Case Outcome for Recreational Incidents on Private Forest and Rural Land and the Determinants of Litigation Time Span

XIANCHUN LIAO,
CHANGYOU SUN,
W. DARYL JONES,

&

SANGITA POKHAREL
Mississippi State University

INTRODUCTION

Potential liability has long been recognized as a disincentive for private landowners to allow public access to their land for recreational activities (e.g., hunting, fishing, and boating). This concern and the associated restriction on public recreation have been examined by studies at various levels. For instance, the National Private Landowners Survey revealed that in 1997 only 12% of private landowners allowed public access to their land for recreation and liability was one of the major concerns (Teasley et al., 1999). State wildlife administrators also rated liability as the second-most-significant access problem faced by landowners (Benson, 2001). Liability insurance premiums in Mississippi were the second largest expenditure category for fee hunting operations by landowners (Jones et al., 2001).

Among the various efforts to mitigate liability concerns, recreational use statutes, enacted by individual states since 1965, have modified the liability protection for landowners in various ways (Lee, 1995; Wright et al., 2002). The purpose of recreational use statutes has been to make private land available for public recreational use by limiting landowner liability. Recreational use statutes deal with two aspects of recreational use of private land. First, landowners have the right to use their land as they see fit in relationship to others in society, allowing or restricting those who may come onto their land for a variety of reasons. Second, recreation may result in civil harm so liability needs to be assigned between landowners and recreationalists (Becker, 1991). Recreational use statutes have attempted to reduce the tension

between property owners and injured recreationalists (e.g., hunters and anglers). At present, private landowners in all 50 states may be immunized from liability for qualifying incidents under recreational use statutes, such as allowing the public to enter their land for recreational use without charge (Wright et al., 2002). Nineteen states also have permitted landowners to impose limited fees for recreational use and still retain protection from the statutes (Wright et al.). However, a number of limitations have been found in the application of these statutes (Carroll et al., 2007). Different jurisdictions have rendered conflicting court decisions and the vagueness in these statutes frustrates both landowners and courts. Thus, reducing the ambiguity in recreational use statutes may aid courts to have more consistent decisions.

In spite of protections offered by recreational use statutes, the number of lawsuits related to recreational incidents on private land has been increasing (Clement & Otto, 2007; Kaiser, 1986; Spengler & Connaughton, 2003). A key issue in litigation has been time cost related to lawsuits. In civil litigation, a plaintiff seeks either a monetary award or some type of equitable relief to recover his or her loss (Garner, 2004). Litigation has time cost to both plaintiff and defendant no matter what the final outcome is. Court decisions may take several years to reach and the time cost has several negative costs (Fenn & Rickman, 1999; Hughes & Savoca, 1997). The condition of these injured may get worse if the time needed for resolving the claim leads them to forego desirable treatment. Lengthy litigation can also take an emotional toll on these injured and their families that wait to see justice done. In addition, evidence can deteriorate over time in some situations. Therefore, the time needed for litigation has been costly to individuals involved and society.

A well-developed law and economics literature has presented the roots of litigation delay. Early studies sought to explain the decision to litigate and assumed that the decision was based on what has been known as divergent expectations (Posner, 1973). Efforts of reducing litigation delay might have transitory effects because initial improvement could be swamped by an offsetting increase in demand for litigation (Priest, 1989). Newer models of litigation decisions explicitly addressed the effects of private information on decision-making (Cooter & Ulen, 2000). Furthermore, time span for litigation and related determinants have been the subject of a number of empirical studies. Datasets used in these studies have been diverse. They include cases from legal databases contained in Lexis-Nexis (Gabbidon et al., 2006; Neese et al., 2005) and Westlaw (Lydiatt, 2004), cases from a small geographical area such as a county circuit court (Spurr, 2000), and claim data from insurance companies (Fenn & Rickman, 2001). In addition, a number of statistical analyses (e.g., logit regression) have been employed in the literature.

In particular, various techniques of duration analysis have been used to analyze court decisions as events and the associated time duration. These techniques included the Kaplan-Meier hazard curve (Kessler, 1996), accelerated failure time model (Hughes & Savoca, 1997; Spurr, 2000), Cox proportional hazard regression (Kessler, 1996), and competing risk model (Hughes & Savoca, 1997).

The literature of litigation studies related to environmental issues, natural resources, and recreation has also been growing. For example, Smith and Tiller (2002) inspected 522 cases from a Westlaw search that were related to the decisions of the Environmental Protection Agency from 1981 to 1993. Their analyses supported that strategic considerations systematically influenced judicial decision-making. Wright et al. (2002) examined rural landowner liability risks through an analysis of 637 published appellate court cases involving recreational injuries between 1965 and 2000. No restriction was placed on land so these cases covered incidents on all kinds of lands (i.e., public, residential). They summarized the number of cases by state and recreation type but no statistical analysis was conducted to investigate determinants of landowner liability. In addition, Spengler and Connaughton (2003) examined the assumption of risk defense in 246 published sport and recreational lawsuits. Clement and Otto (2007) examined the prevailing probability for plaintiffs in 247 published cases related to headfirst aquatic incidents. Nevertheless, our literature review revealed that time needed for litigation has not been examined for recreational incidents. Given the critical role of private land in meeting public recreation demands and private landowners' concern of liability (Teasley et al., 1999), there has been a great need to examine the time cost of litigation related to recreation.

The objectives of this study were to review published cases related to recreational incidents on private forest and rural land and, furthermore, to investigate determinants of time span for litigation. Various recreational activities were considered (e.g., boating, fishing, hiking, hunting, snowmobiling, swimming). Cases were collected from a search on the "Federal & State Cases" database in Lexis/Nexis and the "Cases" database in Westlaw. In total, 103 cases were identified, covering 1958 to 2007. A review summarized these cases by their characteristics, including entry status, degree of injury, activity type, outcome, and case duration. In analyzing determinants of the case duration, several nonparametric and parametric models from duration analyses were employed. A competing risk model was used to separate court decisions into two events: landowners prevailing and recreationalists prevailing. The case review will help understand the features of litigation related to recreational incidents on private land. The empirical

analysis will reveal what factors have influenced the time span for litigation and the impact magnitude of the significant factors.

METHODOLOGY

To achieve the study objective, a legal case review was first conducted to comprehend the characteristics of recreational incidents on private forest and rural land. These cases also were used to construct variables for the subsequent statistical analyses. Next, the features of these cases were considered in selecting duration analysis methods. Both nonparametric and parametric duration analyses were employed in analyzing the determinants of case duration.

Legal Case Review

Review of published cases has been a common approach to examining liability for specific legal issues (Gabbidon et al., 2006; Wright et al., 2002). In this study, two computerized legal databases contained in Lexis/Nexis and Westlaw, were searched thoroughly. Both databases had comprehensive coverage of legal cases related to recreational incidents; however, reporting did differ to some extent.

Several methods (Mersky & Dunn, 2002) were used to comprehensively search the databases and identify related cases. First, keyword searches were conducted to collect cases related to the study objective — liability litigation related to recreational use of private forest and rural land. In this study, private forest and rural land was defined to include private forest land, farmland, and undeveloped/unimproved land; this definition served as the main filter in deciding whether to include a case or not. Incidents were resulted from various recreational activities, including biking, boating, camping, climbing, fishing, hiking, hunting, off-road vehicle, skiing, snowmobiling, swimming, and among others. The search initially generated 754 cases from the "Federal & State Cases" database in Lexis/Nexis and 708 cases from the "Cases" database in Westlaw. Many were excluded because they were unrelated to the study objective (e.g., an injury sustained by diving into a swimming pool located in a residential backyard). As a result of the keyword search, 62 cases from Lexis/Nexis and 75 cases from Westlaw were identified; among them, 42 were reported by both databases.

Second, a search by West KeyCite® was conducted for each case identified from the keyword search. As a citatory service provided by Westlaw, the West KeyCite revealed all subsequent cases that cited the case of interest. With the help of the West KeyCite search, the case list was further

modified and expanded through cited cases and references. Third, a search by West Key Number was conducted to finalize the case list. The cases from the previous two searches revealed that recreational use of private land was related to more than 100 West Key Numbers (e.g., 272XVII Recreational use doctrine and statutes). West Key Numbers that appeared frequently in the above identified cases were used to search the database again.

