

INFLUENCE OF INSTITUTIONAL CHANGE ON LANDOWNER WILLINGNESS TO ALLOW FEE-BASED RECREATION IN THE LOUISIANA DELTA

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Abstract

The willingness of landowners to allow fee-based recreational use of their land was investigated using data obtained from a mailed questionnaire sent to landowners in the Delta region of Louisiana. Previous studies have identified that landowners often chose not to engage in recreational leasing due to liability concerns. An institutional change that reduces liability risk to landowners may increase the amount of private land available for public recreation. Also, owners of marginal agricultural land may be more willing to consider alternative land uses such as fee-based recreation. Probit models are used to examine the yes/no decision to allow fee-based recreation pre- and post-institutional change.

About 14% of landowners indicated that they would be willing to allow fee-based recreation under the current institutional environment. If the Louisiana recreational use statute was amended giving greater liability protection to landowners, the number of landowners willing to allow fee-based recreation on their lands would increase to nearly 24%. Clearly, an institutional change that reduces liability risk to landowners can increase the potential amount of private land that could be used for fee-based recreation. Owners of marginal land were particularly responsive to an institutional change providing greater liability protection. Risk-averse landowners were more unlikely to allow fee-based recreation under the current institutional environment. Following an institutional change it was observed that risk preference was no longer a significant predictor of the willingness to allow fee-based recreation indicating that the element of risk was diminished.

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Introduction

Recreational hunting, fishing, and wildlife watching opportunities on private land for public use may be a possible way to provide income to landowners in the Louisiana Delta and restore marginal lands as a contributor to the local economy. However, generating additional income for landowners by allowing recreational activities brings with it the possibility of legal action as landowners may be sued if bodily injury results to a recreational user of the property (Copeland 1998). State legislatures have passed recreational use statutes designed to encourage landowners to allow recreational use of their land by offering immunity from lawsuits related to accidental injury (Copeland 1998). Most state recreational use statutes insulate landowners from liability if access is granted without a charge. However, there are an increasing number of states allowing landowners to charge a fee and retain liability protection (Wright 1989, Wright et al. 2002). Today all 50 states have adopted recreational use statutes that are intended to encourage landowners to make their lands available for public recreational use by providing greater liability protection to the landowner (Wright et al. 2002).

Even with the liability protection afforded to landowners by state recreational use statutes, there remains a significant gap between landowners' perceptions regarding liability and the reality of liability (Wright et al. 2002). In their survey of recreation use statutes, Wright et al. (2002) observed that researchers have clearly identified that landowners are concerned about liability but have only documented that it is perceived as a problem. Wright et al. (2002) indicated that a better understanding is needed of how liability and various other disincentives collectively influence landowners' access decisions. Mozumder et al. (2004) suggested that the necessary institutions for hunters and landowners may not be in place to promote recreational leasing, and that institutional changes that facilitate more exchanges would shift the supply curve outward. The effects of institutional change on landowner leasing behavior can be explored by asking if landowners would allow recreational access and/or leasing if liability was limited by state law. The Louisiana recreational use statute (La. R.S. § 9:2791) does not extend liability protection if a fee is charged for access. It would be interesting to see how landowner leasing policies may change by expanding the liability protection of recreational use statutes to allow the charging of a fee intended to generate a return to the landowner. Investigating the effect of such an institutional change can provide insights into landowner leasing behavior and possible effects on the supply of available recreational land.

The primary objectives of this study are to understand how landowners' attitudes and perceptions about recreation, liability, and other possible disincentives collectively influence landowner access decisions, and how institutional change might stimulate public recreational access to private land. Using survey data and econometric techniques, this study will seek to identify land and landowner characteristics that may have a positive or negative effect on a landowner's probability of choosing to offer fee-based recreation.

Methods and Data

This study utilizes primary data obtained from a mail survey questionnaire developed according to the tailored design method (Dillman 2000) and sent to agricultural landowners in the Delta region of Louisiana. Questions focused on current land uses, landowner access policies, and landowner attitudes and perceptions regarding the potential for allowing fee-based recreational access. Landowners were also asked to indicate their knowledge of the Louisiana recreational use statute and how possible changes in the use statute would impact their access policies. Additional questions addressed land tenure, usage, and landowner demographics.

