

RELIGION, ETHNICITY AND RISK-TAKING: EVIDENCE FROM A NEW LOTTERY - TEXAS

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A debate over Oklahoma's possible adoption of a lottery was a highlight of the 2002 gubernatorial election. In 1992, Texas joined the many states already conducting lotteries. While dissimilar in some ways, the populations of Oklahoma and Texas are alike in many ways. Therefore, policymakers considering an Oklahoma lottery can gain considerable insight from examining Texas's lottery. Texas is a state characterized by divisions between Whites and Hispanics and divisions between Baptists and Catholics. Based on academic research, Baptists were expected to shun lottery participation, and Catholics were expected to be eager lottery participants. This article, analyzing county data from the introductory period of the Texas Lottery, finds that reality is more complicated than anticipated. As expected, Baptists do not participate in the lottery, but Catholics are not homogenous. Concentrations of White Catholics indicate high levels of lottery participation, as expected. However, concentrations of Hispanic Catholics indicate lower levels of lottery participation. In Texas's new lottery, participation is a White non-Baptist experience. As expected, lower incomes and lower educations signal higher levels of lottery participation. Lottery play fell with middle-income concentrations, only unexpectedly to rise again with concentrations of people with higher incomes. At the highest incomes, lottery play again declined.

Like many states suffering from financial dislocations, Texas turned to a lottery for additional revenue. Texas established an Instant game in May 1992, added Lotto in November 1992, started Pick Three in October 1993, and adopted Cash Five in October 1995, joining the 36 states and the District of Columbia that then offered legal games of chance. The Texas Lottery Commission reported in January 1995 that 71 percent of all adult Texans had played the lottery at least once in the previous year. Echoing the March 1993 biennial demographic study of Texas Lottery players, the report said the Commission was “pleased” to find that people with the lowest levels of education and those with the smallest incomes are least likely to play the Texas Lottery.

The Texas Lottery studies contrast with scholarly literature that almost universally supports the notion that the tax inherent in the lottery is regressive, because lottery players tend to be poor, uneducated and unemployed (Spiro, 1974; Suits, 1974; Brinner and Clotfelter, 1975; Heavey, 1978; Clotfelter, 1979; Mikesell and Zorn, 1986; Clotfelter and Cook, 1987; Borg and Mason, 1988; Mobilia, 1992). Pirog-Good and Mikesell (1995) find that a lottery’s regressivity increases with time. Examining Texas, Deer and Dyer (1994) find that although Texans with family incomes below \$10,000 earn just 2 percent of all income in the state, these Texans account for almost 10 percent of all spending for the Texas Lottery.

TEXANS AND RELIGIOUS INFLUENCES

Texas became the thirty-fourth state to offer gambling, despite the fact that Martin and Yandle (1990) had only cautiously predicted that it would. They surmised Southern Baptist opposition might block a Texas lottery. Similarly, Clotfelter and Cook (1989) list Baptists among the denominations on record against gambling. They report that a California survey found that Catholics and Jews were the least likely to oppose that state’s lottery. Southern Baptists and Catholics are the two predominant denominations in Texas, providing a unique opportunity to determine religious influences on participation in a state lottery.

TEXANS, THEIR TAX BURDEN, AND THEIR NEIGHBORS

The greater the overall tax burden on the voter in the state, the greater the restrictions upon raising other tax rates, and the greater the opportunity to export the tax to constituents of other states increase the probability that a state will adopt a lottery as an alternative source of revenue (Filer, Moak and Uze, 1988). Texas, a tourist-industry state that shares borders with Mexico and three states, including Oklahoma as of this date, which do not have lotteries in 1993 adopted a constitutional amendment which forbids a personal income tax unless it is approved by voters. Mikesell and Zorn (1985) speculate that lottery states bordering jurisdictions without lotteries may extract sales from nonresidents. Mikesell (1991) asserts that although a lottery was regressive, lottery legalization might be justified on the basis of reducing the regressive outflow of revenue to bordering states.

Facing the existence of contradictory evidence about the regressivity of state lotteries, this article examines one of the newest and largest state lotteries to determine its participation and income distribution effects. This article examines several important issues of lottery analysis that other analysts have examined and extends this research. The income, racial, educational, gender, and interstate distributions of lottery players are well documented in the academic literature. While this article extends the literature to look at the international nature of the Texas Lottery, it makes a unique contribution to the lottery literature with important results concerning the religious and ethnic distributions of lottery players.

