

Problem Set 1
Advanced Methods in Applied Statistics

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Exercise 1

Using data extracted from <https://kenpom.com/index.php?y=2014> we plot histograms of the adjusted defense for all the teams in the five conferences ACC, SEC, B10, BSkY and A10 as seen in figure 1.

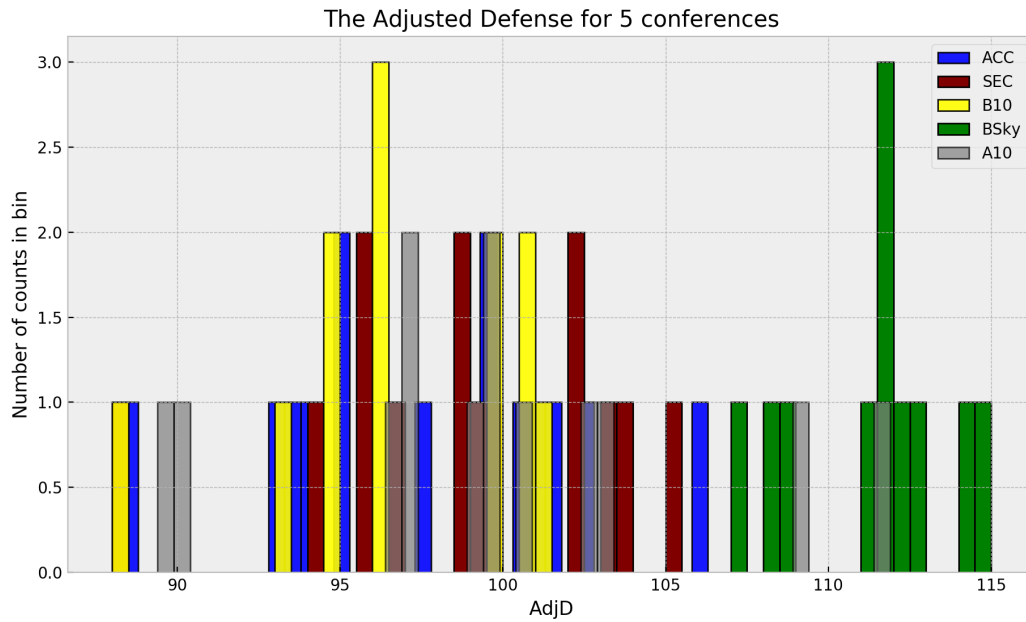


Figure 1: Histogram of the adjusted defense for all the teams in the five conferences ACC, SEC, B10, BSkY and A10.

Exercise 2

This time we will also use data from <https://kenpom.com/index.php?y=2009> in addition to the data from previous exercise. First task is to find the difference in the AdjO for all the teams in their respective conferences and plot them with respect to the 2009 AdjO value.

Since teams are missing or have changed conference from 2009 to 2014, we will only find the difference on the teams which have data in both 2009 and 2014. The result is seen in figure 2. Next we will find the median and the mean for the difference AdjO in each conference (the datapoints in figure 2). In addition we calculate the median and the mean for the rest of the teams both in the 2009 and 2014 datasets but not in the conferences ACC, SEC, B10, BSky and A10. The results can be found in table 1.