One factor that may influence the behavior of landowners regarding fee based recreation is that of risk preference, given that there is an inherent element of risk associated with recreation and liability. A common method used to elicit risk preference is that of direct risk preference elicitation. A study by Fausti and Gillespie (2006) compared mail survey results for five commonly used methods to elicit risk preference and examined the consistency of the elicitation procedures. Fausti and Gillespie (2006) noted that a simpler elicitation method (such as the self-rank risk preference question) performs relatively well and may be a better choice for elicitation of risk when mail survey respondents are not offered rewards or incentives for spending time to correctly answer questions. The mail survey instrument used in this study attempted to assess landowner risk preference by using a self-rank risk preference elicitation method that asked respondents to indicate if they tend to avoid, take on, or neither seek nor avoid risk in their investment decisions. Possible landowner concerns over the risk of liability associated with allowing recreational access necessitates an assessment of landowner risk preference. Information on landowner risk preference may be a useful variable in understanding recreational access decisions.

Analysis of possible relationships between dependent and independent variables was investigated using qualitative choice models. When a dependent variable involves only two values, a Binary Probit model can be used to examine how various independent variables (X_i) influence the probability of observing a certain outcome ($Y_i=1, 0$ otherwise) in a binomial dependent variable (Franses and Paap 2001). The yes or no response to allow fee-based recreational access and the influence of independent variables on the probability of that decision was examined using a Binary Probit model. A second Binary Probit model was used to examine the access decision following a hypothetical institutional change. This was examined using responses to a second access question that included a hypothetical scenario involving a proposed amendment to the Louisiana recreational use statute that would allow landowners to charge a fee for recreational access while retaining liability protection.

Results

The survey response rate was 26.9%. More than half of respondents have allowed individuals outside of their immediate households to use their land for recreational purposes; however, such access was not commonly allowed for individuals that landowners do not know personally. Just over 10% of landowners have allowed recreational access to individuals they do not know personally, and only 11.2% have accepted money to allow recreational use of their land.

The vast majority of respondents indicated that they are very concerned about the liability issues associated with allowing people on their land. This concern may explain in part why so few landowners have allowed recreational access to individuals they do not know personally. However, when asked if their liability concerns were eased would they be more inclined to allow recreational access, 36% of landowners indicated that they either somewhat or strongly agreed. This indicates that an institutional change may increase recreational access to private lands. However, over 40% respondents either somewhat or strongly disagreed with allowing recreational access if their liability concerns were eased. This suggested that liability concern may not be a major factor in the decision not to allow recreational access for some landowners. The results indicated that there exists a clear need for more landowner education on land access and liability. When it came to having knowledge of liability and legal issues, the vast majority of respondents either do not know or are unsure about matters regarding written agreements between landowners and land entrants, posting of “no trespassing” signs, state recreational use statute, and the availability of liability insurance for fee-based recreation.

Another possible factor that may influence the decision to allow fee-based recreation is that of risk preference. Allowing recreational use of land introduces the risk associated with liability, and over 70% of respondents indicate that they are risk averse and that they tend to avoid risk in their financial decisions. The implications are that many landowners may choose not to allow fee-based recreation because of the liability risk, but it may also indicate that an institutional change reducing landowner liability may increase landowner willingness to allow fee-based recreation.

Fee-based recreation may be more attractive to respondents owning marginal agricultural land. Respondents considered 33.3% of their lands to be marginal for agricultural purposes. There seems to be potential for developing such opportunities as results indicate a high volume of marginal land. About 80% of respondents described their marginal land as forest or wooded areas, which would be ideal for certain types of wildlife associated fee-based recreation. When landowners were asked if they would be willing to allow fee-based recreation on their land, 14.1% of landowners said yes. When landowners were presented with a hypothetical scenario describing a change to the recreational use statute that would allow them to charge a fee for recreational access and keep the liability protection afforded to free access landowners, 24% of landowners indicated a willingness to allow access, a 70% increase. Clearly, an institutional change that reduces the liability risk to landowners can increase the potential amount of private land that could be used for fee-based recreation. The average amount of land that landowners would be willing to use for fee-based recreation was 256.6 acres. So under the current Louisiana recreational use statute or with a modification to the recreational use statute, the potential exists to make available a sizable amount land for public fee-based recreational use.

The level of participation in government conservation programs was high, as indicated by 60% of respondents. This suggests that Louisiana Delta landowners may be willing to adopt non-agricultural uses of their land, such as fee-based recreation. While most landowners are single owners, 37% of landowners indicated they owned land jointly. Such joint owners of land responding to the survey may not be comfortable with allowing fee-based recreation since they may lack autonomy in the decision process. In addition, there may be costs involved such as the cost of having to deal with their co-owners, such as the cost of bargaining and negotiating.