DATA, METHODOLOGY AND FINDINGS

This article analyzes Texas Lottery participation from May 1992 to November 1992, the months during which only an Instant game was available, and from November 1992 to November 1993, the first year that both Instant and Lotto games were available. The ordinary least squares regression models of this analysis include county per capita gambling dollar amounts as the dependent variable and geographical and population demographic descriptions as independent variables.

DATA/VARIABLES

Texas Lottery month summaries and 1990 United States Census Bureau data combined to produce county per capita spending on Instant and Lotto games. Census Bureau data provided demographic and financial information. *Churches and Church Membership in the United States: 1990* (Bradley, et al, 1992) provided data on the number of total adherents of each religious group.

Because it was hypothesized that Catholics would be major supporters of the Texas Lottery and active Lottery participants, and that Southern Baptists would oppose a lottery and would not be active Lottery participants, the initial research designed included Catholic and Southern Baptist independent variables. The initial trail model included White, Hispanic and Black independent variables. However, the number of Catholics and the number of Hispanics in a county is highly correlated, with a correlation coefficient of 0.8241. (The number of African-Americans in a county is highly correlated with the number of Baptists in a county that attend a church that is not Southern Baptist-affiliated.) Therefore, the models include independent variables created by multiplying the probability that a county's resident would be White or Hispanic times the probability that the county's resident would be Catholic or Baptist. The variables become the probability that any person in a county would be Hispanic Catholic, White Catholic, Hispanic Baptist, Hispanic Catholic or Black.

To analyze the income distribution of lottery players, the models include variables representing the percentage of households that have incomes of less than \$19,999, incomes between \$20,000 and \$49,999, incomes between \$60,000 and \$99,999, and incomes of more than \$100,000. (The percentage of households having incomes between \$50,000 and \$59,999 was omitted to avoid perfect multicollinearity.)

A regression model was computed in the following form:

$$\text{GAMBLING} = a + b*\text{ENTRY} + c*\text{NOENTRY} + d*\text{BORDER} + e*\text{LOUISIANA} + f*\text{COASTAL} + g*\text{BIGCITY} + h*\text{HISTCATH} + i*\text{WHITECATH} + j*\text{HISTBAPT} + k*\text{WHITEBAPT} + l*\text{BLACK} + m*\text{OTHER} + n*\text{INCOME1} + o*\text{INCOME2} + p*\text{INCOME4} + q*\text{INCOME5} + r*\text{WOMEN} + s*\text{ELEMENTARY} + t*\text{HIGHSCHOOL} + u*\text{COLLEGE} + e$$

where

ENTRY is a dummy variable indicating that a county on the Mexican border has a legal entry route from Mexico;

NOENTRY is a dummy variable indicating that a county on the Mexican border has no legal entry route from Mexico;

BORDER is a dummy variable indicating that a county is adjoining a state without a state lottery;

LOUISIANA is a dummy variable indicating that a county is adjoining Louisiana, which has a state lottery;

COASTAL is a dummy variable indicating that a county is on the Gulf of Mexico coast;

BIG CITY is a dummy variable indicating that a county is in the metropolitan San Antonio, Dallas, Fort Worth or Houston areas, which are hypothesized to have the most out-of-state business visitors;

HISTCATH, WHITECATH, HISTBAPT and WHITECATH are percentage variables indicating the probability that a resident of a county will be combinations of Hispanic or White and Catholic or Southern Baptist;

BLACK is a percentage variable indicating each county's African-American population;

INCOME1 is the percentage of households having incomes less than \$19,000;

INCOME2 is the percentage of households having incomes between \$20,000 and \$49,999;

INCOME4 is the percentage of households having incomes between \$60,000 and \$99,000;

INCOME5 is the percentage of households having incomes greater than \$100,000;

WOMEN is the percentage of a county's population that is female;

ELEMENTARY is the percentage of a county's population that has not graduated from high school;

HIGHSCHOOL is the percentage of a county's population that has a high school degree but no higher-education experience, and

COLLEGE is the percentage of a county's population that has higher-education experience, but has no advanced degree.

GAMBLING, the dependent variable, is the per capita amount of money gambled in each Texas county. The models omits a very few Texas counties which do not have legal gambling outlets. (Most of these counties are rural and do not have any churches.)

