

Connor Moss & Anthony Testa

### **Examining the effect of experience and transfers on winning in NCAA Basketball**

Given the explosion of the transfer portal in recent years, we wanted to examine the impact of experience and transfers on winning in NCAA basketball. Using data from Bart Torvik, we examined how Returning Minutes, Transfer Points (a measure of how good an incoming transfer class is), and Talent (which takes into account recruiting as well as other metrics) affect winning.

We started by running simple linear regression models for predicting Winning Percentage with both Returning Minutes and Transfer Points. We found that Returning Minutes were significant, while Transfer Points were not. Additionally, any multiple regression models including both of these variables had a lower  $R^2$  value than the simple model with just returning minutes. From here we ran a series of Kruskal-Wallis tests. We found that there is a significant difference between Returning Minutes between Power 6 schools and Mid-Majors, with Power 6 schools having less on average. However, there was no difference between these groups in terms of Transfer Points. Finally, we looked at Talent, which was our strongest predictor yet for Wins in a simple regression model, and additionally found that there is a significant difference in Talent between Power 6 programs and Mid-Major programs using a Kruskal-Wallis test.

Upon finding that our multiple linear regression models lacked any sort of valued  $R^2$  values, we hoped to find a solution via PCA. In order to do this we relied heavily on the *FactoMineR* package in R (standard PCA package). Our first two principal components were distinct in that the first containing strong, positive loadings of the advanced defensive statistics. Likewise, the second contained strong, positive loadings of the advanced offensive statistics. Note that Transfer Points was not a significant contributor to either loading. Our new model with these weighted predictors included Adj\_OE, Adj\_DE, Talent, with the model explaining around 40% of the variability.

Our findings include that experience has much more of an impact on winning than transfers. Coaches should take this into consideration when rebuilding a team in the offseason.