Alternative land uses may also not be as attractive to individuals that purchased land, which was indicated by over 55% of respondents, with the assumption that they purchased the land for some specific purpose or use in mind. However, 46% of respondents indicated that they acquired land through inheritance and may be more inclined to consider alternative uses. Also, agricultural production of row crops was indicated by 57.4% of respondents. This may suggest that landowners might be willing to consider alternative land uses, since over 40% are not using their land for agriculture.

Probit models were used to analyze the probability of the yes/no decision to allow fee-based recreation under both the current and modified recreational use statutes for Louisiana. The dependent and independent variables, based on survey responses, used in the Probit models are described and their mean and standard deviation values presented in Table 1. Probit parameter estimates and marginal effects for the decision to allow fee-based recreational access under the current Louisiana recreational use statute are presented in Table 2. Probit parameter estimates for the decision to allow fee-based recreational access under a modified Louisiana recreational use statute are presented in Table 3.

Discussion

The potential effect of easing liability concern of landowners was a very significant predictor for the probability to allow fee-based recreation whether pre- or post-institutional change. This is represented by the two variables that indicate if landowners disagree (CONCERNEASED2) or agree (CONCERNEASED3) with allowing recreational use of their land if their liability concerns were eased. This provided a very consistent theme for both Probit models where if landowners disagreed the effect was negative and if they agreed the effect was positive for the decision to allow recreational access. For many landowners the reason they chose not to allow fee-based recreational access is not related to liability concern.

As for the positive effect of CONCERNEASED3 (i.e., agree with allowing recreational use of their land if their liability concerns were eased) and its significance in both Probit models, one would expect the magnitude of the positive effect to be greater in the post institutional change model, since the liability risk would be lower for landowners under the post-institutional change environment relative to the pre-institutional change conditions. This appears to be true. In the pre- and post-institutional change models, the probabilities of allowing fee-based recreation increase from 6.9% to 11.9%. This reflects the responsiveness of landowners to an institutional change, meaning that landowners would be much more likely to allow fee-based recreation following an institutional change that reduces their liability concerns.

The element of risk is inherent in allowing fee-based recreation. This risk exists as liability with the ever looming potential of a lawsuit, which can be a potentially powerful disincentive to a landowner depending on how a landowner perceives risk. The influence of risk preference was represented in the Probit models by the two dummy variables of RISKPREFERENCE1, indicating risk seeking behavior, and RISKPREFERENCE2, indicating risk aversion. Given that the risk is far greater under the current institutional arrangements, it is not surprising that the

Table 1. Description of variables used in Probit models and mean and stand deviation of survey responses by variable

