The Economist

Game theory **Sports**

Individual v team in basketball Most valuable loser

Jun 18th 2015, 0:31 by D.R. | SAN FRANCISCO

AMONG the world's major team sports, the one in which a single superstar can have the greatest impact is basketball. With just five men per side and no limits on how often one player can get the ball, the rarest of talents can improve a team's won-lost record by 30 percentage points or more. Nonetheless, it is an article of faith among connoisseurs of the sport that no individual is



great enough to win a championship on his own. Wilt Chamberlain

(http://en.wikipedia.org/wiki/Wilt_Chamberlain) 's Philadelphia 76ers always lost to the Boston Celtics until he teamed up with three other future Hall of Famers and reduced his own shooting by half. Michael Jordan (http://en.wikipedia.org/wiki/Michael_Jordan) never got past the Detroit Pistons until he acquired a supremely skilled second fiddle in Scottie Pippen (http://en.wikipedia.org/wiki/Scottie_Pippen). And LeBron James

(http://www.lebronjames.com), whose dominance over the past decade can only be compared to Mr Jordan's, never won a single game in the National Basketball Association (NBA) finals until he abandoned the Cleveland Cavaliers to join forces with two other stars on the Miami Heat.

This theory has never been put to a stiffer test than in the 2015 National Basketball Association (NBA) finals, which ended on June 16th with a 105-97 victory for the Golden State Warriors. After spending four years in Miami and winning two championships, Mr James returned to Cleveland (http://www.economist.com/blogs/gametheory/2014/07/basketball-economics) last year and vowed to deliver a title to his hometown's long-suffering fans, whose local teams have not won a championship in any major sport since 1964 (https://en.wikipedia.org/wiki/1964_Cleveland_Browns_season) . Mr James was supposed to be backed by a far superior supporting cast this time around than he had during his first stint with the Cavs. The roster already included Kyrie Irving

(http://en.wikipedia.org/wiki/Kyrie_Irving) , a dynamic young guard. And shortly after his arrival, Mr James helped orchestrate a trade for Kevin Love

(http://en.wikipedia.org/wiki/Kevin_Love), a six-feet, ten-inch (2.08-metre) tall forward with gaudy rebounding numbers and a versatile offensive game. Mr James's dreams of a threeheaded monster failed to materialise when both of his sidekicks were injured: Mr Love went down for the season in April, and Mr Irving hurt his knee late in the first game of the finals. What followed was the most impressive display of one-on-five basketball in modern memory.

Mr James was single-handedly trying to defeat a Warriors team that was perhaps the purest example yet seen of the ascendant style of play in the NBA. In recent years basketball teams have begun to embrace statistical analysis, just as their counterparts in baseball did a decade earlier. Among the strongest conclusions quantitative researchers have reached about the sport is that the most valuable shots are dunks and short-range layups, which are made the vast majority of the time, followed by three-pointers from the corner of the court—the closest spot to the hoop that is still rewarded with an extra point in addition to the normal two. In contrast, the worst shots are "long twos", jumpers taken from just inside the three-point line, which are comparatively unlikely to go in and receive no bonus points if they do.

As a result, forward-thinking teams—most notably the Phoenix Suns of the late (http://www.basketball-reference.com/teams/PHO/2007.html) aughts (http://www.basketballreference.com/teams/PHO/2010.html) —have focused on maximising the number of layups and three-pointers they can take. They accomplish this either by applying aggressive defensive pressure and then beating their opponents down the court in transition, or by spacing their players widely around the court, which increases the distance defenders must travel to reach a man who has managed to get open. Similarly, the goal of modern defences is to force opponents to settle for long twos. That requires deploying a formidable "rim protector"—a power forward or centre close to seven feet tall who stands near the opposing basket and contests close-range shots—as well as agile guards who can prevent rival shooters from getting open behind the three-point arc.

