Yes Virginia, Three Point Shooting Is Important!!
But, It Is Not the Be-All, End-All Factor

Three point shooting has been on the radar screen again in the first 1/3 of the 2016-17 basketball season. Some, including me, have observed that the current team's three point shooting is problematic. Furthermore, those raising this issue tend to recall how the 2009-10 team fell to West Virginia in the Elite Eight when it was completely unable to make even a minimal percentage of its three point attempts.

To be sure, the percentage of three point attempts made is an important factor. Theoretically, if a team makes 50% of its two point attempts, it must convert 33.3% of its three point attempts to achieve an equivalent efficient from the possession the team ends with the shot attempt. Similarly, if a team makes 56% of its two point attempts, it should convert at least 42% of its three point attempts for equivalent efficiency. However, teams rarely achieve true efficiency equivalence between its two and three point attempts. For example, some teams may have such a dominant inside game that its shooting percentage inside the arc is so high that their ability to convert their long-range shots at an equivalent rate is very limited. Such teams will take fewer shots from outside the arc and focus their offensive game within 10 feet of the basket. At the other end of the scale, teams that lack a dominant inside game must find and rely upon strong outside shooting to compensate their lack of an inside game. That does not mean that such a team will make an inordinately high percentage of their outside shots, only that such teams find they must place a greater reliance upon those outside shots.

While three point shooting percentage is an important factor that affects a team's offensive efficiency, three point shooting percentage is less important for a team's ultimate success as a champion than consistency of that shooting over the course of the season. For this analysis, I have selected four Calipari coached UK teams: 2010, 2012, 2015, and the current team, 2017. For each of these teams, I have the three point shooting, game to game, and running season average, plotted as shown below.

For the record, and before examining each of these teams in detail, these teams averaged about 32 in 2010, about 38% in 2012, about 35% in 2015, and are averaging about 32% in 2017. The similarity of the current team's three point shooting percentage to that achieved by the 2010 team is a primary source of the expressions of concern about this team shooting from long range. However, I encourage a different basis of comparison for these teams. The 2010 and the 2015 teams each ended their seasons with very disappointing losses. The 2012 team completed its championship quest, and hopes remain high that the 2017 team will be more like 2012 than 2010 or 2015.

2009-10

Most observers have attributed making only about 11% of its three point attempts against West Virginia for the aforementioned Elite 8 loss. That analysis for that game is probably reasonable. However, note that the same team advanced to the Elite 8 that season while only making 11% of its long-range shots. However, I suggest that a more important aspect of the 2010 team's three point shooting is the range (highest to lowest) of game performance, ranging from a high of about 70% in game 11 to lows below 10% in games 29 and 32. Furthermore, the 2010 team had nine of its 38 games with three point

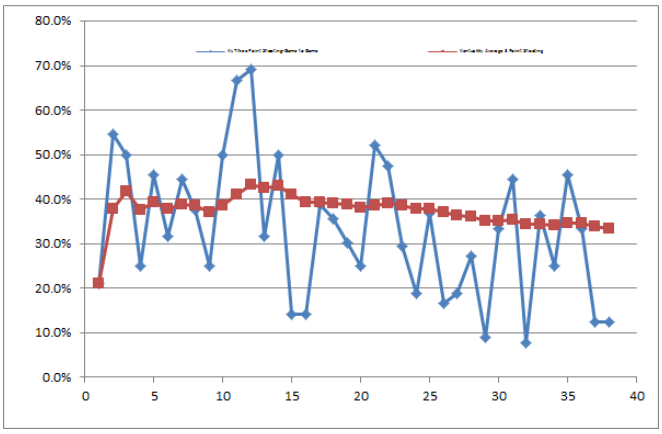

Figure 1-2009-10 THREE POINT SHOOTING

shooting below 20%. That is extremely poor shooting from outside in almost 1 of every 4 games during the season. The standard deviation of three point shooting in games was 15.5%.

Finally, the long-term trend for the 2010 team was downward. Through the first 22 games, the team's average three point shooting percentage was just shy of 40% on the season, but the slippage began and continued to the end. That slippage was an unheeded signal of problems with this element of that team's game, a problem that Coach Huggins clearly recognized and exploited.

This team average 18.3 three-point shots per game, which was about 31% of all shot attempts. In the West Virginia loss, the team attempted a whopping 32 attempts (47.7% of all shots). In this team's other two losses, they attempted 12 (21%) and 22 (37%) three point shots. The team's attempted reliance upon the perimeter shot against West Virginia is an anomaly that will forever haunt Coach Calipari, those players, and the Big Blue Nation.

2011-12

Contrast this to the National Champion 2012 team. This team has a similar range of game performance, with a high of about 60% and a low of about 10%. However, this team had no games below 10% and only 3 games out of 40 (1 in every 13 games) below 20%. The standard deviation of three point shooting in games was 12.0%.

Finally, the long-term trend for the 2012 team was stable if not upward over the last half of the season. Through the first 22 games, the team's average three point shooting percentage was about 37% on the season, and the team ended the season at about 38%. During the post season's nine games, the range of performance was 22% to 50%, with five of the nine games below the team average and four above.

