DETERMINANTS OF DEMAND FOR PROFESSIONAL RODEO ATTENDANCE

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Introduction

Large numbers of people migrated to the West in the years following the Civil War. Tales of adventure in the West spread throughout the country. The fascination of Easterners with the West was evidenced by the popularity of the Wild West Shows staged by William F. Cody. Subsequently, rodeos emerged and gained in popularity as a form of entertainment. By the 1980's over six hundred rodeos per year were sponsored by the Professional Rodeo Cowboys Association (PRCA), which is the largest association in the industry (Professional Rodeo Cowboys Association, 1988). The number of rodeos has increased by 11 percent from 1953 to 1987 and the inflation-adjusted average prize money rose by 40 percent. Although dispersed throughout the country (forty-five states in 1981), most rodeos are still located in the West. The reasons for their popularity have been the subject of much discussion; however, no empirical analysis of the reasons for rodeo attendance exists.

Rodeos may have significance for those attending that goes beyond mere entertainment value. Rodeos are argued to be an extension of frontier life, the domination of culture over nature, by Lawrence (1982). Particularly for ranchers and descendants of early settlers of the West, rodeos may have importance as a ritual, a celebration of their western heritage (Stoeltje, 1989). However, skills required for success in professional rodeo events have little historical precedence or use on

working ranches (Clayton, 1990). The difference in the working relationship between man and horse for ranch hands and that for rodeo cowboys is also evidenced in cowboy poetry (Italia, 1990). Indeed, Errington (1990) emphasizes the significance of the rodeo for the local community with respect to social interaction. He further argues that rodeos are an expression of freedom for men from social constraint and validation of their identity. Other studies also have noted the significance of identity affirmation (Haggard and Williams, 1992), social interaction (Crandall, 1979), and self-expression (Samdahl and Kleiber, 1989), for participation in leisure activities.

Therefore, the purpose of this study is to identify the reasons why people attend rodeos. Since different types of rodeos may attract different types of fans, attendance at the three general types of rodeos is examined: local, state/region, and national/international (Hibdon, 1989). The three specific rodeos examined, all sanctioned by the PRCA, are the Pikes Peak (local), Colorado State Fair (state/region), and National Finals (national/international) rodeos. In cooperation with the PRCA, surveys were distributed to attendees of each rodeo. The surveys contained questions related to their frequency of rodeo attendance, socioeconomic characteristics and reasons for attending rodeos. The determinants of rodeo attendance then are analyzed within a regression context.

Methodology

In cooperation with the PRCA, survey questionnaires were distributed to fans at the start of each rodeo performance and collected at the end. Five thousand surveys were distributed over five days at the National Finals Rodeo in Las Vegas, Nevada. Correspondingly, 2,500 surveys were distributed at both the Colorado State Fair Rodeo in Pueblo, Colorado and the Pikes Peak Rodeo in Colorado Springs, Colorado. The response rates were 44.6, 23.7, and 35.3 percent, respectively.

Respondents were asked how often they attend rodeos using two different questions. In the first case, the respondents were asked to indicate how many professional rodeo events they had attended during the past year. Since an individual's frequency of rodeo attendance may fluctuate from year-to-year and they may have difficulty in recalling the number of rodeos attended, we have also used a second measure of rodeo attendance. In the second case, respondents identified their rodeo attendance using the following four categories: "very often,"

"often," "sometimes" and "once per year." To be sure, a disadvantage of the second question is that it requires a subjective assessment by the respondent. Responses to the above two questions constitute the dependent variables for the estimation of two regression models.

Respondents also were asked to provide information on various household and socioeconomic characteristics that included age, education, occupation, income, and gender. They were also requested to indicate if they watch rodeo events on television, and to identify the type of their residence as ranch/farm/rural area, small town, city, or metropolitan area. Since one objective of the study was to determine the factors influencing rodeo attendance, the survey included 23 possible reasons for attending a rodeo. Each respondent was asked to indicate how important each "reason" was on a balanced four-point scale ranging from very unimportant to very important.