Once the case list was finally identified, these cases were read thoroughly and annotated. Their main features were summarized and compared (e.g., incident date, court decision date, decision, degree of injury). Further, the information was used to construct several groups of variables for duration analysis.

Selection of Duration Analysis Methods

Duration analysis was employed in this study to examine determinants of the litigation time span. As a class of statistical methods, duration analysis investigates the duration time of events (Allison, 1995; Kleinbaum & Klein, 2005). In general, study objectives and data properties guide the selection of specific statistical methods. In this study, a court decision was treated as an event. The time span of a case was measured as the time between an incident and a court decision. There were two properties of the data collected from the legal case review. One property of the dataset was censoring. Cases remanded from an appellate court for further proceedings were censored because their court decision dates could not be followed further (Spurr, 1997). Their litigation time span was at least the observed time. In contrast, cases with clear court decisions were considered as events and had no censoring.

The other data property was competing risk or multiple kinds of events. All court decisions could be treated as the same so there was a single event. Alternatively, two events might be assumed for court decisions: Event I when a landowner prevailed in a case and Event II when a recreationalist prevailed. By separating court decisions into two event types, different impacts of determinants were then identified and compared. Therefore, there were two models in this study: one model for single event treatment and the other for competing risk.

Duration analysis can be divided into several broad categories: nonparametric, parametric, and semiparametric. Each has some merit in specific situations for different study objectives. In this study, nonparametric and parametric duration analyses were employed for both the single event and competing risk models. With nonparametric duration analysis, its rich graphic features allowed for the visual examination of survivor and hazard functions

and also provided assistance for model identification in parametric duration analysis. Univariate nonparametric analysis through the log-rank test was conducted to compare impacts of individual determinants among different event types. Within parametric duration analysis, the accelerated failure time model was utilized to quantify impacts of all covariates simultaneously. It also allowed the identification of the best distribution by the log-likelihood test and the inspection of the underlying hazard function estimated by each model.

Nonparametric Duration Analysis

In duration analysis, the key interest is on the dependant variable of time duration (Kleinbaum & Klein, 2005). It measures the time needed until the occurrence of an event. There are several equivalent ways to describe the duration as a random variable. Two unique ways in duration analysis are through the survivor function and hazard function. The survivor function denotes the probability that an event time will be greater than a specific time. The hazard function represents the instantaneous rate of an event occurring at a date, given that the event has lasted up to the date. In this study, the dataset available from the case review was small and duration time was measured monthly. Thus, the method of Kaplan-Meier product limit estimator was employed for all the nonparametric duration analyses. The survivor and hazard functions (Allison, 1995) were plotted and the trends were inspected.

The association between a quantitative covariate and the litigation time span can be examined by rank test. This univariate duration analysis examines the relation between the time span and one explanatory variable without controlling for other variables. In this study, the Wilcoxon rank test (SAS Institute, 2004) was employed. The test can reveal if there is any significant impact from a specific variable and, if yes, the impact direction. However, it does not give coefficient estimates and cannot test the combined impacts of all variables.

For the single event model, the application of above procedures was straightforward. Remanded cases were treated as right censored, and cases with final court decisions were treated as events. For the competing risk model, the different treatment was that the occurrence of one type of event removed the individual from the risk of all other event types. A separate analysis was conducted for each event type, treating other events as censored. More specifically, a landowner prevailing in a case (i.e., Event I) excluded a recreationalist from prevailing in the case (i.e., Event II). A separate analysis for Event I, for instance, treated both remanded cases and Event II type cases as right censored. Separate survivor and hazard functions were defined for

each event type. Similar to the single event model, graphs for survivor and hazard functions were estimated for the competing risk model. The Wilcoxon rank tests also were conducted to examine the impact of an individual variable on the time span for a specific event type.

Parametric Duration Analysis

The accelerated failure time model provides a complete characterization of the relationship between a duration variable and covariates (Allison, 1995). Duration is assumed to follow a specific distribution. There are five widely used distributions: exponential, Weibull, lognormal, log-logistic, and generalized gamma. Several methods can help identify the best distribution for a specific model and dataset. First, the most frequently used method is to utilize the likelihood ratio test to compare nested models (Allison, 1995). For duration analysis, the generalized gamma model is the most general and all others are its nested models. The exponential model is also nested within the Weibull model. Second, the number of significant parameter estimates can give some guidance for model identification. Finally, a useful procedure for model identification is to inspect the estimated hazard function from each distribution graphically. Sometimes, even if several distributions agree on the coefficient estimates, they may still have distinctly different implications for the shape of the hazard function (Allison). To help identify the best distribution, the estimated hazard function can be compared with the hazard curve from nonparametric duration analyses.

After a particular distribution is chosen, the specific forms of probability distribution function and survivor function can be substituted into the log-likelihood function. The effect of covariates is incorporated by specifying a scale parameter $\lambda = \exp(-\beta' X)$ where X is the vector of covariates and β is the vector of parameters. After taking the logarithm, the log-likelihood function can be maximized and parameters can be estimated.

To interpret the estimation results, note that the actual regression format in parametric duration analysis is semi-logarithmic. A simple transformation of the parameter estimates (β) can provide more interpretive values. For quantitative variables, a transformation of ($\exp(\beta)$-1) is needed to give the percentage changes in the expected duration time for one unit change in the variable. For dummy variables, the value gives the estimated ratio of the expected duration time between the group under consideration and the base. Finally, estimation of parametric models can be conducted similarly for both the single event and competing risk models. Comparable to the nonparametric

duration analysis, the difference between the two models lies in the special treatment on censored cases.

VARIABLE DEFINITIONS FOR DURATION ANALYSIS

Variables used in duration analysis were constructed from information contained in the identified cases. Definitions of these variables were presented in Table I. While most were self-evident, the rationale for the construction of some variables deserved more elaboration. The dependent variable of the litigation time span was specified to measure the time needed to complete the litigation. The time span of litigation is usually measured as the time elapsed from the filing date to adjudication date. In this study, for the beginning time, the incident date was used because the filing dates for some identified cases were unavailable; the end time was defined as the adjudication date (i.e. the date a court decided the case). The indicator variable for right censorship was equal to zero if a case was remanded for further proceedings and equal to one otherwise. When a case was remanded, it was considered censored because the exact time of the court decision was unknown (Spurr, 1997). The indicator for competing risk was defined similarly by further dividing cases with final court decisions into two categories. It equaled zero for remanded cases, one for cases where landowners prevailed (i.e., Event I), and two for cases where recreationalists prevailed (i.e., Event II). Thus, whether landowners or recreationalists prevailed in a case was considered as a competing risk.

TABLE I: DEFINITIONS AND STATISTICS OF DURATION ANALYSIS VARIABLES FROM 103 LEGAL CASES

Variable	Definition	Mean
Dependent variable		
Duration	Case duration from the incident date to court decision (month)	51.126
Censorship indicator		
Single event	Equal to 0 if a case was remanded for further proceedings; 1 otherwise	0.796
Competing risk (two events)	Equal to 0 if a case was remanded for further proceedings; 1 if the landowner prevailed; and 2 if the recreationalist prevailed	0.874
Independent variables		
General information		
Court	Equal to 1 for Court of Appeals; 0 for Supreme Court	0.670
Appellant	Equal to 1 if the recreationalist appealed; 0 if the landowner did	0.854
Plaintiff		
Invitee	Equal to 1 if the recreationalist was an invitee; 0 otherwise	0.068
Licensee †	Equal to 1 if the recreationalist was a licensee; 0 otherwise	0.786
Trespasser	Equal to 1 if the recreationalist was a trespasser; 0 otherwise	0.146
Light injury	Equal to 1 for light injury; 0 otherwise	0.029
Severe injury †	Equal to 1 for severe injury; 0 otherwise	0.777
Death	Equal to 1 for death; 0 otherwise	0.194
Defendant		
Fact dispute	Equal to 1 if facts were in dispute; 0 otherwise	0.184
NIPF owners	Equal to 1 for NIPF landowners; 0 otherwise	0.155
Business owners	Equal to 1 for forest business landowners; 0 otherwise	0.330
Activity type		
Hunting	Equal to 1 for hunting activities; 0 otherwise	0.194
Off-road vehicle	Equal to 1 for off-road vehicle activities; 0 otherwise	0.262
Snowmobiling	Equal to 1 for snowmobiling activities; 0 otherwise	0.078
Boating	Equal to 1 for boating activities; 0 otherwise	0.049
Others †	Equal to 1 for other activities; 0 otherwise	0.417
Incident date		
Entry 1970s	Equal to 1 if the incident occurred before 1980; 0 otherwise	0.117
Entry 1980s †	Equal to 1 if the incident occurred in the 1980s; 0 otherwise	0.427
Entry 1990s	Equal to 1 if the incident occurred in the 1990s; 0 otherwise	0.408
Entry 2000s	Equal to 1 if the incident occurred after 2000; 0 otherwise	0.049
Location		
West	Equal to 1 for five states in the West; 0 otherwise	0.155
Mid-West †	Equal to 1 for 12 states in the Mid-West; 0 otherwise	0.146
North	Equal to 1 for 20 states in the North; 0 otherwise	0.485
South	Equal to 1 for 13 states in the South; 0 otherwise	0.214

† Served as the base in the parametric duration analysis as reported in Table IV.