Variable	Description	Mean	Std. Dev.
ACCESSCUR	Access allow under current RUS (1=yes)	0.141	0.348
ACCESSAMEND	Access allow under amended RUS (1=yes)	0.237	0.426
PERSONALUSE	Land is used for personal recreational use (1=yes)	0.588	0.493
FRIENDSFAMILY	Land is used for recreation by family or friends (1=yes)	0.563	0.496
LEASEDREC	Land has been leased for recreational use (1=yes)	0.112	0.316
LIABILITYCONCERN2	Liability concern over recreational use, disagree (1=yes)	0.106	0.308
LIABILITYCONCERN1	Liability concern over recreational use, not sure (1=yes)	0.090	0.287
LIABILITYCONCERN3	Liability concern over recreational use, agree (1=yes)	0.799	0.401
WRITTENAGREE2	Written agreement protects from liability, disagree (1=yes)	0.250	0.433
WRITTENAGREE1	Written agreement protects from liability, not sure (1=yes)	0.400	0.490
WRITTENAGREE3	Written agreement protects from liability, agree (1=yes)	0.343	0.475
CONCERNEASED2	Liability concern eased, allow recreation, disagree (1=yes)	0.405	0.491
CONCERNEASED1	Liability concern eased, allow recreation, not sure (1=yes)	0.220	0.415
CONCERNEASED3	Liability concern eased, allow recreation, agree (1=yes)	0.369	0.483
NOTRESSPASS	Protection from liability requires me to post, unsure (1=yes)	0.464	0.499
RUSPROTECTS	Protected from recreational liability if free, unsure (1=yes)	0.661	0.474
INSURACEKNOW	Insurance exists for allowing recreation, unsure (1=yes)	0.618	0.486
RISKPREFERENCE1	substantial levels of risk in my financial decisions (1=yes)	0.073	0.260
RISKPREFERENCE2	I tend to avoid risk in my financial decisions (1=yes)	0.754	0.431
RISKPREFERENCE3	I neither seek nor avoid risk in financial decisions (1=yes)	0.158	0.365
MARGINALLAND	Any land "marginal" for agricultural purposes? (1=yes)	0.446	0.497
MARGINALACRES	Number of acres marginal for agricultural purposes	46.283	127.649
LANDOWNERCOOPER	Ever worked with your adjacent or local landowners (1=yes)	0.258	0.438
COOPERATIVE	Ever been involved with a cooperative (1=yes)	0.141	0.349
CONSERVATION	Enrolled land in a government conservation program (1=yes)	0.447	0.498
TRACTS	Number of separate tracts of non-residential land	2.066	2.077
ADJACENT	Non-residential land adjacent to primary residence (1=yes)	0.432	0.496
DISTANCE	Number of miles to nearest tract of land	70.319	238.110
TOTALACREAGE	Total acreage of all tracts of land	324.809	634.085
YEARSOWNERSHIP	Number of years you have been a land owner	28.010	22.637
OWNERSHIP1	Ownership of land organized as corporation (1=yes)	0.011	0.105
OWNERSHIP2	Ownership of land organized as LLC (1=yes)	0.034	0.181
OWNERSHIP3	Ownership of land organized as joint ownership (1=yes)	0.369	0.483
OWNERSHIP4	Ownership of land organized as single ownership (1=yes)	0.642	0.480
ACQUIRE1	Acquire non-residential land by inheritance (1=yes)	0.467	0.499
ACQUIRE2	Acquire non-residential land by marriage (1=yes)	0.027	0.163
ACQUIRE3	Acquire non-residential land by purchasing (1=yes)	0.552	0.498
ACQUIRE4	Acquire majority of non-residential land by other (1=yes)	0.008	0.089
ROWCROPS	land for agricultural production of row crops (1=yes)	0.574	0.495
COTTON	land for cotton production (1=yes)	0.457	0.499
LEASEDFORAG	leased any of your land for agricultural uses	0.674	0.469

Table 1. (Continued)

HAYLAND	Own land for hay production (1=yes)	0.222	0.416
LIVESTOCKLAND	Own land for raising livestock (1=yes)	0.204	0.403
GENDER	Gender (1=female)	0.349	0.477
AGE	Age in years	61.872	13.666
ETHNIC	Ethnic background: Caucasian (1=yes)	0.945	0.229
OCUPATION1	Primary occupation: farming (1=yes)	0.140	0.347
OCUPATION2	Primary occupation: business (1=yes)	0.102	0.303
OCUPATION3	Primary occupation: self-employed (1=yes)	0.109	0.312
EDUCATION1	Education: high school graduate or less (1=yes)	0.343	0.475
EDUCATION2	Education: some college to college graduate (1=yes)	0.435	0.496
EDUCATION3	Education: graduate or professional degree (1=yes)	0.171	0.377
INCOME1	Less than \$25K (1=yes)	0.117	0.322
INCOME2	Income \$25K to \$75K (1=yes)	0.370	0.483
INCOME3	Income \$75K or more (1=yes)	0.313	0.464

variable RISKPREFERENCE2 is significant only in the pre-institutional change Probit model and not in the post-institutional change model scenario where the riskiness of allowing fee-based recreational access is substantially lessened. However, in the pre-institutional change Probit model, these variables have the expected sign consistent with theory. An individual that is a risk seeker would be more likely to allow fee-based recreation under the current institutional environment. However, the probability of allowing fee-based recreation under the current institutional environment was 13.6% lower for risk-averse landowners.

The fact that the variable indicating if landowners are aware about the availability of commercial liability insurance (INSURACEKNOW) is significant and negative in sign only in the pre-institutional change Probit and not significant in the post-institutional change model is interesting. Being unsure about the availability of commercial liability insurance (INSURACEKNOW) has a negative effect on the decision to allow fee-based recreation and reduces the probability of allowing access by 4.6%. Having such insurance would reduce the risk of allowing fee-based recreation under the current institutional environment. The fact that this variable is not significant in the post-institutional change model is not surprising since the value of such insurance would be reduced following a change to the recreational use statute that extends liability protection to landowners charging a fee for recreational access.

