

The Importance of Being Open

The following is my take on The Importance of Being Open: What optical tracking data says about NBA field goal shooting – by Sandy Weill, presented at the MIT Sloan Sports Analytics Conference.

I sat down for Sandy Weill's presentation with some trepidation – when I was at Sloan two years ago, Sandy was one half of the pair that presented the findings behind "Debunked: The Myth of the Hot Hand". Even though I consider myself an analytic guy and there were all these numbers and data they used to support their findings, it was difficult to believe that "being in the zone" was not real, and that "He's heating up!" really only exists in video games.

The other reason for my reservations: The title – Optical tracking data? Who wants to listen to the results of the monitoring of NBA players' eye movements?

All I can say is, wow, am I glad I got over that. Weill described it as the "Data Holy Grail": The future of basketball analytics is underway and Sandy was providing some of the first results from it. This great new data is from Stats, LLC, as they have added multiple cameras (hence the optical in the title) to 3 NBA courts, with the sole intention of recording everything that occurs on the court. Players are tracked, with an exact location in x,y coordinates, as are referees and the ball. 25 times a second, software analyzes the video, and stores information about where everyone is and what is occurring. 1,000,000 entries per game with 60 some games added to their databases so far. Basic things like field goal attempts, blocks, rebounds, and assists are part of what is tracked. And that's where it starts getting really cool – player position and defender proximity to a player are now available without having to chart and track a game by hand and eyeball estimates.

For his hot hand research, Sandy relied on play by play data to generate possession and play data on a granular level – but with the limitations inherent to play by plays. Passes aren't tracked, unless they end in an assist; who had the ball in their hands during the possession is unavailable; where was the defender when a shot was taken is an unknown. But not anymore.

The focus of Weill's research this time was on distance – from the rim and from defenders – and the impact on field goal percentage. Stats, LLC's new tool provides exactly that, as Sandy was able to look at over 6,000 field goal attempts with the knowledge of where the shot was taken and the distance from defenders. Yes, plural defenders, as the range from all defenders is available, giving the ability to recognize double teams and an oncoming defender.

The three primary results of Weill's poring through the data and accounting for things like historical player shooting percentages, distance, and shot type:

- Tight defense (within three feet) drops expected shooting 12% points (ie – a 50% shot becomes a 38% shot)
- FG% drops 1% point for every 1.5 feet from the rim
- There is something beneficial about the catch and shoot, beyond expectations

It's that last one that is most fascinating to me: There is now empirical proof that crisp ball movement can result in a better outcome for the offense. Weill's data showed that even when accounting for the defender's proximity, the field goal percentage on catch and shoot plays was higher than expected for the distance of the shot. The new optical data is detailed enough to give the knowledge of how a player got the ball, how long he had it, what the last action was before a shot (dribble, pass, etc), and where the defense was a second before a player received the ball and then as he catches it. As impressive as Weill's research and findings were, the exciting part is that this is just the beginning of a new level of data available for basketball analysis and the findings that will result.