CLUTCH SCORING PLAY-STYLE CLUSTERS

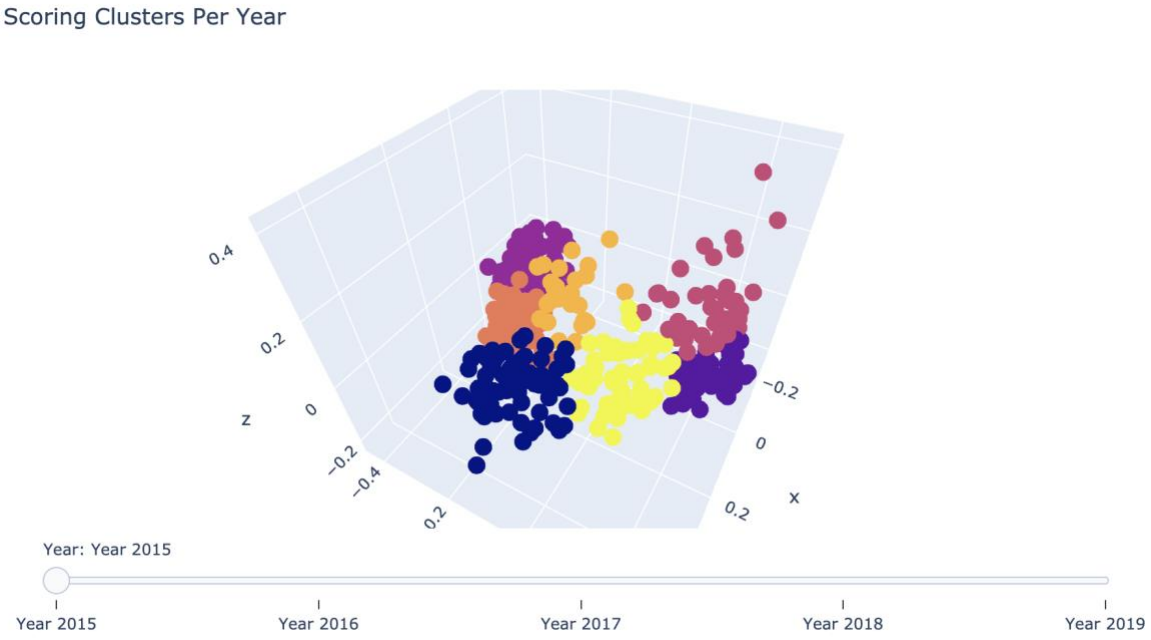
Investigation: What play style creates a clutch scorer?

During the position-less basketball, unicorn heavy, analytics informed era we have seen many teams eschew the "inefficient" shots in favor of maximizing the expected value for points scored. We've also seen some people dismiss the idea of a "clutch" factor. We've seen heated debate about how teams should play in the clutch. Should the ball be in the hands of your "floor general". Should they be with your go-to perimeter scorer? Or maybe you throw it down low and let the big men bang it out?

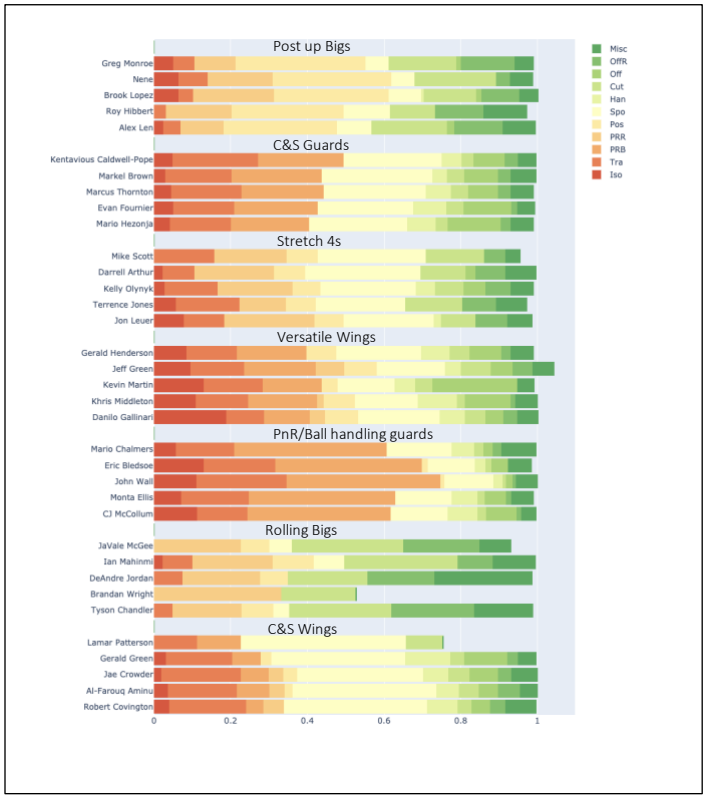
I wanted to investigate this. Is there a certain playstyle or versatility even that makes players more clutch?