Two regressions, corresponding to the two dependent variables are run. The number of rodeos attended during the past year is a count variable that is unlikely to be normally distributed. Thus, the count variable regression model is used in the first case instead of ordinary least squares. In the second case, the four categories of frequency of attendance require the use of a limited dependent variable regression. A factor analysis is performed to reduce the 23 reasons for attending a rodeo to identifiable common factors that can be included in the regressions.

The count variable regression models, such as the Poisson and negative binomial, account for the discreteness of the dependent variable and produce predicted values that are within a permissible range (i.e, non-negative values). The Poisson model, however, assumes equality between the mean and variance of the dependent variable. Consequently, use of the Poisson model biases the estimated standard errors downward and inflates the level of significance in cases where the variance exceeds the mean. The negative binomial model extends the Poisson model by allowing the variance to differ from the mean.(1)

The negative binomial model can be expressed as:

$$Prob\ [Y=y_i] = e^{-\lambda_i}\ \lambda_i^{\ y_i} / y_i!, \quad y_i = 1,2,\ldots; \qquad (1)$$

where

$$\ln \lambda_i = \beta' X_i + \epsilon, \qquad (2)$$

and y is the dependent variable, X is the vector of independent variables, and ε has a gamma distribution with a mean of one and variance α(2) The variance is given by

$$Var\ [y_i] = \lambda_i(1 + \alpha\lambda_i). \qquad (3)$$

Estimates of β and α are obtained by the maximum likelihood method. Also, rejection of the null hypothesis that $\alpha = 0$ suggests the existence of overdispersion, and thus provides a test of the Poisson model as a limiting case of the negative binomial model. The ordered probit model developed by Zavoina and McElvey (1975) for models involving ordinal level dependent variables, can be written as

$$y_i^* = \beta' X_i + e, \qquad (4)$$

where

$$\begin{aligned} &y_i = 1 \quad \text{if } y_i^* \le \mu_0 \\ &y_i = 2 \quad \text{if } \mu_0 < y_i^* \le \mu_1 \\ &y_i = 3 \quad \text{if } \mu_1 < y_i^* \le \mu_2 \\ &y_i = 4 \quad \text{if } y_i^* > \mu_2 \\ &e \sim N[0,1] \end{aligned}$$

and y^* is unobserved, y is the observed dependent variable, and the μ 's are threshold parameters. Maximum likelihood is used to estimate β and the μ's.

An "R" type factor analysis is performed to reduce the 23 reasons for attendance to identifiable common factors that can be included as regressors in both the negative binomial and ordered probit models. An inter-variable correlation matrix is calculated and used as an input into a principal components varimax rotation factor solution. The varimax method attempts to minimize the number of variables that have high loadings on a factor to enhance interpretation of the factors. Also, the varimax principal components rotation is appropriate for reducing variables to common factors for subsequent regression

analysis (Hair, Anderson, Tatham, and Grablowsky, 1984, p. 21). Factors with eigenvalues greater than 1.0 are selected. The computed factor scores then are included as independent variables in both regressions.

Factor Analyses

The results of the factor analysis of responses to the 23 reasons for attending rodeos for the three samples are reported in Tables 1 through 3. Five factors have eigenvalues greater than 1.0 for all three samples.(3) About 55 percent of the total variance of the variables is accounted for by the five factors. Also, the last column of each table shows the amount of variance of each variable that is explained by the five extracted factors. Over two-thirds of the variables have more than fifty percent of their variance explained by the five factors. The largest factor loading for each variable (i.e., largest correlation between each variable and factor) is highlighted in the tables. In all but eight cases, the largest loading is at least 0.50.(4)

The relationship among the variables that had their largest factor loadings on a particular factor provides for identification of the factors. For those attending the National Finals Rodeo (see Table 1), the five factors are identified as: 1) social interaction (nine variables), 2) general entertainment or relaxation, 3) appreciation of cowboy skills (four variables), 4) excitement of events (four variables), and 5) western heritage (three variables). To be sure, the western heritage and entertainment/relaxation factors are common to all three rodeos. The rodeo event variables combine to form one factor for those attending the Colorado State Fair (see Table 2) and Pikes Peak (see Table 3) rodeos and two separate factors for those attending the National Finals Rodeo. The social interaction factor for those attending the National Finals Rodeo appears as two factors for those attending the Colorado State Fair and Pikes Peak rodeos-- 1) social interaction (with friends) and 2) what may be interpreted as a family outing factor.