The Warriors won 82% of their regular-season games—which tied for the best record since 1996-97—with something approaching a Platonic ideal of this strategy. The face of the franchise was Stephen Curry (http://en.wikipedia.org/wiki/Stephen_Curry), a point guard who was voted the league's Most Valuable Player after setting a record for three-pointers made in a single season. Because Mr Curry is unquestionably the greatest long-range shooter in the game, the breadth of his talents is often overlooked: he is also lightning-quick at dribbling past opponents and driving

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to the basket, a highly aware passer and playmaker (he finished fourth in the NBA in assists), and a ball-hawk defender who led the league in steals. But Golden State surrounded him with a phenomenal array of talent perfectly suited to the modern game. His teammates included Klay Thompson (http://en.wikipedia.org/wiki/Klay_Thompson), a second deadly shooting threat; Andrew Bogut (http://en.wikipedia.org/wiki/Andrew_Bogut), a seven-foot Australian who is an elite defensive centre; Draymond Green (http://en.wikipedia.org/wiki/Draymond_Green), a steady-scoring forward who excels at defence and rebounding; and Andre Iguodala (http://en.wikipedia.org/wiki/Andre_Iguodala), a top-tier perimeter defender. After Golden State's dominant march to the finals, bookmakers gave them about a 70% chance to win.

Then they ran into LeBron James. Left with nothing but role players as teammates, and guarded by the suffocating Mr Iguodala and occasionally the equally tough Mr Green, the 30-year-old carried his team on his back to an utterly unprecedented degree. Adopting by necessity a grueling style of play that went out of fashion years ago, Cleveland's entire offensive strategy was to hand the ball to Mr James, isolate him against a single defender, and cross their fingers.

He responded by showcasing an astonishing array of skills. Sometimes he relied on his quickness to beat his man off the dribble; sometimes he turned his back to the basket and used his strength and footwork to bank in an attempt from close range; sometimes he chucked up a long jump shot that found the net; and often, after drawing three defenders near him, he unleashed uncanny no-look bounce passes that threaded the needle between them and wound up in the hands of a wide-open teammate. Fully 41% of Cleveland's possessions during the finals ended with the ball in Mr James's hands, breaking the record of 39% set by Mr Jordan in 1993.

Shouldering such a heavy load, it stood to reason that Mr James's shooting percentage would decline, which it did from its usually lofty level at or above 50% to a far uglier 40%. But because Golden State had to invest so much effort in stopping him, his teammates were frequently well-positioned to rebound and put back his misses. In particular, Tristan Thompson (http://en.wikipedia.org/wiki/Tristan_Thompson) averaged 5.3 offensive rebounds per game during the series, a mark that would have tied for the league lead during the regular season.

Most remarkably, for three games, the LeBron-and-pray approach seemed to work. Mr James and his coach, David Blatt (https://en.wikipedia.org/wiki/David_Blatt) —who developed his knack for strategy in the Israeli army—did a masterful job of imposing this grinding pace on the run-and-gun Warriors. After leading the league during the regular season with 98.3 possessions per 48 minutes—which required relentless running up and down the court, taking advantage of their depth to exhaust opponents—Golden State was slowed to a plodding rate of just 90.6 in the finals. Recognising that they lacked the skills to carve up or shoot over the Warriors' defence, Mr James's teammates focused on inducing fouls and getting to the line: Cleveland scored 21% of their points on free throws, a mark that far exceeded their 17% average during the regular season and would have ranked second in the NBA. By eschewing aesthetically pleasing basketball in favour of a war of attrition, the undermanned Cavs managed to wrest a small edge, leading 2-1 after three games. And were it not for a heinous travelling call

(http://kingjamesgospel.com/2015/06/05/nba-finals-1-play-changed-game-series) late in game one on Timofey Mozgov (http://en.wikipedia.org/wiki/Timofey_Mozgov), Cleveland's seven-foot, one-inch-tall Russian centre, Mr James's troops might well have secured an all-but-insurmountable 3-0 lead.

