PROJECTING COLLEGE BASKETBALL FRESHMAN PERFORMANCE USING GRASSROOTS BASKETBALL STATISTICS

By Neil Johnson

ABSTRACT

Basketball recruiting relies largely, if not solely, on the opinions of scouts who travel the country to see and evaluate as many players as they can. Logistically, it is impossible for scouts to see every player that will play National Collegiate Athletic Association (NCAA) Division 1 basketball, and there is a bias towards evaluating the best players and teams with the most exposure. With the rise of Grassroots leagues sponsored by athletic apparel companies, prospective basketball recruits now play in organized leagues that level the playing field and provide consistent statistics. This paper will create Box Plus/Minus ratings (BPM) using available box score statistics for the players in those grassroots leagues and assess the predictive power of grassroots statistics for NCAA performance for all players who participated at both levels. This paper will then summarize the results by evaluating the utility of forecasting the performance of NCAA Division 1 freshman basketball players given their Grassroots Box/Plus Minus ratings.

WHAT ARE GRASSROOTS LEAGUES?

Grassroots basketball leagues are for high school players and consist of 10-20 teams that play on 3-4 weekends with every team playing in the same city. Since the teams are playing at a common location each weekend, typically during NCAA live recruiting periods, these events have become popular destinations for NCAA basketball coaches.
Since these grassroots basketball leagues provide consistency in how the games are played and each league has a championship, the competitiveness is raised for the players. Alongside that, the league format ensures teams play against each other and against common opponents, which helps in regards to evaluating team strength reliably.

DATA USED

Grassroots box scores from:
- Nike 17U EYBL
- Adidas Uprising Gauntlet 17U Gold Series
- Under Armour Association 17U
- Adidas Nations
- Adidas Summer Championships 17U
- NBPA Top 100 Camp
- Nike Global Challenge
- Pangos All-American Camp
- Under Armour All-America Camp

NCAA season stats from:
- Basketball-Reference.com

Players that qualified were apart of the 2012-2016 recruiting classes.

PROCEDURE

To evaluate the predictability of grassroots metrics versus scout ratings, we will use the pool of players identified above as the starting point. From there, we will use ESPN's scout ratings, raw BPM, adjusted BPM, and player efficiency ratings (PER) to measure which metric is the best a predictor of BPM for a given player's freshman season.
Additionally, we will look at the predictability of how these scout ratings and grassroots metrics compare to the PER for a given player's freshman season.

HYPOTHESIS

With the use of box score statistics, projecting incoming freshman talent at the NCAA level can be done more accurately and consistently than solely relying on scout ratings.

RESULTS

When looking at the results, we will compare the scout ratings and the grassroots metrics in a multitude of ways. First, we look at the sample of players that both were ranked by ESPN and played at least 200 minutes in grassroots events in our database. Adjusted grassroots BPM looks to be the most predictive of freshman year BPM.

equations

$$f(ESPN\,Rating) =_{college} BPM$$

$$f(_{grassroots}adjustedBPM) =_{college} BPM$$

$$f(_{grassroots}rawBPM) =_{college} BPM$$

$$f(_{grassroots}PER) =_{college} BPM$$

r^2 *results*

AAU Min.	ESPN	Adj. BPM	Raw BPM	PER
200	0.31	0.39	0.24	-0.03
300	0.32	0.37	0.2	0.02
400	0.3	0.37	0.22	-0.001
500	0.36	0.38	0.21	0.03

Now let's do the same exercise but compare the correlation to another metric, PER.

equations

$$f(ESPN\,Ratings) =_{collgee} PER$$

$$f(_{grassroots}adjBPM) =_{collgee} PER$$

$$f(_{grassroots}rawBPM) =_{collgee} PER$$

$$f(_{grassroots}PER) =_{collgee} PER$$

r^2 *results*

AAU Min.	ESPN	Adj. BPM	Raw BPM	PER
200	0.41	0.34	0.22	0.1
300	0.42	0.34	0.2	0.14
400	0.41	0.32	0.22	0.12
500	0.45	0.31	0.22	0.27

Here we see the scout ratings are the better predictor of freshman year PER than adjusted BPM is for the same sample. Interestingly enough, grassroots BPM is a better predictor of freshman year PER than grassroots PER is. Let's take a look at how grassroots BPM correlates to freshman year BPM for all players in the database (not just for players with a scout rating).

r^2 *results*

AAU Min.	Adj. BPM	Raw BPM	PER
200	0.45	0.36	0.2
300	0.45	0.34	0.2
400	0.44	0.35	0.2
500	0.45	0.32	0.22

Here we see the strength of grassroots adjusted BPM. It translates strongly to freshman year BPM even when considering players with as little as 200 minutes played. The sample size here is 556 players, while the sample size for players with an scout rating and more than 500 AAU minutes logged is only 115.
Now let's look at how the scout ratings translate regardless of whether the player logged any grassroots minutes.

r^2 *results*

	BPM	PER
ESPN	0.24	0.32

Surprisingly, we see the predictability factor of the scout ratings drop significantly when we increase the size of the player pool.

CONCLUSION

The predictability of adjusted grassroots BPM is significantly notable and is comparable to scout ratings when projecting incoming NCAA freshman year performance. With more rigorous stat keeping and more research, it is reasonable to conclude one could more powerfully predict NCAA freshman year performance by considering this data source.