Using the results of the factor analysis for each sample, factor scores are computed for each observation in each sample. A factor score is the value each observation has for the common factor based on the observed variables. The factor scores then are included as independent variables in the two regressions. Also included in the regressions are household and socioeconomic variables.

TABLE 1

PRINCIPAL COMPONENT ANALYSIS OF 23 REASONS

FOR ATTENDING RODEOS: NATIONAL FINALS RODEO

REASONS	FACTOR LOADINGS					COMMUNALITY
	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	FACTOR 5	
1. Eat Food and Drink	.55	.38	-.07	-.13	.08	.47
2. Support Community Event	.61	-.01	-.14	.19	.10	.43
3. Meet New People	.63	.11	-.12	.13	.37	.57
4. Experience New Things	.54	.44	0	.19	.13	.54
5. Enjoy Western Music	.45	.25	.13	.28	.28	.43
6. Do Something with the Family	.49	.21	.13	.17	.17	.36
7. Wear Western Apparel	.65	.24	.22	.03	.18	.56
8. See Animals	.58	.19	.30	.20	.03	.50
9. See a Specific Cowboy/Cowgirl Perform	.61	-.03	.33	.03	-0.6	.49
10. Relax	.01	.59	.13	.07	.45	.57
11. Get Away From It All	.17	.84	.04	.01	.08	.74
12. Be Entertained	.08	.58	.22	.36	.05	.53
13. Escape From the Routine	.03	.78	-.06	0	-.01	.70
14. Appreciated the Dedication of Rodeo Cowboys	.11	.07	.58	.30	.36	.57
15. Enjoy Watching the Skill of Calf Roping	.13	.13	.75	-.16	.03	.63
16. Enjoy Watching the Skill of the Cowboys	.10	-.01	.63	.41	.19	.62
17. Enjoy the Athletic Competition	.30	.02	.59	.34	-.03	.56
18. See Exciting Things	.10	.42	.28	.46	.12	.49
19. Enjoy Watching Bull Rides	.11	.12	-.01	.82	0	.69
20. Enjoy Watching the Power of the Bulls and Horses	.26	.01	.22	.75	.07	.69
21. Visit Friends	.40	.04	-.13	-.22	.53	.51
22. Enjoy Western Atmosphere	.18	.16	.24	.12	.76	.70
23. Experience Western Heritage	.44	.09	.32	.19	.49	.59
Sum of Squares Factor Loading (Eigenvalue)	3.64	2.79	2.36	2.34	1.81	12.94
Percent of Trace (% of Total Variance)	15.83	12.13	10.26	10.17	7.87	56.26

TABLE 2

PRINCIPAL COMPONENT ANALYSIS OF 23 REASONS

FOR ATTENDING RODEOS: COLORADO STATE FAIR RODEO

REASONS	FACTOR LOADINGS					COMMUNALITY
	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	FACTOR 5	
1. See Exciting Things	.51	-.03	.17	.32	.16	.43
2. Enjoy Watching the Skill of Calf Roping	.47	.28	.18	.15	-.40	.51
3. Enjoy Watching Bull Rides	.65	-.07	.02	.19	.18	.49
4. Enjoy Watching the Power of the Bulls and Horses	.68	.08	.04	-.03	.34	.59
5. Enjoy Watching the Skill of the Cowboys	.72	.07	.24	.03	.06	.58
6. Enjoy the Athletic Competition	.62	.11	.33	.01	.20	.54
7. Visit Friends	-.06	.64	.09	.15	.10	.45
8. Eat Food and Drink	-.10	.68	.06	-.25	.20	.45
9. Meet New People	.03	.67	.18	.10	.28	.57
10. Wear Western Apparel	.17	.51	.34	.08	.22	.46
11. See a Specific Cowboy/Cowgirl Perform	.30	.70	.15	-.13	-.17	.65
12. Enjoy Western Atmosphere	.20	-.15	.61	.06	.07	.72
13. Relax	.05	.04	.59	.52	.03	.63
14. Appreciated the Dedication of Rodeo Cowboys	.47	.17	.53	0	.03	.53
15. Experience Western Heritage	.21	.17	.68	.08	.36	.68
16. Enjoy Western Music	.29	.22	.39	.14	.37	.44
17. Get Away From It All	.14	.13	.08	.81	.10	.72
18. Be Entertained	.44	.01	.12	.57	.07	.54
19. Escape From the Routine	-.03	.28	0	.72	.23	.65
20. Support Community Event	.16	.36	.14	-.03	.53	.45
21. Experience New Things	.19	.33	.13	.30	.52	.53
22. Do Something with the Family	.16	.11	.08	.18	.53	.36
23. See Animals	.27	.08	.21	.20	.53	.45
Sum of Squares Factor Loading (Eigenvalue)	3.18	2.53	2.42	2.24	2.05	12.42
Percent of Trace (% of Total Variance)	13.83	11.00	10.52	9.74	8.91	54.00

TABLE 3

PRINCIPAL COMPONENT ANALYSIS OF 23 REASONS

FOR ATTENDING RODEOS: PIKES PEAK RODEO

REASONS	FACTOR LOADINGS					COMMUNALITY
	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	FACTOR 5	
1. Appreciated the Dedication of Rodeo Cowboys	.59	.13	.44	.08	-.01	.56
2. See Exciting Things	.73	.01	-.06	.26	.18	.64
3. Be Entertained	.60	-.02	-.10	.43	.20	.59
4. Enjoy Watching the Skill of Calf Roping	.53	.11	.38	.06	-.08	.45
5. Enjoy Watching Bull Rides	.69	.08	-.02	.06	.09	.49
6. Enjoy Watching the Power of the Bulls and Horses	.66	.10	.21	.02	.21	.54
7. Enjoy Watching the Skill of the Cowboys	.62	-.06	.47	.05	.19	.64
8. Enjoy the Athletic Competition	.58	.01	.27	-.03	.27	.49
9. Visit Friends	-.03	.72	.10	.11	-.17	.57
10. Eat Food and Drink	.02	.67	-.03	.26	.03	.52
11. Meet New People	-.05	.69	.24	.07	.18	.57
12. Wear Western Apparel	.08	.56	.18	-.06	.36	.49
13. See a Specific Cowboy/Cowgirl Perform	.24	.67	0	-.12	.17	.55
14. Enjoy Western Atmosphere	.19	.20	.74	.09	.07	.63
15. Experience Western Heritage	.18	.14	.72	.06	.35	.70
16. Relax	.22	0	.41	.60	-.10	.59
17. Get Away From It All	.15	.11	.01	.81	.14	.71
18. Escape From the Routine	.04	.14	-.07	.78	.18	.67
19. Support Community Event	.20	.33	.22	.16	.35	.35
20. Experience New Things	.04	.07	.17	.34	.57	.47
21. Enjoy Western Music	.08	.27	.42	.12	.45	.47
22. Do Something with the Family	.24	.04	-.10	.19	.56	.41
23. See Animals	.29	.11	.21	-.11	.65	.57
Sum of Squares Factor Loading (Eigenvalue)	3.56	2.55	2.33	2.21	2.03	12.68
Percent of Trace (% of Total Variance)	15.48	11.09	10.13	9.61	8.82	55.13

The sample means of the dependent and independent variables are shown in Table 4. Those attending the National Finals Rodeo attended more rodeos in the past year and were more likely to attend rodeos every year than those attending the other two rodeos. Also, those attending the National Finals Rodeo were more likely to live and/or work on a ranch, be older, have greater annual income, and watch rodeo on television.

Negative Binomial Regressions

The results of using the negative binomial model for all three samples are shown in Table 5. Each coefficient is interpreted as the average percentage change in the dependent variable resulting from a one unit change in the corresponding independent variable. The hypothesis that $\alpha = 0$ is rejected in all three regressions, supporting the use of the negative binomial model instead of the Poisson model.