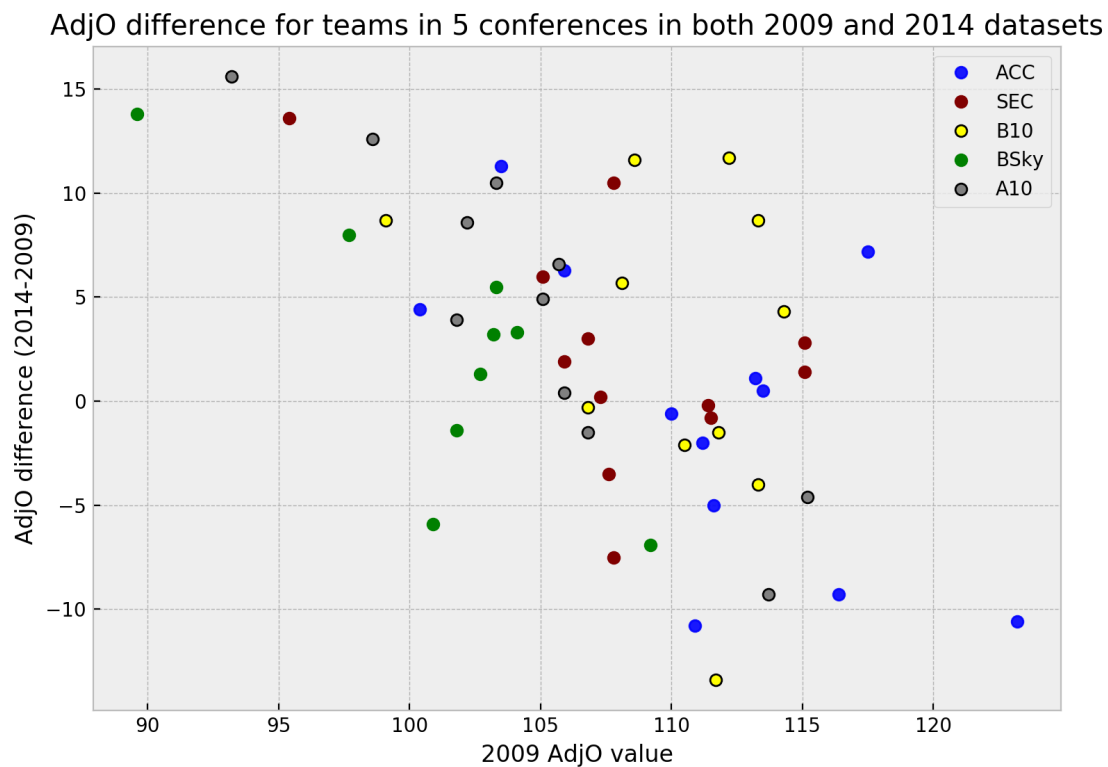


Figure 2:

	Mean	Median
ACC	-0.63	-0.05
SEC	2.28	1.65
B10	2.67	4.30
BSky	2.32	3.20
A10	4.34	4.90
Rest	2.60	1.90

Table 1: Means and Medians of difference in AdjO of teams in conferences and of teams not in conferences but exists in both datasets 2009 and 2014

Exercise 3

This time we repeat the calculations with the BE conference added the results is found in the plots and table below.

