Association rule mining:

We ran Apriori association rule mining on the political subset of our data, consisting of political contributions to candidates by industry, as well as election results. For this analysis, a number of new variables were created; the winner variable, to denote which candidates actually won their elections; indrank, a ranking of the industries that contributed to each candidate in each year by the amount contributed; and the total contributions and votes each candidate received in each election cycle was binned into a categorical variable (candtotallevel and voteslevel, respectively) with four levels (very low, mid-low, mid-high, and very high). Outliers, defined as candidate/year/industry level observations where either the number of votes received or the total amount contributed was more than one interquartile less than/greater than the 25th/75th percentile values, were removed from the dataset for this analysis. Apriori rule mining was run to find rules with a minimum confidence level of .2, under three different support levels (.4, .2, .05). Eclat rule mining also was utilized but, as it yielded nearly identical results to the Apriori algorithm, the analysis focuses on the rules generated by the Apriori algorithm.