Independent variables were built with consideration for unique features of recreational activities and by following the litigation literature (Fenn & Rickman, 2001; Fournier & Zuehlke, 1996). First, two variables were created to symbolize some general litigation information. A dummy variable was

equal to one if a case was from Courts of Appeals and zero if from Supreme Courts.[1] A dummy variable equaled one if the appellant was a recreationalist and zero if the appellant was a landowner. Second, two groups of dummy variables were created to represent plaintiffs. One group evaluated recreationalists' status of entry on private land (i.e., invitee, licensee, or trespasser). An invitee was someone who came on the property of another for the owner's benefit, such as a hunter paying a fee. A licensee entered the property of another with permission for the licensee's purpose or benefit (e.g., a social guest). In general, a landowner had no direct business interest with a licensee. A trespasser was someone who unlawfully entered the land of another (Garner, 2004). Another group of variables measured the degree of injury sustained by recreationalists — light injury, severe injury, or death; they were identified from the specific case descriptions. These variables were supposed to assess the actions of litigants (Spurr, 2000).

Third, on a similar basis, a dummy variable equaled one if fact disputes existed about the incidents. Another two dummy variables represented the land ownership: one for landowners with nonindustrial private forests (NIPF) and the other for landowners with forest businesses. Other landowner types were too diverse to be grouped, such as farmers and landowners in various businesses. Fourth, a set of variables were specified to capture the influence of different activity types on a court decision. Five dummy variables were used to represent several major recreational activities occurring in these cases — hunting, off-road vehicle, snowmobiling, boating; other activities with low frequencies were lumped together (e.g., biking, camping, climbing, fishing, hiking, skiing). Finally, a set of variables were constructed to capture spatial and temporal variations among these cases (Wenner & Dutter, 1988). For instance, the dummy South equaled one for a case if the incident occurred in one of the 13 Southern states. The dummy Entry 1970s equaled one if the incident occurred before 1980.

1. For conciseness, Courts of Appeals were used to represent state intermediate appellate courts and Supreme Courts were used to represent state courts of last resort in this study. Court names in individual states may vary widely (Council of State Governments, 2004). State intermediate appellate courts, for instance, are referred to as Court of Appeals in Ohio, Court of Civil Appeals in Alabama, Appellate Court in Connecticut, Superior Court in Pennsylvania, and Appellate Division of Supreme Court in New York. State courts of last resort, for instance, are referred to as Supreme Court in Mississippi, Supreme Court of Appeals in West Virginia, Supreme Judicial Court in Maine, and Court of Appeals in New York.

RESULTS

Corresponding to the methodology, this section has three parts: case characteristics from the legal case review, results from nonparametric duration analysis, and results from parametric duration analysis.

Case Characteristics

The legal database searches generated 103 cases related to the study objectives. Compared to the 637 cases in Wright et al. (2002), 58 cases were the same, 14 cases came after 2000 and were beyond their time coverage, and 31 cases were before 2000 but not covered. The means of variables used in the duration analysis were presented in Table I and they summarized these cases on an aggregate level. In Table II, case distribution for key characteristics was reported in detail and stratified by state.

TABLE II: SUMMARY OF 103 CASES BY MAJOR CASE CHARACTERISTICS AND STATE

State	Total	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Total	103	68A-6B-5C-3D-4E-17F	69	88	7A-81B-15C	3A-80B-20C	19	16	34
Alabama	5	4A-0B-0C-0D-0E-1F	0	4	1A-4B-0C	0A-3B-2C	0	1	0
Alaska	1	1A-0B-0C-0D-0E-0F	0	1	0A-1B-0C	0A-1B-0C	0	0	0
Arizona	3	0A-0B-0C-0D-0E-3F	3	3	2A-1B-0C	0A-3B-0C	2	0	1
California	9	7A-0B-0C-1D-0E-1F	7	8	0A-7B-2C	0A-8B-1C	2	1	3
Colorado	2	0A-0B-2C-0D-0E-0F	2	0	0A-2B-0C	0A-2B-0C	2	0	1
Idaho	3	3A-0B-0C-0D-0E-0F	0	3	0A-2B-1C	0A-1B-2C	0	0	1
Illinois	2	0A-0B-0C-0D-1E-1F	2	2	1A-1B-0C	0A-2B-0C	1	0	0
Indiana	2	2A-0B-0C-0D-0E-0F	2	2	0A-2B-0C	1A-1B-0C	0	1	0
Iowa	2	1A-0B-1C-0D-0E-0F	0	1	0A-1B-1C	0A-2B-0C	1	0	0
Louisiana	15	11A-0B-0C-1D-0E-3F	14	15	1A-10B-4C	2A-10B-3C	3	7	4
Maine	4	3A-0B-0C-0D-1E-0F	0	4	1A-3B-0C	0A-3B-1C	0	1	2
Michigan	5	4A-0B-0C-0D-1E-0F	2	4	0A-3B-2C	0A-2B-3C	0	1	1
Minnesota	3	2A-0B-1C-0D-0E-0F	1	2	0A-1B-2C	0A-2B-1C	0	0	0
Montana	1	1A-0B-0C-0D-0E-0F	0	1	0A-1B-0C	0A-0B-1C	0	0	1
Nevada	1	1A-0B-0C-0D-0E-0F	0	1	0A-1B-0C	0A-1B-0C	0	0	0
New Hampshire	3	2A-0B-0C-0D-0E-1F	1	3	1A-2B-0C	0A-3B-0C	0	0	2
New Jersey	1	1A-0B-0C-0D-0E-0F	1	1	0A-1B-0C	0A-1B-0C	0	0	0
New Mexico	1	0A-0B-0C-0D-0E-1F	1	1	0A-1B-0C	0A-1B-0C	1	0	1
New York	16	8A-6B-1C-1D-0E-0F	16	8	0A-15B-1C	0A-15B-1C	2	2	6
Ohio	3	2A-0B-0C-0D-0E-1F	3	3	0A-3B-0C	0A-3B-0C	1	0	1
Oregon	2	2A-0B-0C-0D-0E-0F	2	2	0A-2B-0C	0A-2B-0C	0	1	0
Pennsylvania	3	2A-0B-0C-0D-0E-1F	2	3	0A-3B-0C	0A-2B-1C	1	0	2
Tennessee	1	1A-0B-0C-0D-0E-0F	1	1	0A-0B-1C	0A-0B-1C	0	0	0
Texas	1	0A-0B-0C-0D-0E-1F	1	1	0A-1B-0C	0A-1B-0C	1	0	0
Utah	4	1A-0B-0C-0D-1E-2F	1	4	0A-3B-1C	0A-2B-2C	1	1	0
Washington	4	3A-0B-0C-0D-0E-1F	3	4	0A-4B-0C	0A-4B-0C	1	0	2
Wisconsin	6	6A-0B-0C-0D-0E-0F	4	6	0A-6B-0C	0A-5B-1C	0	0	6

(1) Court decision (A. Landowners prevailed affirmatively; B. Landowners prevailed on reversal; C. Recreationalists prevailed affirmatively; D. Recreationalists prevailed on reversal; E. Cases were remanded in favor of landowners; F. Cases were remanded in favor of recreationalists).
(2) Number of cases from Courts of Appeal.
(3) Number of cases recreationalists appealed.