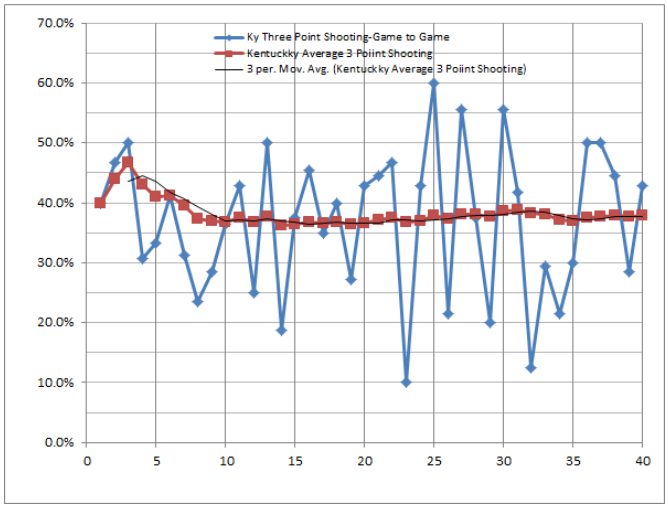

Figure 2: 2011-12 THREE POINT SHOOTING

This team average 14.9 three-point shots per game, which was about 26% of all shot attempts. In this team's two losses, they attempted 7 (13%) and 28 (44%) three point shots.

2014-15:

Contrast this team to the Elite Eight losing and National Champion 2012 teams. This team has a similar range of game performance, with a high of about 67% and a low of about 8%. However, this team had only one game below 10% (Game 8) and only 3 games out of 38 (1 in every 13 games) below 20%. The standard deviation of three point shooting in games was 13.2%.

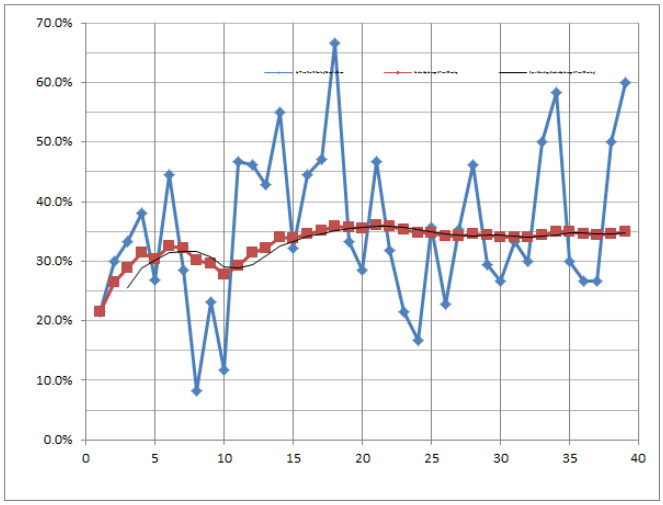

Figure 3: 2014-15 THREE POINT SHOOTING

Finally, the long-term trend for the 2012 team was stable over the last half of the season. This team shot the ball very poorly over its first 10 games, but thereafter only had one game with sub 20% shooting from the outside. Through the first 22 games, the team's average three point shooting percentage was about 35% on the season, and the team ended the season at about 35%. During the post season's eight games, the range of performance was 27% to 60%, with four of the eight games below the team average and four above.

This team average 14.9 three-point shots per game, which was about 27% of all shot attempts. In this team's season ending loss in the Final Four, they attempted 7 (9%) three point shots.

2016-17:

Contrast this team to the three teams summarized above. Admittedly, this season is still young, and the team has likely not revealed the full range of game performance that this team will have. However, through nine games, this team has shown a much narrower range of game performances, with a high of about 40% and a low of about 30%. This team has not had any games below the 20% floor used in the analysis of the three other teams. The standard deviation of three point shooting in games is only 4.8%.

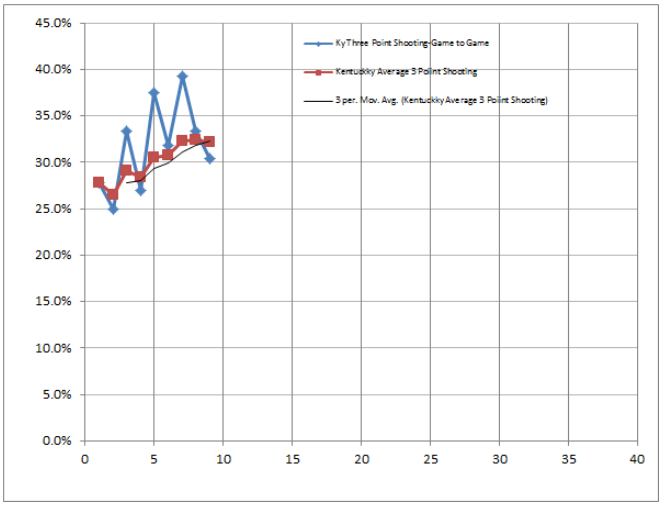

Figure 4: 2016-17 THREE POINT SHOOTING

Since this team has not revealed the full range of its game performance, it is also too early to establish a season long trend. None of the other teams had revealed the full range of their game performance through nine games, Similarly, none of the other teams had established their long term shooting effectiveness trends through

nine games of their season.

This team average 22.4 three-point shots per game, which was about 31% of all shot attempts. In this team's loss to UCLA, they attempted 24 (30%) three point shots.

CONCLUSIONS:

It is too early in the season to know how this team will shoot the ball from the perimeter in March and April. However, there are some indications that merit comment.

1. This team is shooting a slightly higher percentage of its shots from the perimeter than is typical for a team coached by Calipari.
2. This team's three point shooting has been more consistent thus far than any of the other teams examined in this article.
3. This team's shooting inside the arc has averaged 55.5% which means the contribution of three point shooting to overall team offensive efficiency is lacking.

In my opinion, this team should focus a little more on its interior game, reducing the current 31% of three point shots to a lower level, to between 25 and 30% of all shot attempts. This will slow down the team's offense slightly as they must work harder and longer on each possession to obtain a reasonable shot from the paint area, and this change will require better shot selection for the three point attempts the team takes.

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