The log of annual income is the only variable that is significant in all three regressions. A one-percent increase in income increases the number of rodeos attended during the past year by 12.3, 25.0, and 17.5 percent for the National Finals, Colorado State Fair, and Pikes Peak rodeos. Watching rodeos on television is a significant determinant of rodeo attendance for those attending the Colorado State and Pikes Peak rodeos. Living in a rural area was only a significant determinant of rodeo attendance for those attending the Pikes Peak Rodeo. Moreover, having an occupation related to ranching or agriculture was negatively and significantly related to the number of rodeos attended during the last year for those attending the National Finals Rodeo.

Western heritage and social interaction as common factors are significant in the regressions for the National Finals and Pikes Peak rodeos. Also noteworthy, those that attended the National Finals Rodeo were more likely to have attended rodeos because of the excitement events such as bull riding. For those that attended the Pikes Peak Rodeo, those that attend rodeos for a family outing attended fewer rodeos. Similarly, in the National Finals sample, those that attend rodeos for relaxation or entertainment attended fewer rodeos in the past year. None of the factors are significant in the Colorado State Fair sample.

Ordered Probit Regressions

The results of using the ordered probit model for all three samples are shown in Table 6. Estimated coefficients represent the effects of

TABLE 4

SAMPLE VARIABLE MEANS

Variable	National Finals	Colorado State Fair	Pikes Peak
Number of Rodeos Attended Last Year	5.44	1.39	1.23
How Often Do You Attend Rodeo			
Once Per Year (%)	6.08	24.93	31.16
Sometimes (%)	18.12	36.10	37.44
Often (%)	38.77	27.51	22.61
Very Often (%)	37.03	11.46	8.79
Age	44.16	41.11	38.83
Sex (Percent Female) (%)	58.05	51.86	55.53
Annual Income ($ Thousands)	56.03	39.36	45.69
Occupation: Ranch/Agriculture (%)	14.56	6.59	4.77
Watch Rodeo on Television (%)	95.75	81.95	75.88
Residence (Ranch/Farm/Rural)	33.94	21.49	13.82
Factor Scores:			
Western Heritage	.006	.027	-.005
Relaxation/Entertainment	-.017	.004	-.061
Socialization (Family & Friends)	-.010	-	-
Appreciation of Cowboy Skill	.026	-	-
Excitement of Events	.025	-	-
Socialization with Friends	-	.011	.010
Family Outing	-	-.019	.034
Interest in All Rodeo Events	-	-.025	.070
Number of Observation	1,037	349	398

TABLE 5

NEGATIVE BINOMIAL ESTIMATES OF NUMBER OF PROFESSIONAL RODEOS ATTENDED[a]

Variable	National Finals	Colorado State Fair	Pikes Peak
Constant	0.503	-2.418*	-2.251*
	(0.843)	(1.845)	(1.934)
Age (10^{-2})	-3.527	-8.574	-2.234
	(1.345)	(1.409)	(0.423)
Sex (Female)	-0.076	0.382	-0.166
	(1.244)	(0.316)	(1.367)
Annual Income (log)	0.123**	0.250*	0.175*
	(2.248)	(1.912)	(1.650)
Occupation (Ranch/Agri.)	-0.200**	0.043	0.019
	(2.341)	(0.118)	(0.071)
Watch Rodeo on TV	0.042	0.457**	0.815***
	(0.362)	(2.371)	(3.944)
Residence (Ranch/Farm/Rural)	0.080	0.222	0.324**
	(1.317)	(1.276)	(1.961)
Factor Scores:			
Western Heritage	0.069**	0.060	0.121*
	(2.523)	(0.931)	(1.825)
Relaxation/Entertainment	-0.104***	0.056	-0.039
	(3.938)	(0.949)	(0.623)
Socialization (Family & Friends)	0.118***	-	-
	(4.181)	-	-
Appreciation of Cowboy Skill	0.041	-	-
	(1.528)	-	-
Excitement of Events	0.088***	-	-
	(2.973)	-	-
Socialization (Friends)	-	0.069	0.219***
		(1.114)	(3.137)
Family Outing	-	-0.034	-0.147**
		(0.521)	(2.290)
Interest in All Rodeo Events	-	-0.048	.029
		(0.776)	(0.401)
α	0.957***	0.413***	0.333***
	(13.247)	(4.981)	(4.245)
log-likelihood	-2,862	-544	-567

[a] Absolute asymptotic t values are in parentheses. *, **, and *** denote significance at the 10%, 5% and 1% levels, respectively.