So, I decided to find out all the different types of "Roles" in an offense that a player might occupy. And then, I wanted to investigate if certain roles fared better under pressure or in the clutch. So, I scraped NBA.com for clutch stats and synergy play-type data. (Unfortunately, the API locked me out and I had to use some old 2015-16 shot logs and schedule data to "simulate" the NBA clutch stats). I could only look at one year due to the 1000 record limit. With the synergy data getting to 400 records, and the same for the clutch player data.

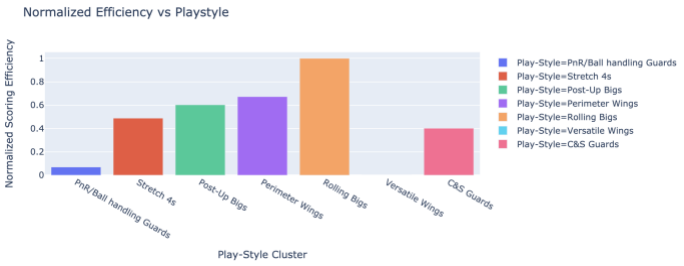
I took into account the different play-styles (PnR Ball handler, PnR Roller, Isolation, Transition, Post Ups, Spot Up, Hand offs, Cuts, Off screens, Offensive Rebounds/Putbacks and Misc). I took into account possessions, possessions shares and PPP in order to identify player roles in offense. I then clustered a PCA (reduced dimensionality) of the data to get a 3-d visualization of the players and their roles. You can view this graph on my plotly, or by running the attached jupyter notebook. I plotted all the years I could scrape, just to visualize things and run sanity checks. I then also reconstructed the top 5 players for each cluster:

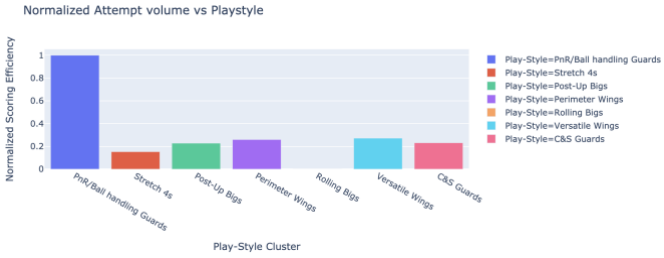


CLUTCH SCORING PLAY-STYLE CLUSTERS



These match the roles in 2015-16 quite well. It was the infancy of the super analytics-heavy era, and the birth of the Warriors dynasty. We still see traditional post-up Bigs who would in later years start to be replaced by "do-it-all" unicorns. Anthony Davis and Jokic would exemplify those unicorns (For now AD is in the post-up cluster). We see stretch fours, who have will start to merge in with C&S wings as switchability becomes more important after 2015-16. A really interesting observation is how in 2015-16 Brook Lopez exemplified the Post-Up big cluster. 4 to 5 years later, he was spotting up and shooting 3s at record levels for a 7-footer big man.





When we examine the "clutch" efficiency of these clusters however. We get some interesting results! (Clutch is defined as the last 5 min in a close game.) We actually find that versatile wings are the least efficient clutch scorers! (When accounting for normalized eFG). Rolling Bigs naturally score at the most efficient rate, but this could easily be attributed to how close to the basket and "easy" their shots are. The other highly efficient scorers are the usual suspects in terms of players that aren't really shot creators. Ball handling guards fair marginally better than versatile wings. However, Post-Up Bigs being the third most efficient group comes as a surprise! The Post-Up has been "dying" in the NBA, so it's interesting to see those type of players performing the so well in the clutch! Especially since the post-up is not an "assisted" shot. It's far more of a shot-creation style of play. However, this doesn't necessarily tell us that "Post up" possessions are the better, just that players with those skills fare really well. This could be saying a lot more about the

It's also quite interesting since the attempts are almost inverted. Ball handling guards take the lion's share of the clutch attempts. The NBA in 2015-16 was a guard driven league, so this could be a strong factor,

but it could also indicate that “selfish” play was quite prevalent in the league. There is often a tendency to go “hero-ball” in the clutch instead of sticking to team-offense. However, when looking at this data vs regular time data, the distribution of possessions is almost identical. This could indicate heliocentric offenses only being optimal for certain teams (which is still a stretch to say without more data).