But Cleveland's Cinderella story was not to be. Recognising that the Warriors needed to change the tempo in order to capitalise on their advantages, Steve Kerr

(http://en.wikipedia.org/wiki/Steve_Kerr) , the Warriors' coach, made a tactical sacrifice worthy of a chess grandmaster. After lying to the press

(http://espn.go.com/nba/playoffs/2015/story/_/id/13063006/2015-nba-finals-golden-statewarriors-coach-admits-lying-plans-game-4-starting-lineup) about his plans for game four, he benched Mr Bogut in favour of Mr Iguodala. On the surface, the decision seemed baffling: Mr Bogut was by one measure the best defensive player in the NBA

(http://espn.go.com/nba/statistics/rpm/_/sort/DRPM) and the 26th most valuable overall (http://espn.go.com/nba/statistics/rpm/_/sort/RPM) , and removing him from the game would allow the 250-pound (113-kg) Mr James to overpower undersized opponents at the rim. But Mr Bogut, a seven-foot behemoth, is hardly a speed demon. By pulling him from the court, Golden State could deploy five pure athletes with quick hands, whom Cleveland's big men could not hope to defend. A faster game would also help exhaust Mr James, who barely took any rest the entire series, and whose teammates missed all 21 shots they took during the few minutes he was on the bench.

The plan was risky, but it worked: Golden State's small lineup ran circles around the Cavs. Promoted to a starting role, Mr Iguodala promptly demonstrated why advanced regressionbased basketball statistics (http://espn.go.com/nba/story/_/id/10740818/introducing-realplus-minus) have identified him as a hidden superstar

(http://espn.go.com/nba/statistics/rpm/_/year/2014/sort/RPM) : he tied Mr Curry as the Warriors' leading scorer in both games four and six, and was named the finals' Most Valuable Player. In game four Golden State nailed twelve three-pointers en route to a comfortable 19-point victory. The final two contests were closer, but both were decided long before the final minutes. In the end, the naysayers who insisted that no star can win a championship by himself were vindicated yet again. As Mr James conceded after his defeat, "We ran out of talent."

So Cleveland's title drought will extend at least into its 52nd year. Given how far Mr James was able to take the Cavs all by himself, it is easy to assume that a full-strength version of the club

would coast to a title. And they do have the benefit of playing in the NBA's eastern conference, which happens to be far weaker than the west

(http://www.economist.com/blogs/gametheory/2013/12/competitive-balance-basketball) at the moment and provides an easy glide path back to the finals.

But serious questions remain about whether Cleveland's current roster is really capable of beating elite teams like Golden State, even with the blessing of health. Mr Love's statistical production plummeted from its prior levels during his first season on the team. That might be because he was nursing some aches and pains, or because Mr Blatt failed to design a scheme that best utilised his skills (http://probasketballtalk.nbcsports.com/2015/03/07/kevin-love-i-knowim-not-a-stretch-four) . But another possibility is that he is a defensive liability who was never as good as his statistics made him appear (http://grantland.com/features/kevin-love-lebronjames-trade-minnesota-timberwolves) : it is hard to believe that any team with a player as valuable as he is believed to be could ever lose 80% of their games, as his Minnesota Timberwolves did from 2009-11. He is also a free agent, and there is no guarantee he will re-sign if Cleveland does want him back. As for Mr Irving, his ability to score is indisputable, but he too could learn much from Golden State's guards about the defensive side of the ball. And Mr James will be a year older, and will need every minute of the off-season to recuperate after the physical pounding he absorbed during these playoffs.

In his Sports Illustrated article announcing his return to Cleveland

(http://www.si.com/nba/2014/07/11/lebron-james-cleveland-cavaliers), Mr James did his best to manage expectations. "I'm not promising a championship," he wrote. "We're not ready right now. No way. Of course, I want to win next year, but I'm realistic. It will be a long process." The first part of that prophecy has come true. Whether the 2015 finals turn out to have been his best shot remains to be seen.