It was hypothesized that marginal landowners might be more willing to use their land for fee-based recreation, since generating income through agricultural applications may not be practical or profitable. Therefore, it is not surprising that the variable indicating ownership of marginal land is significant and positive in sign. In addition, marginal landowners appear to be very responsive to institutional change. Under the current recreational use statute marginal landowners have a 6.5% higher probability of allowing fee-based recreation than non-marginal landowners, which increases to 11.4% post-institutional change.

Table 2. Probit estimates for the decision to allow fee-based recreational access under the current recreational use statute for Louisiana landowners

Variable	Coefficient	Std. Err.	dF/dx	Std. Err.	z	P> z
PERSONALUSE	-0.093507	0.221599	-0.012353	0.029679	-0.42	0.673
FRIENDSFAMILY	0.080768	0.213254	0.010409	0.027174	0.38	0.705
LEASEDREC	0.023169	0.274595	0.003055	0.036689	0.08	0.933
LIABILITYCONCERN2	-0.388816	0.476823	-0.040141	0.038075	-0.82	0.415
LIABILITYCONCERN3	0.078379	0.375110	0.009839	0.045367	0.21	0.834
WRITTENAGREE2	0.360093	0.237933	0.053686	0.040244	1.51	0.130
WRITTENAGREE3	0.311215	0.203367	0.043767	0.031002	1.53	0.126
CONCERNEASED2	-0.679240‡	0.284530	-0.081479	0.030880	-2.39	0.017
CONCERNEASED3	0.486406‡	0.226416	0.068780	0.035831	2.15	0.032
NOTRESSPASS	0.283615	0.190248	0.037708	0.026279	1.49	0.136
RUSPROTECTS	0.032826	0.201386	0.004242	0.025799	0.16	0.871
INSURACEKNOW	-0.334240*	0.197762	-0.045890	0.028806	-1.69	0.091
RISKPREFERENCE1	0.301500	0.333392	0.047304	0.062010	0.90	0.366
RISKPREFERENCE2	-0.777010†	0.225991	-0.135883	0.049129	-3.44	0.001
MARGINALLAND	0.477448‡	0.195757	0.064758	0.027421	2.44	0.015
MARGINALACRES	-0.000241	0.000665	-0.000031	0.000086	-0.36	0.717
LANDOWNERCOOPER	0.226347	0.198820	0.031968	0.030538	1.14	0.255
COOPERATIVE	-0.146936	0.247039	-0.017667	0.027417	-0.59	0.552
CONSERVATION	0.416684‡	0.190247	0.055903	0.026633	2.19	0.029
TRACTS	-0.025994	0.047352	-0.003384	0.006149	-0.55	0.583
ADJACENT	-0.428650‡	0.191252	-0.053972	0.023972	-2.24	0.025
DISTANCE	-0.000423	0.000377	-0.000055	0.000049	-1.12	0.262
TOTALACREAGE	0.000294*	0.000155	0.000038	0.000020	1.89	0.058
YEARSOWNERSHIP	0.000929	0.004335	0.000121	0.000564	0.21	0.830
OWNERSHIP1	-0.226444	0.851523	-0.024909	0.077808	-0.27	0.790
OWNERSHIP2	0.189810	0.389312	0.028124	0.065314	0.49	0.626
OWNERSHIP3	0.007583	0.185743	0.000989	0.024264	0.04	0.967
ACQUIRE1	0.252032	0.303739	0.033418	0.041007	0.83	0.407
ACQUIRE2	0.160295	0.554645	0.023336	0.089610	0.29	0.773
ACQUIRE3	0.192070	0.310752	0.024613	0.039156	0.62	0.537
ROWCROPS	-0.415796	0.325248	-0.057451	0.047964	-1.28	0.201
COTTON	0.470485	0.313448	0.063031	0.043931	1.50	0.133
LEASEDFORAG	-0.021367	0.207201	-0.002797	0.027263	-0.10	0.918
HAYLAND	-0.258995	0.251751	-0.030387	0.026630	-1.03	0.304
LIVESTOCKLAND	0.018172	0.254865	0.002384	0.033685	0.07	0.943
GENDER	-0.167212	0.207152	-0.020912	0.024983	-0.81	0.420
AGE	-0.000861	0.007308	-0.000112	0.000951	-0.12	0.906
ETHNIC	-0.148494	0.372592	-0.021332	0.058824	-0.40	0.690
OCUPATION1	0.100250	0.289564	0.013777	0.041891	0.35	0.729
OCUPATION2	0.269369	0.288588	0.040879	0.050373	0.93	0.351
OCUPATION3	0.466254*	0.264091	0.079097	0.056177	1.77	0.077
EDUCATION1	0.175392	0.205421	0.023843	0.029140	0.85	0.393
EDUCATION3	0.464431‡	0.242182	0.075453	0.047225	1.92	0.055
INCOME1	-0.653350*	0.366203	-0.058458	0.021959	-1.78	0.074
INCOME3	-0.356240*	0.199143	-0.042628	0.022113	-1.79	0.074
CONSTANT	-1.253742	0.787720			-1.59	0.111

