**Introduction**

I will be analyzing data collected by the National Opinion Research Center at the University of Chicago for the Gambling Impact and Behavior Study – Community Database. The data were collected from 1998-1999 under contract to the National Gambling Impact Study Commission. I will be analyzing the community database which consisted of 100 communities selected through a simple random sample of populations of 10,000 or more residents stratified for distance to casinos and the presence of legal gambling. This database also includes information from 1980-1996. I will be analyzing and comparing two variables, per capita casino spending and availability of casino within 50 miles, for the years 1980 and 1997 to see what changes have occurred over time.

**Data and Results**

*Per Capita Casino Spending*

[A] Missing values were recoded to the missing value ‘.’ in SAS for the variables I will be using which are per capita casino spending (CASSPEND) and availability of casino within 50 miles (CASIND) to suit the purposes of my analysis. Table 1 shows a comparison of per capita casino spending for years 1980 and 1997. Running a check for skewed data points for 1980, there are four cases (178.13, 178.13, 66.61, and 41.2291) which are greater than 1.5IQR. Looking at Table 1, the mean and median for per capita spending is greater in 1997 compared to 1980. [A2] With 95% confidence, the mean for the population in 1980 is between 12.703 and 22.533. [A2] Also, with 95% confidence, the mean for the population in 1997 is between 139.541 and 198.04. With 95% confidence, there is an increase in the mean for per capita spending from 1980 to 1997. These changes may correspond to the variable that will be analyzed below.

Table 1 – Per Capita Casino Spending [A1]

|  |  |  |
| --- | --- | --- |
|  | 1980 | 1997 |
|  |  |  |
| # Observations | 100 | 100 |
| Mean | 17.618 | 168.791 |
| Median | 11.720 | 103.607 |
| Mode | 8.423 | 37.351 |
| Max | 178.13 | 597.27 |
| Min | 4.84 | 19.06 |

[B1] For per capita casino spending, we assume that the sample is random, that this is a quantitative measurement, and that the sample of 100 communities is large enough to make generalizations about the population. Testing the hypothesis that the average per capita casino spending in American communities is at least $50 for 1980, let H0: μ >= $50 and Ha: μ < $50. The t-value is -13.073 and the P-Value is less than 0.001 so we would reject the null hypothesis and accept the alternative hypothesis. This means that there is less than a 0.001 chance that the mean is greater than $50 or in other words, there is little chance that the population per capita casino spending mean in 1980 would have been greater than $50. Running the same test for 1997 with the same assumptions as in 1980, where H0: μ >= $50 and Ha: μ < $50, the t-value is 8.0585 and the P-Value is less than 0.001. In this case, so should reject the null hypothesis, but due to the 95% confidence interval being far above $50 for the mean (139.541 and 198.04), I will hold off a decision to reject or retain the null hypothesis pending further investigation.

*Casino Distance*

Table 2 shows a comparison of casinos within 50 miles for 1980 and 1997 for our sample of 100. [A3] We can extrapolate with 95% confidence to the population in 1980 that the proportion of casinos within 50 miles is between 0.03925 and 0.04075. [A3] Also, with 95% confidence we can say that the proportion of casinos outside of 50 miles is between 0.95925 and 0.96075. [A3] Compare this to 1997 and with 95% confidence we can say that the proportion of a casino within 50 miles of a community of 10,000 is between 0.44515 and 0.45485. [A3] The proportion of a casino outside of 50 miles of a community of 10,000 is between 0.54515 and 0.55485 with 95% confidence. Quite like the per capita spending increase from 1980 to 1997, we can see an increase in the proportion of casinos within 50 miles of communities with 10,000 or more individuals from 1980 to 1997.

Table 2 – Casinos Within 50 Miles [A1]

|  |  |  |
| --- | --- | --- |
|  | 1980 | 1997 |
|  |  |  |
| # Observations | 100 | 100 |
| Proportion within 50 miles | 0.04 | 0.45 |
| Proportion outside 50 miles | 0.96 | 0.55 |

[B2] For casinos within 50 miles of communities of 10,000 or more in 1997, we assume that the­­ sample is random, that this is a qualitative measurement expressed as a proportion, and that the sample of 100 communities is large enough to make generalizations about the population. We can test the hypothesis that one-half of U.S. communities were within 50 miles of a casino in 1997 by letting Ho: π >= 0.50 and H­a: π < 0.50. The resulting P-Value is 0.1587 which causes me to suspend judgment for accepting the null hypothesis pending further investigation.

**Conclusions**

The data were analyzed to compare basic descriptive statistics, as seen in Table 1, between two years and were also analyzed to see if there were any increases in per capita spending and distances of casinos to communities of 10,000 or more. From 1980 to 1997, communities with 10,000 or more residents had an increase in mean per capita spending. Communities in the sample had larger maximums and minimums in per capita spending from 1980 to 1997. This increase in per capita spending coincides with an increase in the proportion of communities within 50 miles of a casino for the same years. Further research would have to be done to see if the increase in the proportion of communities within 50 miles of a casino is a casual factor for the increase in per capita spending in these communities.