner, while they are not induced to do so for objects whose constant availability is required.

Conclusion

This paper has presented an economic approach to understanding the Jewish law of fire damages. We have seen that the law induces individuals to exercise care that minimize the social cost of accident-prone situations. This cost includes both the expected cost of fire damages and the cost of care to prevent such accidents.

The specifications of proper care that Jewish law stipulates for an individual who lights a fire in his own field take account of the expected damage to stacks of corn in neighboring fields as well as work tools hidden in such stacks, or left adjacent to such stacks. The level of proper care depends on the presence or absence of an unusually strong wind at the time of the lighting of the fire, as well as the height of the fire. As a result, individuals lighting fires in their fields will take proper care, as specified by the *halacha*, in order not to be liable for damages done to stacks of corn in neighboring fields. The owners of adjacent fields know that and adjust their level of care to the appropriate level. Therefore they, too, will exercise appropriate caution. The additional law that the injurer is not liable for damages caused to items hidden in the stack ensures that the victim will hide valuable objects, and objects whose availability is very important, in a fireproof manner. This behavior of field owners minimizes the total cost of potential fire accidents when an individual lights a fire in his neighbor's field.

In contrast, if the potential accident is one in which only the damager is able to take actions of precautions, then he is strictly liable, without regard to his level of care. Thus individuals lighting an oven in their houses will exercise care, which minimizes *their* costs, which automatically implies (in this case) minimization of social costs.

One can therefore claim, at least regarding the laws studied in this paper, that the underlying principle of these laws is economic efficiency from a social standpoint. Does this principle underlie other *halachot* in the Jewish law of damages in particular,

illustrated by using a numerical example, based on Table 2 of the text. For ease of exposition, we assume that the cost of hiding an object is small, whether it is hidden in a stack of corn or in a pit. We also assume, however, that, if the law made the damager liable for damages to hidden objects, the victim would prefer to hide his object in a stack of corn, because the article would then be more readily available for use. If, on the other hand, the law absolved the damager for liability in the case of hidden objects, then we assume that the victim will prefer to hide his article in a fireproof manner.

Let us assume that, initially, there is no object that needs to be hidden, so that the numerical example in Table 2 of the text is still relevant. In that example, we found that the two parties will exercise a medium level of care: this is the efficient level of care, and the injurer will exercise this level of care in order to avoid being liable for damages to the stack of corn. Now let us introduce the existence of a valuable object hidden in the stack of corn, and assume that the law absolves the injurer from damages to hidden objects. The situation of the injurer has not changed, and he will continue to exercise a medium level of care. Under these conditions, the victim must decide how to hide the valuable object. In order to follow the consequences of his decision, it is necessary only to examine the second row in Table A1 below. Given the law that the damager is exempt if he exercised the proper level of care, the victim will properly hide his object and the expected damage is 30.¹⁷ If he does not do so, the expected damage will increase in proportion to the value of the hidden object, for example to 300 (second column, second row). By examining all the entries in the table, which show the total cost of the accident-prone situation, we find that this combination of proper care by the injurer and correct hiding of the object yield the minimum total cost—50.

¹⁷ Since we have assumed that the cost of hiding the object is negligible, the numbers in the first column of Table A1 are the same as the numbers in the corresponding column of Table 2, in which there was no hidden object, whereas here the object is hidden in a fireproof manner.

	of Hiding <i>Cost of Hiding and Care by Victim = 10</i>	Stack of Corn <i>Cost of Hiding and Care by Victim = 10</i>
<i>Minimal – 0</i>	50 60	500 510
<i>Medium - 10</i>	30 50	300 320
<i>High - 20</i>	28 58	280 310
• • •	<i>x</i>	<i>y</i>
<i>Maximal - 200</i>	Higher than <i>x</i>	28 238

If, on the other hand, the injurer is liable for damages to hidden objects, the victim party will hide the object between ears of corn, knowing that if the object is harmed, the damager will be liable. The injurer, for his part, will view the stack of corn and the object hidden in it as one unit, so that his expected damage is greater, since the expected fire damage to the hidden object is included. (In the example shown by the table, we have increased the expected damage, due to the hidden object, by a factor of 10.) Given these data, the injurer will consider increasing his level of care. By examining the right-hand column of Table A1, we find that it is worthwhile to the injurer to increase his level of care from “medium” to “high.” By so doing, he increases the cost of his care by 10, but reduces his expected damage by 20 (from 300 to 280).

50) is due to two causes. The first cause is the higher expected damage (from 30 to 280, an increase of 250), due to the higher probability of damage to the object, in turn resulting from less careful hiding of the object. The second cause is the increased cost of care by the injurer—from 20 to 30. Having noted this, we can see that even if a higher level of care than the already high level shown in the table was possible and worthwhile to the injurer, such a level of care would not be socially efficient. For the less careful hiding induced by liability to the damager will always lead to higher expected damages in the right-hand column than in the left-hand column (i.e., y in the table is greater than x). On the other hand, the values in the left-hand column, starting with 50, continually increase as we move down the column, since the table is arranged so that 50 is the minimum cost of the accident-prone situation when the proper level of hiding is chosen. Therefore x is larger than 50. Since we have already noted that y is greater than x , y is clearly larger than 50. Thus it is impossible that a higher level of care by the injurer would reduce the total cost of the accident-prone situation below 50, when the object is hidden only in the stack of corn. The lowest row in Table A1 illustrates this point. Suppose that by increasing the level of care from “high” to “maximal,” the cost of care increases by a factor of 10, but reduces the expected damage also by a factor of 10 (i.e., one-tenth of its original value). The numbers in the lowest row of Table A1 are appropriate to these assumptions, and according to them, it is worthwhile for the injurer to choose the “maximal” level of care. By so doing, he reduces the total cost of the accident-prone situation, which he solely bears since he is liable for damages, to the lower value of 238 instead of 310, but this value is, of course, still greater than 50.

Shavell Steven: "Strict Liability v. Negligance", Bell Journal of Economics, 1980
Shavell Steven: "Economic Analysis of Accident Law", Harvard university Press,
Cambridge, Mass, 1987
Coase Ronald : "The Problem of social Cost", Journal of law and Economics, 1960