Kyle Rollins

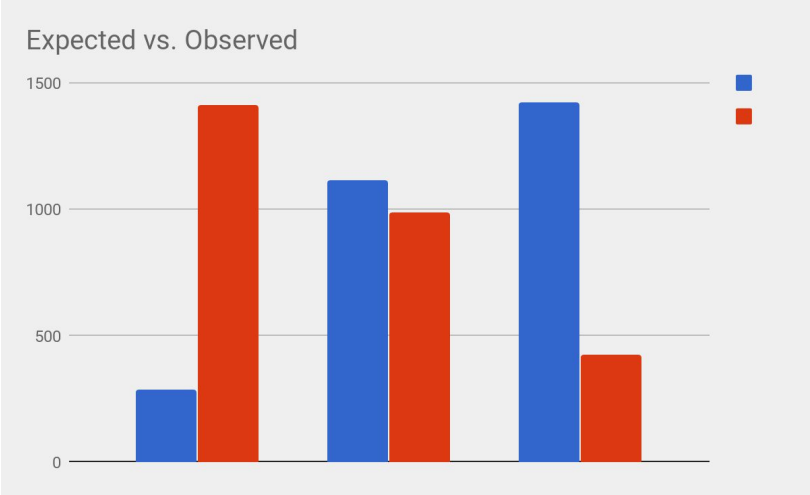
MATH - 171

3/21/18

Individual Report - Highways and Bridges

More precisely, I am testing to see if my initial thought of the proportion of *too much* being **.5**, *too little* being **.15**, and *about right* being **.35**. This data is deemed random and representative due to the General Social Survey (GSS) having a record of "proven clear, unbiased, and accurate"[1] representations of the population being surveyed. The GSS has this positive reputation because of their ability to "gather data on contemporary American society in order to monitor and explain trends and constants in attitudes, behaviors, and attributes."[2] Overall, the GSS is a trusted source of random and representative data, thus allowing us to continue this data test with confidence.

By taking a first glance at my predicted proportions and the observed data, I was incredibly incorrect on the *too much* (.5) and *too little* (.15) categories (I essentially had the predictions flipped!) However, my *about right* prediction (.35) was fairly close to what was observed. In this histogram, the *red* bars are my expected totals; while the *blue* bars represent the totals observed through the GSS survey.



[1] http://gss.norc.org/About-The-GSS
[2] Ibid.

To conduct the physical test of this proposed data distribution, we must run a Chi-squared Goodness of Fit Test. Our proportions are labeled as P1 = the proportions of too much highway and bridge spending, P2 = the proportion of about right highway and bridge spending, and P3 = the proportion of too little highway and bridge spending. Next was the calculator formula of X^2 - GoF which consisted of making sure the test was random and representative, as well as having expected counts greater than or equal to five (which is correct.) The null hypothesis for this data is my predicted proportion values being Ho: P1 = .5 , P2 = .35 , and P3 = .15. The alternative hypothesis is that one of these data samples must be different from the observed counts, which is easily shown. I computed the details in the calculator by multiplying my proposed proportion times the observed total and entering those numbers in list L2 while the observed counts are placed in L1. We are presented with results that the X^2 (2) = 32277.50. The P value is shown as 0, however this value is most likely so small that the calculator is unable to display a probability that low, so zero is the essentially the likelihood. We can conclude the test with the statement; There is evidence that at least one proportion of opinions on spending on highways and bridges is different.

Overall, my initial hypotheses were incredibly off from what the data actually reflected. As stated before, had I predicted a lower proportion of people surveyed to believe that we were spending too little rather than too much, then I would have been in the same ballpark as the observed data. These proportions are representative of how the general public is concerned on the issue of too little spending on highways and bridges; and clearly shows many are reversed (like myself) and believed that we were concerned with too much spending.