(4) Status of recreationalists (A. Invitee; B. Licensee; C. Trespasser).
(5) Injury suffered by recreationalists (A. Light; B. Severe; C. Death).
(6) Number of cases with fact disputes.
(7) Number of cases with NIPF landowners;
(8) Number of cases with business landowners.

First, six kinds of court decisions were documented. Specifically, decisions were confirmed in the appellate courts with landowners prevailing in 68 cases and recreationalists prevailing in five cases. Court decisions were reversed with landowners prevailing in six cases and recreationalists prevailing in three cases. Court decisions were remanded for further proceedings in favor of landowners in four cases and in favor of recreationalists in 17 cases. Two censorship indicators were derived from these court decision categories. For the single event model, the mean of 0.796 reflected the treatment that 21 remanded cases out of 103 were right censored. For the competing risk model, there were 21 remanded cases, 74 cases for landowners prevailing, and 8 cases for recreationalists prevailing. As a result, the mean of the competing risk indicator was 0.874. In addition, the average time span for all the cases was 51.1 months, or four years and three months. Minimum duration was nine months and maximum was 116 months. This was consistent with the litigation duration literature that litigation was time consuming (Fenn & Rickman, 1999). More specifically, the duration was 48.9 months for 74 Event I cases, 56.3 months for eight Event II cases, and 49.6 months for 82 cases without censoring in the single event model. Case duration for recreationalists prevailing was much longer than that for landowners prevailing.

Overall, court decisions in these cases were favorable to landowners. Courts confirmed that landowners had no liability in 72% of these cases (i.e., 74/103). These cases, as a group, demonstrated that in general private landowners had limited liability, which was consistent with the findings in Wright et al. (2002). For example, in *Castille* v. *Chaisson* (1989), the parents of a minor who drowned in a pond during a hunting trip sued the landowner for negligence. The Court of Appeals in Louisiana held that the landowner had immunity from recreational use statute against tort liability and owed no duty to warn hunters of the existence of a man-made pond (*Castille*, 1989, p. 673). In contrast, in those cases where recreationalists prevailed, it was revealed that under some circumstances landowners might be liable for recreational incidents occurring on their land. Typical reasons in those cases were profit-motivated fee charging, defective materials or injury-causing conditions, or a lack of safety warning. For instance, in *Sauberan* v. *Ohl* (1997), the court in New York held that the landowner's improper conduct in

guiding the hunter to shoot at a target that the landowner could not see removed him from protection under recreational use statute (p. 659).

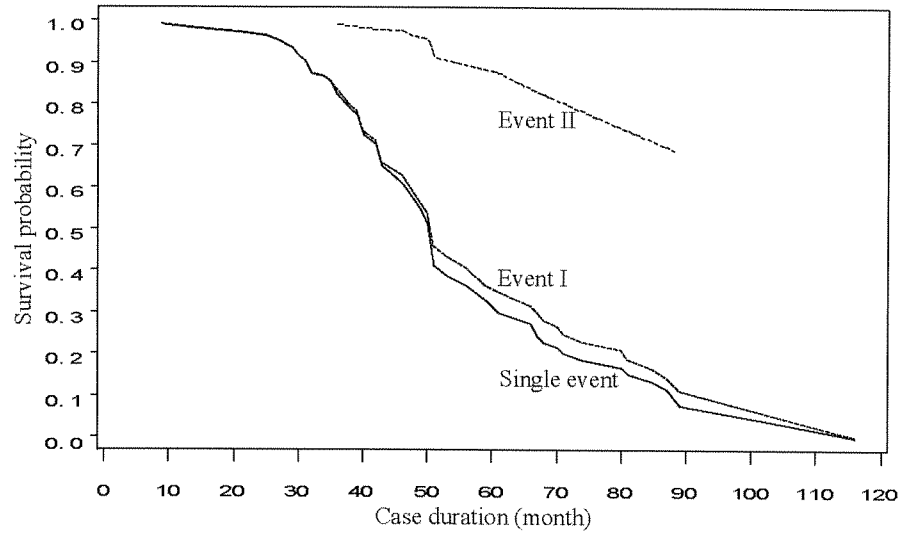
For independent variables, 69 of 103 cases (i.e., 67%) were from the Courts of Appeals while the rest were from the Supreme Courts. Most appellants (i.e., 85.4%) were recreational users while the rest were landowners. For the status of entry on land, 6.8% of recreationalists were classified as invitees, 78.6% as licensees, and 14.6% as trespassers. By degree of injury severity, litigants in 2.9% of the 103 cases sustained light injury, 77.7% severe injury, and 19.4% death. In addition, in 19 cases (i.e., 18.4%) there were disputes of facts related to the incidents. By type of land ownership, landowners held NIPF land in 16 cases; industrial land and forest businesses were involved in 34 cases.

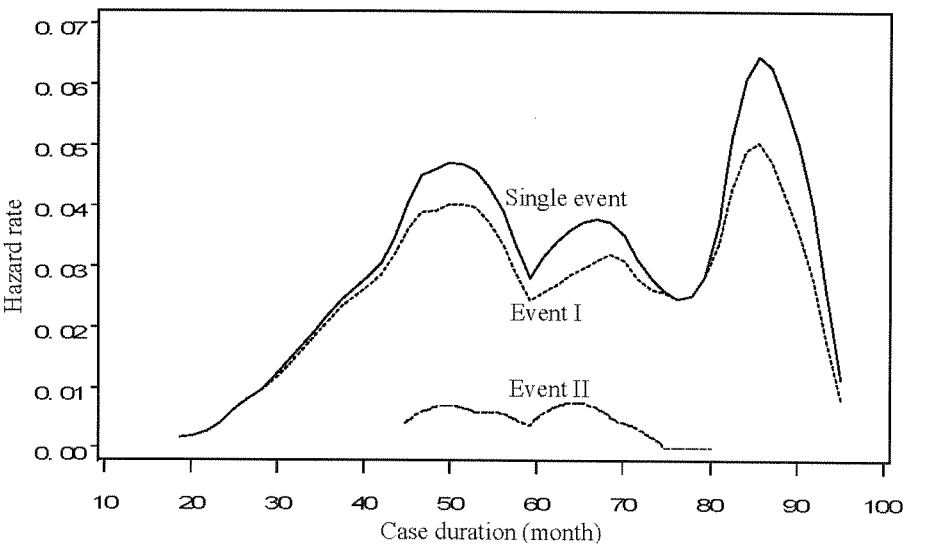
These cases covered a variety of activity types. Among the 103 cases, 19.4% were related to hunting, 26.2% off-road vehicles, 7.8% snowmobiling activities, and 4.9% boating. The rest (e.g., biking, camping, climbing, fishing, hiking, skiing) were too diverse to be classified into distinct types. By incident date, 11.7% occurred before 1980, 42.7% in the 1980s, 40.8% in the 1990s, and 4.9% after 2000. Finally, the 103 cases covered 27 states. New York had the most with 16 cases, followed by Louisiana with 15, California with nine, Wisconsin with six, and Alabama with five. Similarly, these states also had more cases for most of the characteristics summarized in Table II.

Results from Nonparametric Duration Analysis

In Figure I, survivor functions and hazard functions were presented for both the single event and competing risk models. The survivor function indicates the probability of an event time being greater than a specific time. The hazard function describes the instantaneous rate of an event occurring at a date, given that the event has lasted up to the date. The survival probability decreased as the litigation time span increased. The survivor function for the single event was the lowest among the three because the number of events was the largest. For Event I, its survivor curve was very close to that of the single event and they were virtually indistinguishable. For Event II, the survival rate was much higher over time than that of the single event and Event I because most cases in Event II were treated as censored. That was also consistent with the fact that Event II cases took a much longer time to finish, as revealed by the above average case duration.

FIGURE I: SURVIVOR AND HAZARD FUNCTIONS FROM NONPARAMETRIC DURATION ANALYSIS FOR THE SINGLE EVENT AND COMPETING RISK MODELS





For the single event model, the hazard function revealed that during the first 50 months, the probability of court decision had been increasing from 0 to 5%. Then, between the 50th and 80th month, the probability of court decision fluctuated around 4%. After that, the hazard curve had a small inverted-U shape with the peak rate of 6.5% at the 85th month. Similar to patterns of the survivor function, the hazard rate for Event I closely followed that of the single event. The hazard rate for Event II was much lower and varied, for the most part, around 0.5%. It should be emphasized that the number of non-censoring cases with Event II was small (i.e., 8/103) so the results might not be as reliable as those for the single event and Event I.