†, ‡, *, indicates significance at the 1, 5, and 10 percent level, respectively. N = 531; Chi-square = 145.80; Log-L = -153.88486; Prob>Chi² = 0.0000; Pseudo R-squared: 0.3215.

Table 3. Probit estimates for the decision to allow fee-based recreational access under the amended recreational use statute for Louisiana landowners

Variable	Coefficient	Std. Err.	dF/dx	Std. Err.	z	P> z
ACCESSCUR	3.241970†	0.440187	0.868092	0.029223	7.36	0.000
PERSONALUSE	-0.171585	0.212467	-0.052391	0.065481	-0.81	0.419
FRIENDSFAMILY	0.113663	0.214483	0.034035	0.063682	0.53	0.596
LEASEDREC	0.063558	0.276840	0.019506	0.086443	0.23	0.818
LIABILITYCONCERN2	0.072253	0.416813	0.022254	0.131015	0.17	0.862
LIABILITYCONCERN3	0.215002	0.322644	0.061538	0.087324	0.67	0.505
WRITTENAGREE2	-0.079261	0.231540	-0.023553	0.067709	-0.34	0.732
WRITTENAGREE3	-0.074148	0.197148	-0.022164	0.058381	-0.38	0.707
CONCERNEASED2	-0.62856†	0.236170	-0.179312	0.062294	-2.66	0.008
CONCERNEASED3	0.383300*	0.214742	0.118667	0.068202	1.78	0.074
NOTRESSPASS	0.099882	0.187082	0.030217	0.056817	0.53	0.593
RUSPROTECTS	-0.204836	0.198734	-0.063136	0.062643	-1.03	0.303
INSURACEKNOW	-0.142831	0.190677	-0.043518	0.058645	-0.75	0.454
RISKPREFERENCE1	-0.106906	0.410501	-0.031135	0.115163	-0.26	0.795
RISKPREFERENCE2	-0.311508	0.236488	-0.099270	0.078865	-1.32	0.188
MARGINALLAND	0.37550‡	0.193584	0.114330	0.059255	1.94	0.052
MARGINALACRES	-0.001052	0.000956	-0.000317	0.000289	-1.10	0.271
LANDOWNERCOOPER	-0.123564	0.206976	-0.036441	0.059584	-0.60	0.551
COOPERATIVE	0.052979	0.256622	0.016207	0.079605	0.21	0.836
CONSERVATION	0.280984	0.181879	0.085268	0.055544	1.54	0.122
TRACTS	-0.006128	0.049607	-0.001849	0.014966	-0.12	0.902
ADJACENT	-0.062809	0.176587	-0.018887	0.052923	-0.36	0.722
DISTANCE	-0.000473	0.000454	-0.000143	0.000136	-1.04	0.297
TOTALACREAGE	0.000310*	0.000190	0.000093	0.000057	1.62	0.104
YEARSOWNERSHIP	-0.001733	0.004221	-0.000523	0.001273	-0.41	0.681
OWNERSHIP1	-2.073588	1.599861	-0.231901	0.032751	-1.30	0.195
OWNERSHIP2	-0.509130	0.504167	-0.125114	0.096016	-1.01	0.313
OWNERSHIP3	-0.303876	0.191556	-0.088220	0.053316	-1.59	0.113
ACQUIRE1	0.187048	0.332507	0.056712	0.101092	0.56	0.574
ACQUIRE2	-0.453394	0.635552	-0.113751	0.126814	-0.71	0.476
ACQUIRE3	0.194002	0.338737	0.057949	0.099993	0.57	0.567
ROWCROPS	0.074300	0.279447	0.022308	0.083531	0.27	0.790
COTTON	-0.032246	0.266303	-0.009720	0.080205	-0.12	0.904
LEASEDFORAG	-0.127525	0.198968	-0.039076	0.061865	-0.64	0.522
HAYLAND	-0.434770*	0.265936	-0.119024	0.065237	-1.63	0.102
LIVESTOCKLAND	0.369618	0.264460	0.119484	0.090432	1.40	0.162
GENDER	0.175312	0.190302	0.053994	0.059580	0.92	0.357
AGE	0.014640*	0.007739	0.004414	0.002323	1.89	0.059
ETHNIC	0.845540*	0.512817	0.179991	0.067466	1.65	0.099
OCUPATION1	0.205958	0.264847	0.065457	0.087957	0.78	0.437
OCUPATION2	-0.049416	0.297296	-0.014692	0.087080	-0.17	0.868
OCUPATION3	0.114996	0.298603	0.035836	0.095990	0.39	0.700
EDUCATION1	-0.162749	0.197495	-0.048113	0.057225	-0.82	0.410
EDUCATION3	-0.179449	0.243937	-0.051702	0.067054	-0.74	0.462
INCOME1	-0.266425	0.296012	-0.073958	0.074683	-0.90	0.368
INCOME3	0.046025	0.202344	0.013964	0.061708	0.23	0.820
CONSTANT	-2.68543†	0.920132			-2.92	0.004

