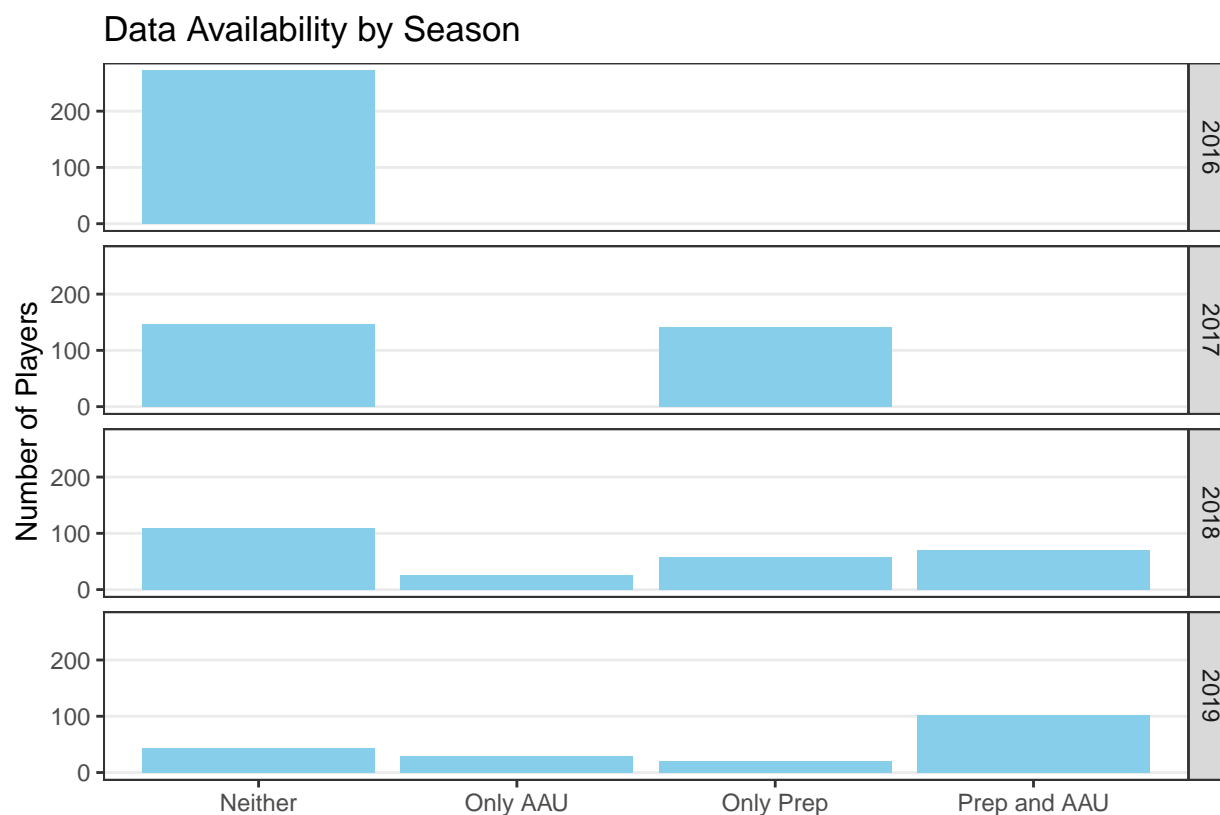# Prep Circuit and AAU EDA, Basic Regression, and PCA

Ted Henson

10/17/2019

Data Availability by Season

Season	Neither	Only AAU	Only Prep	Prep and AAU
2016	272	0	0	0
2017	147	0	141	0
2018	110	25	58	71
2019	44	29	20	103

Data Availability by Season

AAU Leave One Out CV Linear Regression

```
##
## Call:
## lm(formula = .outcome ~ ., data = dat)
##
```

```
## Residuals:
##     Min      1Q  Median      3Q     Max
## -2.9129 -0.7685 -0.2081  0.6208  5.7091
##
## Coefficients:
##                        Estimate Std. Error t value Pr(>|t|)
## (Intercept)           -0.218901   0.297740  -0.735 0.462998
## Points.PerGame.AAU     0.036386   0.024204   1.503 0.134198
## Minutes.PerGame.AAU   -0.034031   0.015542  -2.190 0.029604 *
## Max.Points.AAU         0.002986   0.016361   0.182 0.855371
## Rebounds.PerGame.AAU   0.134489   0.051075   2.633 0.009061 **
## Blocks.PerGame.AAU     0.215376   0.190545   1.130 0.259579
## Steals.PerGame.AAU     0.629730   0.176346   3.571 0.000437 ***
## Turnovers.PerGame.AAU  0.144853   0.129325   1.120 0.263912
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 1.144 on 219 degrees of freedom
## Multiple R-squared:  0.2849, Adjusted R-squared:  0.2621
## F-statistic: 12.47 on 7 and 219 DF,  p-value: 2.025e-13
```