Results from the Wilcoxon rank test were compared among Event I, Event II, and the single event models (Table III). For the single event model, 10 of 24 variables showed significant effects at the 10% level or better. Longer time span of litigation was associated with the following case features: existence of fact disputes, off-road vehicle incidents, incidents in the 1980s, or incidents in Mid-West states. In contrast, shorter litigation was associated with the following features: final decisions at Courts of Appeals, involvement of NIPF landowners, hunting incidents, incidents in the 1990s or after 2000, or incidents in the Southern states. For the Event I model, the test generated results similar to those for the single event with two more case characteristics being significant: shorter duration for cases with the user as appellant or with snowmobiling incidents. For the Event II model, the tests were only significant for three variables. Users being appellants increased litigation time and the existence of fact dispute shortened the duration. The negative impact of Entry 1970s became significant.

TABLE III: RESULTS FROM UNIVARIATE NONPARAMETRIC WILCOXON RANK TESTS BY CASE CHARACTERISTICS FOR THE SINGLE EVENT AND COMPETING RISK MODELS

Variable	Single Event †		Event I		Event II	
	Statistic	χ^2	Statistic	χ^2	Statistic	χ^2
Court	-6.186	5.511[a]	-5.930	5.176[b]	-0.705	0.322
Appellant	-0.626	0.091	-3.335	3.183[c]	4.340	17.482[a]
Invitee	1.559	1.869	1.444	1.589	0.250	0.294
Licensee	-2.641	1.321	-2.449	1.157	-0.386	0.156
Trespasser	1.082	0.265	1.005	0.234	0.136	0.023
Light injury	-0.178	0.032	-0.247	0.062	0.110	0.124
Severe injury	-0.029	0.000	0.723	0.094	-1.489	2.239
Death	0.206	0.009	-0.476	0.045	1.379	2.056
Fact dispute	7.837	15.316[a]	10.426	34.507[a]	-4.165	12.171[a]
NIPF owners	-4.461	4.710[b]	-4.390	4.769[b]	-0.337	0.217
Business owners	-1.365	0.268	-1.404	0.288	0.570	0.229
Hunting	-5.756	7.530[a]	-5.520	7.313[a]	-0.824	0.877
Off-road vehicle	4.938	3.831[b]	4.428	3.129[c]	0.803	0.437
Snowmobiling	-2.055	2.220	-2.298	2.686[c]	0.520	0.734
Boating	0.636	0.265	0.368	0.085	0.584	0.819
Others	2.238	0.634	3.023	1.192	-1.084	0.787
Entry 1970s	-2.329	1.489	-1.481	0.665	-1.357	3.658[c]
Entry 1980s	9.895	12.840[a]	9.965	13.368[a]	0.186	0.025
Entry 1990s	-5.810	4.378[b]	-6.604	5.797[a]	0.948	0.767
Entry 2000s	-1.755	2.928[c]	-1.880	3.324[c]	0.222	0.263
West	0.968	0.190	0.491	0.050	0.440	0.199
Mid-West	5.169	7.500[a]	6.108	10.997[a]	-0.592	0.372
North	-2.395	0.712	-2.385	0.726	-0.166	0.017
South	-3.741	2.762[c]	-4.215	3.560[c]	0.318	0.116

† When a case had a final court decision, it was classified as the single event. These cases were further divided into two categories: Event I when landowners prevailed and Event II when recreationalists prevailed.

[a] Significant at the 1% level.

[b] Significant at the 5% level.

[c] Significant at the 10% level.

Results from Parametric Duration Analysis

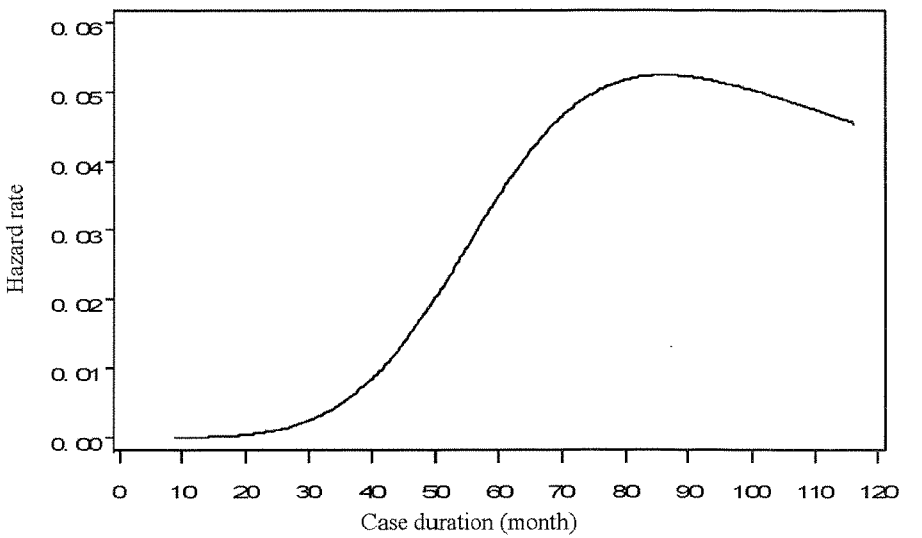
The parametric duration analyses were tried for both the single event and competing risk models. The model did not converge for Event II because of the large number of censoring cases. The results for Event I and the single event were similar. Therefore, the following presentation focuses on the model identification and empirical results for the single event — court decisions were treated as the same and no differentiation was made between landowners and recreationalists prevailing.

The log-logistic distribution turned out to have the best fit for the single event model based on several considerations. First, the estimated log-likelihood statistic was -98.446 for exponential, -38.652 for lognormal, -37.179 for Weibull, -36.508 for generalized Gamma, and -35.013 for log-

logistic. The likelihood ratio statistic between lognormal and generalized Gamma was 4.288 with a p value of 3.8%. So the log-normal distribution was rejected. Similarly, the exponential distribution was rejected. However, both the Weibull and log-logistic models could not be rejected at the 5% level of significance. Second, the number of significant variables also indicated the degree of model fit. The exponential distribution only had three significant variables at the 10% level or better while the estimates were similar across the other four distributions.

Finally, the estimated hazard curve by distribution was examined further to identify the best distribution. For the Weibull model, the estimated hazard rate increased monotonically with a growing rate. This was quite different from the pattern revealed from the nonparametric duration analysis in Figure I. The hazard curves from exponential, lognormal, and generalized Gamma distributions were not directly compatible with that in Figure I either. In contrast, the hazard curve from the log-logistic distribution (Figure II) followed the trend of the inverted-U shape. The hazard rate increased first and then decreased after the 80th month. In this regard, the log-logistic distribution had the best fit.

FIGURE II: ESTIMATED HAZARD RATE FROM THE PARAMETRIC DURATION ANALYSIS WITH LOG-LOGISTIC DISTRIBUTION FOR THE SINGLE EVENT MODEL



For the log-logistic distribution (Table IV), significant impacts on the litigation time span were found for nine variables — Court, Invitee, Trespasser, Light injury, Fact dispute, Entry 1970s, 1990s, 2000s, and South. Specifically, for cases from the Court of Appeals, litigation time was 13% shorter than that for the Supreme Courts cases. When recreationalists appealed, duration time was increased but the impact was not significant. For the status of entry, when recreationalists were classified as invitees or trespassers, the litigation time increased significantly. Compared to the base of licensees, the increase was 62% for invitees and 18% for trespassers. Whether there was any difference between invitee and trespasser could be evaluated by a Wald statistic (Allison, 1995). Alternatively, using trespassers as the new base to estimate the model again could achieve the same purpose. As a result, no statistically significant difference between invitees and trespassers was found. In addition, the degree of injury served as an approximation of the bargaining power of the plaintiff (i.e., recreational user). In contrast to the base of severe injury, cases with light injury had 64% longer litigation time while the difference was not significant for death. When using death as the base, cases with light injury had 60% longer litigation time span and the effect was significant at the 5% level.