RESULTS

The regression was repeated three times:

First — Instant gambling per capita by county from May 1992 to November 1993, the months when only an Instant game was available in Texas (see Table 1),

TABLE 1
Instant Game, May 1992 to November 1992
N = 247 (of 254 counties)

Variable	Slope	T value	Significance
Intercept	-219.061	-1.913	0.057
Entry to Mexico	2.145	0.307	0.759
No Entry to Mexico	-4.783	-0.503	0.615
Border on Non-Lottery	9.957	3.143	***0.002
Louisiana	-5.486	-0.905	0.366
Coast of Gulf of Mexico	9.944	2.266	**0.024
Big Cities	2.293	0.269	0.788
Hispanic Catholics	-27.258	-2.311	**0.022
White Catholics	27.182	1.991	**0.048
Hispanic Baptists	-23.664	-0.973	0.332
White Baptists	-19.374	-1.746	*0.082
African Americans	-28.303	-1.662	*0.098
Other Minorities	255.924	1.649	0.101
Income Up to \$19,999	164.482	1.702	*0.090
\$20,000 to \$49,999	164.954	1.490	0.138
\$60,000 to \$99,999	354.822	2.389	**0.018
\$100,000 and More	39.309	0.252	0.801
Women	31.821	0.492	0.623
Elementary School	100.656	2.102	**0.037
High School	120.166	2.455	**0.015
College Educated	-15.816	-0.371	0.711

R-Square: 0.1808

*** = $p < .01$

** = $p < .05$

* = $p < .10$

Second — Instant gambling per capita by county from November 1992 to November 1993, to examine if legal Lotto gambling changed Texans' Instant gambling habits (see Table 2),

TABLE 2

Instant Game, November 1992 to November 1993
N = 249 (of 254 counties)

Variable	Slope	T value	Significance
Intercept	-260.152	-1.349	0.179
Entry to Mexico	-3.275	-0.271	0.786
No Entry to Mexico	-18.106	-1.261	0.209
Border on Non-Lottery	17.862	3.279	**0.001
Louisiana	-6.920	-0.661	0.509
Coast of Gulf of Mexico	10.128	1.341	0.181
Big Cities	-2.781	-0.189	0.850
Hispanic Catholics	-73.581	-3.640	***0.000
White Catholics	42.478	1.812	*0.071
Hispanic Baptists	-74.076	-1.773	*0.078
White Baptists	-32.680	-1.733	*0.084
African Americans	-44.213	-1.517	0.131
Other Minorities	393.597	1.487	0.138
Income Up to \$19,999	204.179	1.312	0.191
\$20,000 to \$49,999	150.504	0.863	0.389
\$60,000 to \$99,999	364.741	1.529	0.128
\$100,000 and More	81.508	0.306	0.760
Women	12.772	0.115	0.909
Elementary School	212.909	2.683	***0.008
High School	188.624	2.407	**0.017
College Educated	-21.722	-0.300	0.765

R-Square: 0.2097

*** = $p < .01$

** = $p < .05$

* = $p < .10$

and

Third — Lotto gambling per capita by county from November 1992 to November 1993, Texas' first full year of Lotto gambling (see Table 3).

TABLE 3

Lotto Game, November 1992 to November 1993
N = 246 (of 250 counties)

Variable	Slope	T value	Significance
Intercept	-118.831	-0.600	0.549
Entry to Mexico	-0.823	-0.068	0.946
No Entry to Mexico	-7.742	-0.474	0.636
Border on Non-Lottery	21.721	3.982	***0.000
Louisiana	-6.302	-0.605	0.546
Coast of Gulf of Mexico	12.119	1.605	0.110
Big Cities	3.419	0.233	0.816
Hispanic Catholics	-79.642	-2.112	**0.036
White Catholics	30.867	1.315	0.190
Hispanic Baptists	-88.319	-2.112	**0.036
White Baptists	-43.368	-2.274	**0.024
African Americans	-22.865	-0.779	0.437
Other Minorities	273.734	1.026	0.306
Income Up to \$19,999	85.097	0.505	0.614
\$20,000 to \$49,999	62.664	0.325	0.746
\$60,000 to \$99,999	298.530	1.156	0.249
\$100,000 and More	-51.816	-0.193	0.847
Women	-26.092	-0.235	0.815
Elementary School	180.640	2.173	**0.031
High School	117.231	1.390	0.166
College Educated	12.820	0.174	0.862

R-Square: 0.1897

*** = $p < .01$

** = $p < .05$

* = $p < .10$

The model measuring the Instant game's introductory period has a 0.1808 R-square, indicating the model explains 18.08 percent of the variation in gambling between counties. The Instant game model for the first year of the Lotto game has a 0.2097 R-square. The Lotto model has a 0.1897 R-square.