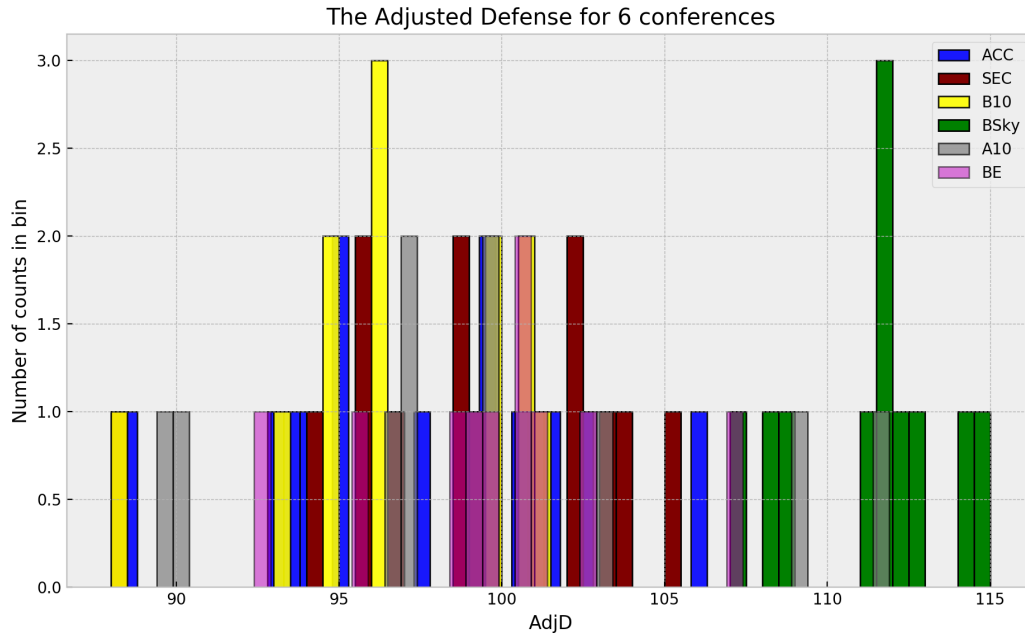


Figure 3: Histogram of the adjusted defense for all the teams in the five conferences ACC, SEC, B10, BSKy, A10 and BE.

	Mean	Median
ACC	-0.63	-0.05
SEC	2.28	1.65
B10	2.67	4.30
BSky	2.32	3.20
A10	4.34	4.90
BE	1.14	1.90
Rest	2.60	1.90

Table 2: Means and Medians of difference in AdjO of teams in conferences and of teams not in conferences but exists in both datasets 2009 and 2014

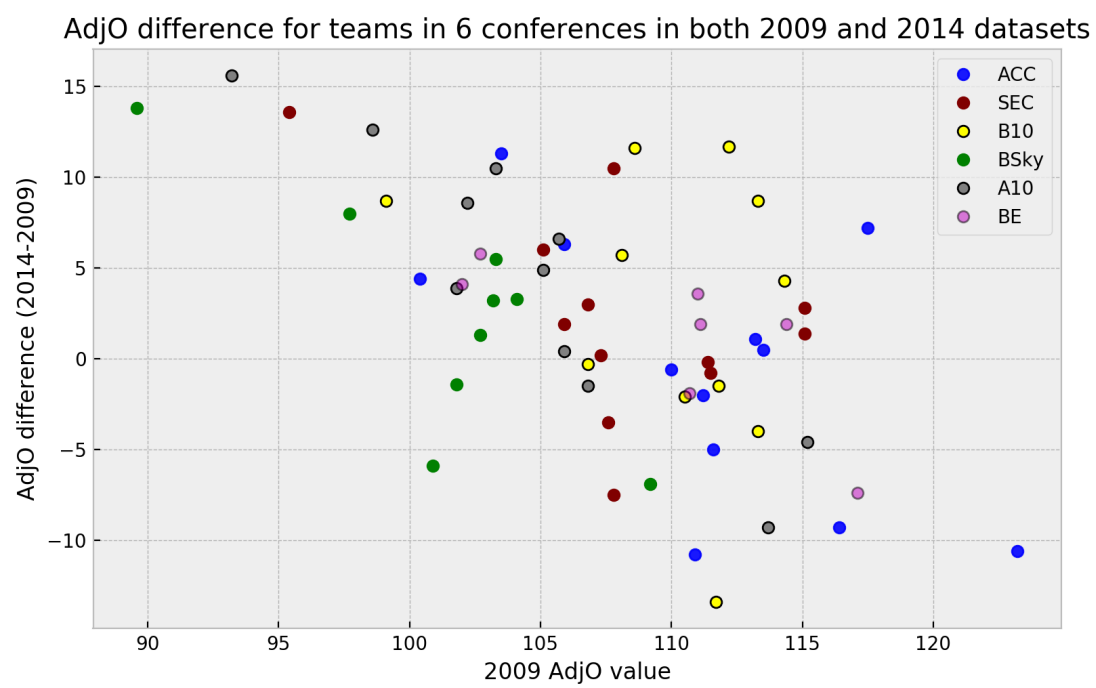


Figure 4: