

Application exercise: 5.3

Chi-square tests, Pt. 2

Football and politics in NC

Public Policy Polling surveyed 780 likely voters from October 16th to 18th, 2014. The full report on the poll results can be found at http://www.publicpolicypolling.com/pdf/2014/PPP_Release_NC_10201118.pdf. We are going to focus on responses to the following questions:

- Which is your favorite college football team in North Carolina?
- In the last presidential election, did you vote for Barack Obama or Mitt Romney?

Below is the distribution of the responses as follows:

	Barack Obama	Mitt Romney	Other / Don't remember	Total
Duke	53	69	7	129
UNC	95	76	8	179
NC State	35	54	8	97
Other / no favorite	168	183	24	375
Total	351	382	47	780

We want to evaluate whether college football allegiance of NC residents is associated with how they voted in the 2012 presidential election.

1. What type of test is most appropriate? Explain your reasoning.
2. What are the hypotheses?
3. Calculate the expected counts for cells with low observed counts (Other / Don't remember and Duke, UNC, or NC State).
4. Assuming that all other expected counts are high enough, check if the conditions for inference are met.
5. Calculate the contribution of the Duke and Other / Don't remember cell to the test statistic.
6. The test statistic is given as 9.4063. Calculate the p-value.
7. What is the conclusion of the hypothesis test?

This analysis completed in R can be found at https://stat.duke.edu/courses/Fall14/sta101.001/app/football_politics.html.