Prep Leave One Out CV Linear Regression

```
##
## Call:
## lm(formula = .outcome ~ ., data = dat)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -2.8166 -0.9693 -0.1591  0.7475  3.9438
##
## Coefficients:
##                         Estimate Std. Error t value Pr(>|t|)
## (Intercept)           -0.1057905  0.3732312  -0.283 0.777160
## Points.PerGame.Prep    0.0895535  0.0309063   2.898 0.004225 **
## Minutes.PerGame.Prep   0.0008683  0.0105967   0.082 0.934785
## Max.Points.Prep       -0.0020659  0.0197463  -0.105 0.916791
## Rebounds.PerGame.Prep -0.0281630  0.0436286  -0.646 0.519409
## Blocks.PerGame.Prep    0.3375330  0.0926827   3.642 0.000353 ***
## Steals.PerGame.Prep    0.3079473  0.1133680   2.716 0.007241 **
## Turnovers.PerGame.Prep -0.1946748  0.1091328  -1.784 0.076126 .
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 1.311 on 181 degrees of freedom
## Multiple R-squared:  0.2909, Adjusted R-squared:  0.2635
## F-statistic: 10.61 on 7 and 181 DF,  p-value: 3.694e-11
```

AAU PCA

```
##                              PC1          PC2         PC3          PC4
## WS                   -0.31425726 -0.16659943  0.26153580  0.787317796
## Points.PerGame.AAU   -0.46162701  0.14352654 -0.42118266  0.101106609
```

```
## Minutes.PerGame.AAU     -0.41010026  0.03783049 -0.10697613 -0.479203616
## Max.Points.AAU          -0.43522708  0.18090215 -0.46937238  0.130681915
## Rebounds.PerGame.AAU    -0.28065782 -0.58466051  0.03936793 -0.087290178
## Blocks.PerGame.AAU      -0.07189492 -0.70979631 -0.06876033 -0.112728129
## Steals.PerGame.AAU      -0.33013413  0.26237138  0.53754631 -0.008822461
## Turnovers.PerGame.AAU   -0.37096066  0.05486860  0.47667182 -0.320607598
##                                 PC5         PC6         PC7         PC8
## WS                       -0.03142576  0.42835442  0.02241184  0.01547068
## Points.PerGame.AAU        0.07227114 -0.18114540  0.02792707 -0.73475613
## Minutes.PerGame.AAU      -0.41607709  0.63300283 -0.10945227  0.05927991
## Max.Points.AAU            0.12609997 -0.22574925  0.15770758  0.66987163
## Rebounds.PerGame.AAU      0.12101469 -0.25429952 -0.69655986  0.07566647
## Blocks.PerGame.AAU       -0.21372705 -0.12756984  0.64064059 -0.03479966
## Steals.PerGame.AAU       -0.53631697 -0.49395465  0.03356968  0.01961709
## Turnovers.PerGame.AAU     0.67587591  0.08432093  0.25519282 -0.01818581
```

Prep PCA

```
##                                 PC1         PC2         PC3         PC4
## WS                       -0.4167564  0.05369917 -0.08283832  0.53173658
## Points.PerGame.Prep      -0.5471669 -0.20426701 -0.01776234 -0.35303666
## Minutes.PerGame.Prep      0.2260597 -0.27866355 -0.55084053  0.01213641
## Max.Points.Prep          -0.5432766 -0.23615203  0.07313508 -0.27641532
## Rebounds.PerGame.Prep    -0.3048229  0.37881201 -0.44568039 -0.22037165
## Blocks.PerGame.Prep      -0.1341082  0.59468007 -0.37221587  0.21302414
## Steals.PerGame.Prep      -0.2062117 -0.46280294 -0.13918645  0.60841966
## Turnovers.PerGame.Prep    0.1650596 -0.33262704 -0.57227594 -0.22792799
##                                 PC5          PC6         PC7          PC8
## WS                       -0.633030074  0.308293577 -0.18668804  0.05656956
## Points.PerGame.Prep      -0.085610039 -0.077113375  0.11201352 -0.71281860
## Minutes.PerGame.Prep     -0.380000825 -0.645637793 -0.07826497  0.01722940
## Max.Points.Prep          -0.005469898 -0.167618508  0.27336843  0.68152211
## Rebounds.PerGame.Prep     0.307264050  0.005551986 -0.64061638  0.10750999
## Blocks.PerGame.Prep       0.109901359 -0.126263614  0.64229557 -0.06230771
## Steals.PerGame.Prep       0.583935562 -0.085349337 -0.02060033 -0.07108575
## Turnovers.PerGame.Prep    0.006561667  0.656358622  0.21997164  0.05853596
```