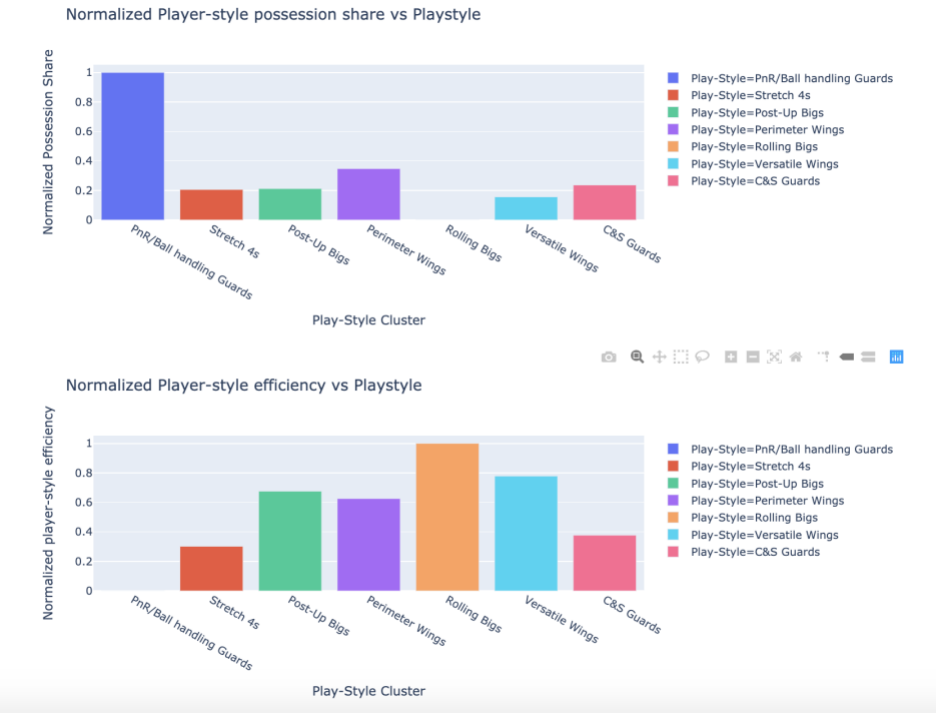
In conclusion, what we can argue with this data, is that when it comes to the clutch and the strong post-up players may prove to be quite an underrated option! Post-ups are similar to isolation plays and usually result in less turnovers due to a majority of the clock being eaten by a single ball-handler. Another argument might be that floor-general ball-handlers may be carrying too high of an offensive load in general, and it would be wiser for them to play within the flow of the offense, or even look to the talented bigs on their team if in the clutch (If they are available).

Shortcomings of the investigation and next steps: This sample size is quite miniscule. We also don’t know how robust these insights are from season to season. “Clutch” is also a nebulous term, with even smaller sample sizes.

I also had to get a bit creative to get the clutch stats from some Kaggle shot logs **since NBA.com soft blocked me**, so they might not be perfectly accurate since I had to use the final score margin to be 5 instead of starting to count clutch buckets only when the score was within 5. However, with available shot-logs we could also further attempt to dissect the areas that each archetype shoots from in the clutch vs in normal time (however, this would be far more than 1000 rows/record of data.)

Appendix:

Looking at non-Clutch possession distribution, as a way to try and account for selection bias (Not enough space to talk about this within the two page limit:



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We can see that usually Rolling Bigs as the most efficient (naturally due to the nature of their shots). PnR ball handlers handle the most possessions (They are primary creators most often, so this makes sense, but this is disproportionately higher in the clutch. This could just be small sample sizes in the clutch, but it's hard to say.) But, we can see post-up Bigs are quite efficient on a PPP basis, even though the post-up itself isn't. This might tell us something about the more diverse toolset that. "post-up" bigs needed to develop to have to survive in the NBA around 2015-16. It has since moved even more into "unicorn" territory vs "Post-Up bigs". However, it is quite surprising that versatile wings seem to fair so much worse in the clutch vs regular time in terms of efficiency.