TABLE 6

ORDERED PROBIT ESTIMATES FOR
FREQUENCY OF RODEO ATTENDANCE[a]

Variable	National Finals	Colorado State Fair	Pikes Peak
Constant	1.862***	-1.071	0.035
	(2.594)	(0.931)	(0.029)
Age (10^{-3})	-5.211*	-17.164***	2.676
	(1.713)	(3.464)	(0.547)
Sex (Female=1)	-0.138*	-0.042	-0.016
	(1.879)	(0.347)	(1.134)
Annual Income (Log)	-0.035	0.194*	-0.018
	(0.551)	(1.735)	(0.160)
Occupation (Ranch/Agri.)	-0.085	0.347	0.476*
	(0.758)	(1.380)	(1.733)
Watch Rodeo on TV	0.441***	0.555***	0.714***
	(2.666)	(3.378)	(4.692)
Residence (Ranch/Farm/Rural)	0.247***	0.417***	0.350***
	(3.136)	(2.723)	(2.108)
<u>Factor Scores</u>:			
Western Heritage	0.118***	0.340***	0.176***
	(3.623)	(5.491)	(2.807)
Relaxation/Entertainment	-0.135***	-0.094	-0.135**
	(3.890)	(1.601)	(2.465)
Socialization (Family & Friends)	0.240***	-	-
	(7.084)	-	-
Appreciation of Cowboy Skill	0.201***	-	-
	(6.134)	-	-
Excitement of Events	0.012	-	-
	(0.345)	-	-
Socialization (Friends)	-	0.329***	0.243***
	-	(5.402)	(3.856)
Family Outing	-	-0.066	-0.091*
	-	(0.946)	(1.668)
Interest In All Rodeo Events	-	-0.036	0.218***
	-	(0.536)	(3.630)
μ_1[b]	0.916***	1.128***	1.137***
	(15.149)	(12.840)	(13.398)
μ_2[b]	2.031***	2.233***	2.157***
Chi-Square (df = 11)	134.18***	102.77***	98.825***
<u>Predicted Probabilities of Attending:</u>[c]			
Once per year	0.047	0.211	0.281
Sometimes	0.178	0.417	0.431
Often	0.415	0.296	0.231
Very Often	0.360	0.076	0.057

[a] Absolute asymptotic t values are in parentheses. *, **, and *** denote significance at the 10%, 5% and 1% levels, respectively.

[b] μ's are the estimated values of unobserved latent variable, y^*, which produce observed individual choices. In this respect, $y^* \le \mu_0$, $\mu_0 < y^* \le \mu_1$, $\mu_1 < y^* \le \mu_2$, $y^* > \mu_2$ produce once per year, sometimes, often, and very often choices, respectively.

[c] Predicted probabilities of attending choices are computed from the ordered probit estimates using the mean value of explanatory variables.

changes in the independent variables on the probability distribution of the four categories of attendance frequency. A positive coefficient implies that an increase in the corresponding independent variable would cause a rightward shift in the probability distribution; thereby, reducing the probability of the lowest-order choice (once per year) and increasing the probability of the highest-order choice (very often). The effects on the probabilities of the two middle categories are ambiguous.(5) As a result, we primarily examine the marginal effects on the end categories.

Watching rodeos on television and living in a rural area are significant determinants of the frequency of rodeo attendance in all three samples. Income and occupation are significant for those attending the Colorado State Fair and Pikes Peak rodeos, respectively. The coefficients are negative and significant for age of those attending the National Finals and Colorado State Fair rodeos. Those who were older were more likely to attend once per year and less likely to attend very often. Also, the coefficient for sex is negative and significant of those attending the National Finals Rodeo. Females were more likely to attend once per year and less likely to attend very often.