TABLE IV: EMPIRICAL RESULTS OF PARAMETRIC DURATION ANALYSIS BY PROBABILITY DISTRIBUTIONS FOR THE SINGLE EVENT MODEL

	Log-logistic #			Weibull		Gamma	
Variable	Estimate	χ^2	Impact †	Estimate	χ^2	Estimate	χ^2
Intercept	4.147	637.86[a]		4.391	791.70[a]	4.286	526.26[a]
Court	-0.141	2.71[c]	-13%	-0.129	2.16	-0.132	2.26
Appellant	0.076	0.53		0.070	0.51	0.081	0.61
Invitee	0.483	4.14[b]	62%	0.524	2.95[c]	0.524	3.49[c]
Trespasser	0.163	2.51[b]	18%	0.175	2.60[c]	0.166	2.31
Light injury	0.496	6.04[a]	64%	0.505	4.98[b]	0.503	4.85[b]
Death	0.027	0.09		-0.072	0.48	-0.020	0.03
Fact dispute	0.407	13.47[a]	50%	0.392	10.09[a]	0.397	10.79[a]
NIPF owners	-0.161	1.64		-0.156	1.71	-0.176	1.88
Business owners	-0.106	1.56		-0.098	1.24	-0.096	1.15
Hunting	-0.149	1.56		-0.202	2.61[c]	-0.165	1.46
Off-road vehicle	-0.016	0.03		-0.040	0.20	-0.031	0.12
Snowmobiling	-0.090	0.34		0.063	0.21	0.020	0.02
Boating	0.193	1.02		0.152	0.71	0.162	0.71
Entry 1970s	-0.374	10.02[a]	-31%	-0.262	4.61[b]	-0.295	5.51[b]
Entry 1990s	-0.153	3.72[c]	-14%	-0.245	8.41[a]	-0.214	5.96[b]
Entry 2000s	-0.314	3.33[c]	-27%	-0.437	5.91[a]	-0.393	4.39[b]
West	-0.025	0.03		-0.165	1.31	-0.112	0.54
North	-0.062	0.26		-0.096	0.54	-0.087	0.45
South	-0.233	2.50[c]	-21%	-0.282	3.14[c]	-0.272	2.87[c]
Scale	0.182[b]			0.284[b]		0.310[b]	
Log-L	-35.013			-37.179		-36.508	

The estimates from lognormal were similar. They were not reported because of space constraint.

† The impact was computed for significant variables only and it was equal to $(\exp(\beta)-1)$ where β was the estimate.

[a] Significant at the 1% level.

[b] Significant at the 5% level.

[c] Significant at the 10% level.

Among the variables related to defendants, only the existence of fact disputes generated a significantly positive impact and increased litigation time by 50%. Both NIPF and forest business landowners might experience shorter litigation time but the impacts were not significant. Among various recreational activities, none showed any significant effects. When changing the base, cases with boating activities had a 41% longer duration than those with hunting and the effect was significant at the 10% level. Further, all three time variables were significant. The time span of litigation was 31% shorter for cases with the incident date before 1980, 14% shorter in the 1990s, and 27% shorter after 2000 than that in the 1980s. In addition, cases with the incident date in the 1990s also showed 25% longer duration than those before 1980. For spatial variables, only South was significant with a 21% shorter

duration compared to the base of the Mid-West. Cases in the South also had 19% shorter duration than cases in the West.

DISCUSSION AND CONCLUSION

Private landowners have been hesitant to open their land for public recreational use in fear of potential liability. In this study, the liability of recreational incidents on private landowners was examined through a case review and duration analysis. The review was conducted for published legal cases related to public access on private forest and rural land for recreational purposes. Furthermore, duration analysis was employed to analyze determinants of litigation time. The advantage of duration analysis was that it took into consideration the information of not only who prevailed in a lawsuit but also how much time was needed for the court to make a decision. The case review and statistical results disclosed interesting features of litigation related to recreational incidents on private land and several policy implications can be drawn.

The descriptive statistics and nonparametric analysis results revealed several patterns of these lawsuits. The landowners had no liability in 72% of these sample cases. The overall probability of liability on private landowners was lower than common perception, which was consistent with Wright et al. (2002). When landowners were liable, it was often when there were fact disputes, profit-motivated fee charging, or defective materials. Nonparametric analyses on the identified cases also revealed a remarkable pattern of the time span for litigation. The probability for a court to make a final decision increased during the first 50 months and then the probability fluctuated for about 30 months before an inverted-U shape occurred. Furthermore, although the competing risk model was less successful than the single event model, the nonparametric analysis still shed some light on the difference between the determinants of landowner prevailing and recreationalist prevailing. The major differences were that if recreationalists appealed, it took more time to end the litigation when recreationalists ultimately prevailed, but less time when landowners finally prevailed. Similarly, fact disputes reduced the litigation time for these cases with recreationalists prevailing, but increased the time for those with landowners prevailing.

The results from the parametric duration analysis about fact disputes potentially have the largest policy implication. Existing fact disputes could increase litigation time by 50%. For people with recreational incidents or litigants with ongoing lawsuits, this indicates that they should be prepared for a possibly lengthy process and the associated time cost. From a policy

perspective, reducing disputes (i.e., a lack of safety warning) related to recreational activities is critical because it can reduce the time cost if litigation occurs. In that regard, landowners should have written contracts with all necessary details to reduce the ambiguity for planned recreational activities on their land, especially when business interest or fee charging for profit is involved. Absentee landowners should also place appropriate property ownership signs around their land if they prefer to discourage trespassers.

Recreationalists as plaintiffs experienced quite different litigation time span, depending on whether they were invitees, licensees, or trespassers. The analysis revealed that licensees had the shortest litigation time span, compared to invitees and trespassers. The main difference between a licensee and an invitee was whether the landowner received any direct benefit from the recreationalist's entry (Garner, 2004). The key difference between a licensee and a trespasser was whether a recreationalist was permitted to use the property. Facts related to both benefit and permission might be hard to determine in some situations. These differences might have contributed to a longer litigation time span associated with invitees and trespassers. From a policy perspective, when there are recreational activities on private land, it is imperative that both landowners and recreationalists be clear if direct benefits to landowners are involved and permission to entry is allowed.

The degree of injury from recreational incidents also showed significant impact on the time span needed for litigation. Litigation time for incidents with severe injury was usually much shorter than incidents with light injury or death. Intuitively, one would expect that plaintiffs with severe injury were under more pressure to solve the disputes so they had limited time for negotiations. In contrast, when the injury was light or death occurred, litigants had more time to negotiate or wait for court decisions. This was consistent with the literature for other tort issues (Fenn & Rickman, 2001; Spurr, 2000). For future recreational activities, this result has limited policy value because no matter what the degree of injury is, a recreational incident is costly to both landowners and recreationalists and it should be avoided if at all possible. Nevertheless, for litigants in a recreational incident lawsuit, the result does imply that the degree of injury may influence their action, and consequently, either increase or decrease the time needed for the lawsuit.

Several other factors had significant effects on the time span for litigation but they do not suggest viable policy venues. Litigation time span was 13% shorter for cases from Courts of Appeals than Supreme Courts cases. The time span of litigation also showed varying degree of differences when these published cases were classified by recreational activity type, incident date, and region. These differences may be related to the diversity of the legal

environment at individual states that were unable to be separately measured in this study.

In summary, as the first study that employed case review and duration analysis to analyze recreational incidents, the results are helpful to understand the liability concern and time span of litigation faced by private landowners and recreationalists. However, it should be noted that the findings were based on published cases related to recreational incidents on private land. For future studies, when more comprehensive datasets are available (including these settled cases), the strategic interactions among litigants and the impact of specific recreational use statutes can also be examined. In addition, private forest and rural land was the focus in this study. The liability of recreational incidents on public landowners and governmental entities also merits a separate investigation.

ABOUT THE AUTHORS

XIANCHUN LIAO is a Postdoctoral Research Associate at Mississippi State University. He holds a Doctorate from Auburn University. His research interests include recreational liability on forest landowners.

CHANGYOU SUN is Associate Professor of Forest Policy and Economics at Mississippi State University. He holds a Masters and Doctorate from Auburn University. He teaches natural resource policy and forestry law. His research interests include liability on forest landowners from recreational activities and legal environment of various forestry-related issues.