INCOME

Based on the estimated county-level model, Texans conform to income/gambling expectations in an unexpected way. While Spiro (1974), Suits (1974) Brinner and Clotfelter (1975), Heavey (1978), Clotfelter (1979), Mikesell and Zorn (1986), Clotfelter and Cook (1987), Borg and Mason (1988), Mobilia, (1992), Deer and Dyer (1994) and Pirog-Good and Mikesell (1995) found that lottery players tended to be poor, uneducated and unemployed, the level of lottery play rose with income. Lottery play was regressive because the proportion of income spent falls as individual income rise (Mikesell, 1991). Conversely, in Texas, lottery play declined with concentrations of middle-income households. Lottery play then rose with concentrations of upper-income households, only to fall again with concentrations of the highest-income households.

Texans with incomes below \$20,000 are active participants in the Instant game (although the variable is not statistically significant after the introduction of Lotto), but are not active participants in Lotto. The positive estimated variables indicate that concentrations of low-income Texans indicate more active per capita Lottery participation than concentrations of Texans with incomes between \$50,000 and \$59,999. Texans with incomes between \$20,000 and \$49,999 are not significantly different than those with incomes between \$50,000 and \$59,999, but the estimated variable is positive in every model. Contrary to expectations, Texans with incomes between \$60,000 and \$99,000 are active participants in all lottery games (although the positive variable estimates are not statistically significant after the introduction of Lotto).

The models' results support a conclusion that low-income Texans and higher-income Texans are both more active in Lottery games than middle-income Texans. The low-income Texans conform to previous lottery studies, and higher-income Texans conform to the state's image of being a home of risk-seekers, including oil wildcatters. However, the

Texas “big rich” - for these models, concentrations of households with incomes above \$100,000 - are not attracted to the Lottery. Previous research had not identified a lottery drop-off in the middle income levels, a subsequent increase in wealthier areas, and final decline in high-income areas.

RELIGION AND ETHNICITY

Texans also conform to religious/gambling expectations in an unexpected way. According to the county-level model estimates, counties having large numbers of Baptists uniformly shun the Lottery (although the Hispanic Baptist variable is not statistically significant in the introductory-period Instant model). Although White Catholics are active Lottery participants, as expected, Hispanic Catholics are not active Lottery participants. The Hispanic Catholic variable is negative and statistically significant in every model. In Texas, Lottery participation is a White experience, with all Hispanics joining White Baptists as nonparticipants. The African American variable estimate is uniformly negative, although it is statistically significant only in the introductory-period Instant model; the Other Minorities variable estimate is uniformly positive, although it is never statistically significant. The Women variable is statistically insignificant in all models.

This article supports Clotfelter and Cook’s (1989) hypothesis about Catholic and Baptist lottery participation, with amendments. All Baptists were active lottery participants, but areas with concentrations of Hispanic Catholics had low lottery participation.

EDUCATION

According to the model estimates, and according to expectations, counties with concentrations of lower levels of education have higher incidence of gambling. The Elementary School variable estimate is uniformly positive and statistically significant in all models. High School education is uniformly positive, but not statistically significant in the Lotto model. College Educated is statistically insignificant, possibly because

this variable primarily measures current university students who are financially unable to be active Lottery participants.

LOCATION

The county-level models indicate that the Texas Lottery has active participation from surrounding states that do not have lotteries. The Border variable is uniformly positive and statistically significant. Results for Louisiana, which has a lottery, were uniformly negative, although not statistically significant. The variables indicating the Mexican border are all statistically insignificant. This article's results supports Mikesell and Zorn's (1985) conclusion that lottery states bordering states without lotteries may extract sales from nonresidents.

The Big City and Coast variables, which were hypothesized to indicate business and tourism travelers, are not statistically significant. The Coast variable was positive and statistically significant at the introduction of the Instant game.

CONCLUSION

Based on the estimation of the Instant and Lotto models, this article supports and extends previous research by Clotfelter and Cook and Mikesell (with Zorn and Pirog-Good), among others. Texas counties with concentrations of people with lower incomes and lower educations have higher incidence of legal gambling.

Consistent with previous hypotheses of Clotfelter and Cook, Texas counties with higher levels of White Catholics have higher incidence of legal gambling. However, surprisingly, concentrations of Hispanic Catholics are not associated with higher incidence of legal gambling. Hispanic Catholics are similar to White Baptists and Hispanic Baptists, two groups which are expected to oppose gambling. Since the level of lottery play in Texas, first falls with income, and then rises, only to fall again, the results of these models offer interesting insights into interactions between religion, ethnicity and risk-taking in a diverse society. While the importance of White Baptists in Oklahoma's population would seemingly preclude their proportionate participation in any future state

lottery, an important unknown would be the anticipated participation rates of Native- American populations. In any event, concerns over the regressive impact of participation in a future Oklahoma lottery are not quieted by the results presented here.

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