Western experience and social interaction are significant determinants of rodeo attendance in all three regressions. Recall that these two factors also were significant in two of the negative binomial regressions. Relaxation and entertainment reasons for rodeo attendance are significant for the National Finals and Pikes Peak rodeos. However, those who attend for relaxation are more likely to attend only once per year and less likely to attend very often. A similar result occurs for the family outing factor of those attending the Pikes Peak Rodeo. The common factor of all rodeo events is significant for those attending the Pikes Peak Rodeo. The cowboy skills factor is significant for those attending the National Finals Rodeo.

Summary Comparison of Regressions

A comparison of the significance of the negative binomial estimates with those of ordered probit reveals several differences. In the regressions of the National Finals Rodeo sample, two socioeconomic variables (income and occupation) have significant negative binomial estimates but insignificant ordered probit estimates and four socioeconomic variables (age, sex, watch rodeos on television, and type of residence) have significant ordered probit estimates but insignificant negative binomial estimates. The sole disagreement related to

the common factors occurs for the appreciation of cowboy skills and excitement event factors. In the regressions of the Colorado State Fair Rodeo, two socioeconomic variables (age, and type of residence) and two common factors (western heritage and social interaction) have significant ordered probit estimates but insignificant negative binomial estimates. The Pikes Peak regressions show differences for two socioeconomic variables (income and occupation) and two common factors (relaxation and all rodeo events).

Therefore, the difference in type of dependent variable to measure the frequency of rodeo attendance causes some difference in conclusions about the determinants of rodeo attendance. Those that attended the Colorado State Fair and Pikes Peak rodeos were less likely to have attended many rodeos in the past year but 30 to 40 percent reported attending rodeos often to very often. This causes greater variability for the dependent variable in the ordered probit model than the negative binomial model; thus, the ordered probit model had more significant relationships in the Colorado State Fair and Pikes Peak samples.

Summary and Conclusion

This paper examined the determinants of professional rodeo attendance. The data used for the analyses were collected from the attendees of three professional rodeos during 1991, each rodeo representing a particular rodeo type. The three types of rodeos were national/international, state/region, and local. Using factor analysis, 23 reasons for attending rodeos were reduced to five underlying factors. Two of the factors, western heritage and social interaction, were common among the three rodeos. With respect to the other three factors, there were slight variations between those attending the National Finals Rodeo and those attending the Colorado State and Pikes Peak rodeos.

The five underlying factors and several socioeconomic variables were employed to estimate models of the number of rodeos attended the last year and the general frequency of rodeo attendance by individuals. The estimated models were the negative binomial and ordered probit models. In general, the results from both approaches were consistent. Among the control variables, residing on a ranch or farm, or in rural areas, and watching rodeos on television significantly increase frequency of rodeo attendance. Income has a positive impact

in some of the cases. Effects of an individual's age, sex, and occupation vary depending on the sample and the model specification.

Identity affirmation and social interaction activities are significant determinants of rodeo attendance. People attend rodeos at all levels to celebrate their western heritage and for social interaction. Rodeos represent an opportunity for people to affirm their identity by wearing western clothes, listening to western music, and to socialize with friends in an atmosphere that embodies the common values of the Old West.

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Footnotes

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1. A univariate analysis of the dependent variable revealed a variance greater than the mean for all three samples.
2. Discussion on the use of the negative binomial is in Hausman, Hall, and Griliches (1984) and Cameron and Trivedi (1986).
3. Initially, six factors had eigenvalues greater than 1.0 for the Colorado State Fair Rodeo. However, one factor was not clearly identifiable. Therefore, because of this, and for comparability with the results from the other two rodeos, the factor analysis was rerun restricting the number of factors to five.
4. Two tests were used to determine the appropriateness of using factor analysis for these variables in each sample. The first test, the Kaiser-Meyer-Olkin Measure of sampling adequacy indicates meritorious to excellent conditions. The second test, the Bartlett test of sphericity indicates significant correlation among variables, further suggesting the appropriateness of using factor analysis.
5. Because it would require considerable space, we do not report the marginal effects of all the independent variables on all categories of the dependent variable. However, these effects are calculated and available from the authors upon request.

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