W. DARYL JONES is Associate Extension Professor at Mississippi State University. He holds a Doctorate from Mississippi State University. His research interests include fee hunting on forest land and liability issues for landowners.

SANGITA POKHAREL is a former graduate student at Mississippi State University.

REFERENCES

Allison, P.D. (1995). *Survival analysis using SAS: A practical guide.* Cary, North Carolina: SAS.

Becker, J. (1991). Landowner or occupier liability for personal injuries and recreational use statutes: How effective is the protection? *Indiana Law Review*, *24*(5), 1587-1613.

Benson, D.E. (2001). Wildlife and recreation management on private lands in the United States. *Wildlife Society Bulletin*, *29*(1), 359-371.

Carroll, M.S., Connaughton, D., & Spengler, J.O. (2007). Recreational user statutes and landowner immunity: A comparison study of state legislation. *Journal of Legal Aspects of Sport*, *17*(2), 163-191.

Castille v. Chaisson, 544 So.2d 670 (La. Ct. App. 1989).

Clement, A., & Otto, K.A. (2007). Headfirst aquatic incident court decisions: The plaintiff's odds. *Journal of Legal Aspects of Sport*, *17*(1), 107-135.

Cooter, R., & Ulen, T. (2000). *Law and economics*. New York: Addison Wesley Longman.

Council of State Governments (2004). *The book of the states 2004*. Lexington, Kentucky: The Council of State Governments.

Fenn, P., & Rickman, N. (1999). Delay and settlement in litigation. *The Economic Journal*, *109*(457), 476-491.

Fenn, P., & Rickman, N. (2001). Asymmetric information and the settlement of insurance claims. *The Journal of Risk and Insurance*, *68*(4), 615-630.

Fournier, G.M., & Zuehlke, T.W. (1996). The timing of out-of-court settlements. *Rand Journal of Economics*, *27*(2), 310-321.

Gabbidon, S.L., Patrick, P.A., & Peterson, S.A. (2006). An empirical assessment of employee theft lawsuits involving allegations of employer misconduct. *Journal of Criminal Justice*, *34*(2), 175-183.

Garner, B.A. (Ed.) (2004). *Black's law dictionary* (8th ed.). St. Paul, MN: West Publishing.

Hughes, J.W., & Savoca, E. (1997). Measuring the effect of legal reforms on the longevity of medical malpractice claims. *International Review of Law and Economics*, *17*(2), 261-273.

Jones, W.D., Munn, I.A., Grado, S.C., & Jones, J.C. (2001). *Fee hunting: An income source for Mississippi's non-industrial private landowners*. Mississippi State, Mississippi: Mississippi State University.

Kaiser, R. (1986). *Liability and law in recreation, parks and sports*. Englewood Cliffs, New Jersey: Prentice-Hall.

Kessler, D. (1996). Institutional causes of delay in the settlement of legal disputes. *The Journal of Law, Economics, and Organization*, *12*(2), 432-460.

Kleinbaum, D.G., & Klein, M. (2005). *Survival analysis: A self-learning text.* New York: Springer Science.

Lee, R.D. (1995). Recreational use statutes and private property in the 1990s. *Journal of Park and Recreation Administration*, *13*(3), 71-83.

Lydiatt, D.D. (2004). Medical malpractice and cancer of the skin. *American Journal of Surgery*, *187*(6), 688-694.

Mersky, R.M., & Dunn, D.J. (2002). *Fundamentals of legal research.* New York: Foundation Press.

Neese, W.T., Ferrell, L., & Ferrell, O.C. (2005). An analysis of federal mail and wire fraud cases related to marketing. *Journal of Business Research*, *58*(7), 910-918.

Posner, R. (1973). An economic approach to legal procedure and judicial administration. *Journal of Legal Studies*, *2*(2), 399-458.

Priest, G.L. (1989). Private litigants and the court congestion problem. *Boston University Law Review*, *69*(2), 527-529.

SAS Institute (2004). *SAS/STAT 9.1 user's guide.* Gary, North Carolina: SAS Institute.

Sauberan v. Ohl, 659 N.Y.S.2d 658 (N.Y. App. Div. 1997).

Smith, J.L., & Tiller, E.H. (2002). The strategy of judging: Evidence from administrative law. *Journal of Legal Studies*, *31*(1), 61-82.

Spengler, J.O., & Connaughton, D.P. (2003). A quantitative approach to assessing legal outcomes in reported sport and recreation negligence cases involving assumption of risk. *Entertainment Law*, *2*(3), 112-129.

Spurr, S.J. (1997). The duration of litigation. *Law & Policy*, *19*(3), 285-315.

Spurr, S.J. (2000). The duration of personal injury litigation. *Research in Law and Economics*, *19*(1), 223-246.

Teasley, R.J., Bergstorm, J.C., Cordell, H.K., Zarnoch, S.J., & Gentle, P. (1999). Private lands and outdoor recreation in the United States. In H. K. Cordell, C. Betz, and J. M. Bowker (Eds.), *Outdoor recreation in American life: A national assessment of demand and supply trends.* Champaign, Illinois: Sagamore.

Wenner, L.M., & Dutter, L.E. (1988). Contextual influences on court outcomes. *Western Political Quarterly*, *41*(1), 115-134.

Wright, B.A., Kaiser, R.A., & Nicholls, S. (2002). Rural landowner liability for recreational injuries: Myths, perceptions, and realities. *Journal of Soil and Water Conservation, 57*(3), 183-191.

APPENDIX

CASES RELATED TO RECREATIONAL INCIDENT LIABILITY ON PRIVATE FOREST AND RURAL LAND ($N = 103$)

Alabama

Dobbs v. Alabama Power Co., 549 So.2d 35 (Ala. 1989)

Driskill v. Alabama Power Co., 374 So.2d 265 (Ala. 1979)

Hall v. Booth, 423 So.2d 184 (Ala. 1982)

Owens v. Grant, 569 So.2d 707 (Ala. 1990)

Wright v. Alabama Power Co., 355 So.2d 322 (Ala. 1978)

Alaska

Brock v. Rogers and Babler Inc., 536 P.2d 778 (Alaska 1975)

Arizona

Bothell v. Two Point Acres Inc., 965 P.2d 47 (Ariz. Ct. App. 1998)

Newman v. Sun Valley Crushing Co., 844 P.2d 623 (Ariz. Ct. App. 1992)

Stramka v. Salt River Recreation Inc., 877 P.2d 1339 (Ariz. Ct. App. 1994)

California

Charpentier v. Von Geldern, 236 Cal. Rptr. 233 (Cal. Ct. App. 1987)

Danieley v. Goldmine Ski Associates Inc., 266 Cal. Rptr. 749 (Cal. Ct. App. 1990)

Freitas v. J.G.Boswell Co., 233 Cal. Rptr. 544 (Cal. Ct. App. 1987)

Hubbard v. Brown, 785 P.2d 1183 (Cal. 1990)

Johnson v. Unocal Corp., 26 Cal. Rptr. 2d 148 (Cal. Ct. App. 1993)

Nazar v. Rodeffer, 229 Cal. Rptr. 209 (Cal. Ct. App. 1986)

Ornelas v. Randolph, 847 P.2d 560 (Cal. 1993)

Parish v. Lloyd, 147 Cal. Rptr. 431 (Cal. Ct. App. 1978)

Shipman v. Boething Treeland Farms Inc., 92 Cal. Rptr. 2d 566 (Cal. Ct. App. 2000)

Colorado

Rimkus v. Northwest Colorado Ski Corp., 706 F.2d 1060 (10th Cir. 1983)
Rosen v. LTV Recreational Development Inc., 569 F.2d 1117 (10th Cir. 1978)

Idaho

Johnson v. Sunshine Min. Co. Inc., 684 P.2d 268 (Idaho 1984)
Northcutt v. Sun Valley Co., 787 P.2d 1159 (Idaho 1990)
Rice v. Miniver, 739 P.2d 368 (Idaho 1987)

Illinois

Mitchell v. Waddell, 544 N.E.2d 1261 (Ill. App. Ct. 1989)
Snyder v. Olmstead, 634 N.E.2d 756 (Ill. App. Ct. 1994)