†, ‡, *, indicates significance at the 1, 5, and 10 percent level, respectively. N = 528; Chi-square = 300.32; Log-L = -155.225; Prob>Chi² = 0.0000; Pseudo R-squared: 0.4917.

Having land in government conservation programs, such as the Conservation Reserve Program and Wetland Reserve Program, had a positive effect on the probability of allowing fee based recreation under both the pre- and post-institutional change environments. It was hypothesized that such a relationship may exist since such landowners have a demonstrated willingness to use their land for non-traditional agricultural uses. Therefore, it is not surprising to find that these landowners had a higher probability of adopting fee-based recreation and to find that these landowners were also responsive to institutional change, which resulted in an increased probability of 5.6% pre-institutional change. Therefore individuals that use their land for alternative land applications such as conservation programs may be more likely to allow fee-based recreation.

The organization of land ownership seems to influence the decision to allow fee-based recreation. Joint ownership, as compared with single ownership, appears to have a negative effect on the probability of allowing fee based recreation under both the pre- and post-institutional change environments, whereas limited liability ownership has a positive effect as compared with single ownership on the probability of allowing fee based recreation under the current institutional environment. The negative effect of joint ownership may, as noted previously, be a result of joint owners having a lack of autonomy in the decision process and thus are not comfortable or able to make a decision regarding fee-based recreation. The result that LLC land ownership has a positive effect on allowing fee-based recreation may be related to the legal structure of LLCs, in that the personal wealth of the individual is better protected from liability as compared with either single or joint ownership. Therefore, the higher probability of choosing to allow fee-based recreation under the current institutional setting by LLC landowners may likely result from that recognition on the part of the landowner. Also, for that same reason it is not surprising that the same variable is not significant in the post-institutional change model where liability issues and associated risk are greatly reduced and the comparative benefit to LLC landowners over joint or single landowners is also greatly reduced.

Conclusions

Amending the Louisiana recreational use statute can increase the number of private landowners willing to use their land for fee-based recreational use. About 14% of landowners indicated that they would be willing to allow fee-based recreation under the current institutional environment. If the Louisiana recreational use statute were amended giving greater liability protection landowners, the number of landowners willing to allow fee-based recreation would increase by 70% to nearly 24% of respondents. Clearly, an institutional change that reduces the liability risk to landowners can increase the potential amount of private land that could be used for fee-based recreation. Owners of marginal land were particularly responsive to an institutional change providing greater liability protection. Amending the recreational use statute would increase the amount of land available for recreation by providing a needed incentive as landowners on average would be willing to allocate a little more than 250 acres for fee-based recreation.

A fee-based recreational enterprise under the current legal environment carries with it the risk of liability; thus, as expected, risk preference was a significant predictor of the decision to allow fee-based recreation. Risk-averse landowners were more unlikely to allow fee-based recreation under the current institutional environment. Following an institutional change it was observed

that risk preference was no longer a significant predictor of the willingness to allow fee-based recreation indicating that the element of risk was diminished.

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