Indiana

Cunningham v. Bakker Produce Inc., 712 N.E.2d 1002 (Ind. Ct. App. 1999)
Schwartz v. Zent, 448 N.E.2d 38 (Ind. Ct. App. 1983)

Iowa

Peterson v. Schwertley, 460 N.W.2d 469 (Iowa 1990)
Scott v. Wright, 486 N.W.2d 40 (Iowa 1992)

Louisiana

Castille v. Chaisson, 544 So.2d 670 (La. Ct. App. 1989)
Cooper v. Cooper, 786 So.2d 240 (La. Ct. App. 2001)
Craig v. Sepulvado, 709 So.2d 229 (La. Ct. App. 1998)
Dartez v. Western World Ins. Co., 569 So.2d 1089 (La. Ct. App. 1990)
Dear v. Crosby Chemicals Inc., 670 So.2d 775 (La. Ct. App. 1996)
Domingue v. Stanley, 784 So.2d 844 (La. Ct. App. 2001)
Ebarb v. Guinn Bros. Inc., 691 So. 2d 228 (La. Ct. App. 1997)
Ermert v. Hartford Ins. Co., 559 So.2d 467 (La. 1990)
Johnson v. Lloyd's of London, 653 So.2d 226 (La. Ct. App. 1995)

Jones v. Briley, 593 So.2d 391 (La. Ct. App. 1991)

Matherne v. Cheramie, 664 So.2d 130 (La. Ct. App. 1995)

Reed v. Employers Mutual Casualty Co., 741 So.2d 1285 (La. Ct. App. 1999)

Richard v. Hall, 843 So.2d 433 (La. Ct. App. 2003)

Verdin v. Louisiana Land and Exploration Co., 693 So.2d 162 (La. Ct. App. 1997)

Ward v. Hermitage Insurance Co., 671 So.2d 1229 (La. Ct. App. 1996)

Maine

Dickinson v. Clark, 767 A.2d 303 (Me. 2001)

Hafford v. Great Northern Nekoosa Corp., 687 A.2d 967 (Me. 1996)

Robbins v. Great Northern Paper Co., 557 A.2d 614 (Me. 1989)

Stanley v. Tilcon Maine Inc., 541 A.2d 951 (Me. 1988)

Michigan

Ellsworth v. Highland Lakes Development Associates, 498 N.W.2d 5 (Mich. Ct. App. 1993)

Heider v. Michigan Sugar Co., 134 N.W.2d 637 (Mich. 1965)

Hill v. Guy, 411 N.W.2d 757 (Mich. Ct. App. 1987)

Kruse v. Iron Range Snowmobile Club, 890 F. Supp. 681 (D. Mich. 1995)

Neal v. Wilkes, 685 N.W.2d 648 (Mich. 2004)

Minnesota

Hammerlind v. Clear Lake Star Factory Skydiver's Club, 258 N.W.2d 590 (Minn. 1977)

Hughes v. Quarve & Anderson Co., 338 N.W.2d 422 (Minn. 1983)

Watters v. Buckbee Mears Co., 354 N.W.2d 848 (Minn. Ct. App. 1984)

Montana

Saari v. Winter Sports Inc., 64 P.3d 1038 (Mont. 2003)

Nevada

Boland v. Nevada Rock and Sand Co., 894 P.2d 988 (Nev. 1995)

New Hampshire

Hardy v. Loon Mountain Recreation Corp., 276 F.3d 18 (1st Cir. 2002)

Lorette v. Peter-Sam Inv. Properties, 665 A.2d 341 (N.H. 1995)

Soraghan v. Mt. Cranmore Ski Resort Inc., 881 A.2d 693 (N.H. 2005)

New Jersey

Labree v. Millville Mfg. Inc., 195 N.J. Super. 575 (N.J. 1984)

New Mexico

Lopez v. Ski Apache Resort, 836 P.2d 648 (N.M. Ct. App. 1992)

New York

Albright v. Metz, 635 N.Y.S.2d 331 (N.Y. App. Div. 1995)

Bellone v. J.R. Shooting Preserve Inc., 597 N.Y.S.2d 78 (N.Y. App. Div. 1993)

Bowles v. Kawasaki Motor Corp., 582 N.Y.S.2d 881 (N.Y. App. Div. 1992)

Cometti v. Hunter Mountain Festival Ltd., 660 N.Y.S.2d 511 (N.Y. App. Div. 1997)

Dean v. Glens Falls Country Club Inc., 566 N.Y.S.2d 104 (N.Y. App. Div. 1991)

Hoffman v. Joseph R. Wunderlich Inc., 539 N.Y.S.2d 107 (N.Y. App. Div. 1989)

Jarvis v. Eastman, 609 N.Y.S.2d 683 (N.Y. App. Div. 1994)

Jacobs v. Northeastern Indus. Park Inc., 581 N.Y.S.2d 366 (N.Y. App. Div. 1992)

Larini v. Biomass Industries Inc., 918 F.2d 1046 (2nd Cir. 1990)

McCarthy v. Handel, 746 N.Y.S.2d 209 (N.Y. App. Div. 2002)

Olson v. Brunner, 689 N.Y.S.2d 833 (N.Y. App. Div. 1999)

Rankin v. Harding, 594 N.Y.S.2d 910 (N.Y. App. Div. 1993)

Reid v. Kawasaki Motor Corp., 592 N.Y.S.2d 496 (N.Y. App. Div. 1993)

Rzeczkowski v. Kowalczik, 654 N.Y.S.2d 816 (N.Y. App. Div. 1997)

Sauberan v. Ohl, 659 N.Y.S.2d 658 (N.Y. App. Div. 1997)

Schoonmaker v. Ridge Runners Club 99 Inc., 500 N.Y.S.2d 562 (N.Y. App. Div. 1986)

Ohio

Crabtree v. Shultz, 384 N.E.2d 1294 (Ohio Ct. App. 1977)

Seeholzer v. Kellstone Inc., 610 N.E.2d 594 (Ohio Ct. App. 1992)

Stiner v. Dechant, 683 N.E.2d 26 (Ohio Ct. App. 1996)

Oregon

Conant v. Stroup, 51 P.3d 1263 (Ore. Ct. App. 2002)

Odneal v. Arlint, 919 P.2d 508 (Ore. Ct. App. 1996)

Pennsylvania

Baran v. Pagnotti Enterprises Inc., 586 A.2d 978 (Pa. Super. Ct. 1991)

Burke v. Ski America Inc., 940 F.2d 95 (4th Cir. 1991)

Smith v. Seven Springs Farm Inc., 716 F.2d 1002 (3rd Cir. 1983)

Tennessee

Bishop v. Beckner, 109 S.W.3d 725 (Tenn. Ct. App. 2002)

Texas

McMillan v. Parker, 910 S.W.2d 616 (Tex. App. 1995)

Utah

Golding v. Ashley Cent Irr. Co., 793 P.2d 897 (Utah 1990)

Crawford v. Tilley, 780 P.2d 1248 (Utah 1989)

Loosli v. Kennecott Copper Corp., 849 P.2d 624 (Utah Ct. App. 1993)

Perrine v. Kennecott Min. Corp., 911 P.2d 1290 (Utah 1996)

Washington

Ravenscroft v. Washington Water Power Co., 969 P.2d 75 (Wash. 1998)

Tennyson v. Plum Creek Timber Co., 872 P.2d 524 (Wash. Ct. App. 1994)

Trevino v. Pacificorp, 109 Wn. App. 1053 (Wash. Ct. App. 2001)

Widman v. Johnson, 912 P.2d 1095 (Wash. Ct. App. 1996)

Wisconsin

Held v. Ackerville Snowmobile Club Inc., 730 N.W.2d 428 (Wis. Ct. App. 2007)

Leu v. Price County Snowmobile Trail Ass'n Inc., 695 N.W.2d 889 (Wis. Ct. App. 2005)

Peterson v. Midwest Sec. Ins. Co., 617 N.W.2d 876 (Wis. Ct. App. 2000)

Smith v. Sno Eagles Snowmobile Club Inc., 823 F.2d 1193 (7th Cir. 1987)

Szarzynski v. YMCA Camp Minikani, 517 N.W.2d 135 (Wis. 1994)

Verdoljak v. Mosinee Paper Co., 547 N.W.2d 602 (Wis. 1996)