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Research Article

Applied Research Based on the Fibonacci Sequence NBA Center Performance Evaluation

Mingyou Gao
Department of Physical Education, Shan xi Yu Lin College, Yu Lin 71900, China

Abstract: The purpose of this paper study is the application of the "Fibonacci sequence" a new perspective and dimension, select five NBA excellent center players performance evaluation, and thus the size and ranking of the performance of the five players. Five players the pros and cons of the career data with the size of the Fibonacci sequence study the performance of players and then compare to see if consistent harmonious Fibonacci sequence of the universe, thus can be extended to other good players in the league performance evaluation, which provide a way for the players performance evaluation.

Keywords: Center forward playe, evaluation, Fei wave Na contract few row, NBA, results

INTRODUCTION

Through literature review found that: many scholars domestic and abroad for the players performance evaluation of multi-season valuate the performance of the players also confined to a single season and can not form a system to evaluate. Raised the Fibonacci sequence used in the performance evaluation of the players able to solve such problems, this is a major innovation in the research. The purpose is too conducted by the Fibonacci sequence systematic players to the NBA's top five outstanding center at this stage of the respective players performance compare to get the best players performance (Gong, 2001).

Each season data for comparison to evaluate the performance of the players with players through the application of the Fibonacci sequence, you can objectively more accurately reflect the expected results, also be able to reverse to test the performance of the players. As Duncan won the 1998 Rookie of the Year; 2000 All-Star Game Most Valuable Player "; elected" Most Valuable Player of the year twice in 2002 and 2003, and led his team to the effectiveness of the team four championship, at the same time the individual was also elected the most Valuable Player of the 2003 NBA Finals players become NBA history to enter the finals three head twice honored (the first two are Magic Johnson and Michael Jordan) and six consecutive NBA All-Star the best team and the best defensive team, enjoys a reputation as the "Buddha" said. Each season with perfect data "Fibonacci sequence" surprisingly similarly. So, Duncan is the greatest in the past 10 years the influence of the biggest players (Xu and Hu, 2007). Not so strange to have such success. His strength and performance tends to be more perfect, "Fibonacci sequence" is the tallest player in the evaluation of players in the performance (Wang, 2002).

METASYNTHESIS RESEARCH METHODS, OBJECT

"Mathematical Fibonacci sequence" is referred to as aesthetic harmonious formulas. 800 years ago. The Italian mathematician Fibonacci published masterpiece "abacus book famous rabbit raw rabbit problem. Simple Fibonacci sequence is a set of infinite series of numbers 1, led by a number by the sum of the previous two numbers in the past centuries, mathematicians and university students as a treasure. From the technical level, the Fibonacci sequence is not found in nature, but the series with pine cones, sunflowers and other biological growth mode are surprisingly similar-especially a lot of harmless creatures. Fibonacci sequence implied number of columns arranged in principle in the last century, the composer applied music (Huang, 2010). Therefore, we can use the data column extended to everything in the universe, proposed Fibonacci sequence used in the performance evaluation of the players (Huang, 1997).

The season average of the five people selected the NBA All-Star level center Yao Ming, Pau Gasol, Amare Stoudemire, Shaquille O'Neal, Tim Duncan technical data related statistics. Used mainly in the study of mathematical statistics and processing methods and collect the players performance literature as a theoretical support (Guo, 2001).

According to the research comprehensive and integrated are concluded as follow.

- To five players each season with the data "Fibonacci sequence" contrast, players from the perfect Fibonacci sequence difference in basketball technical indicators: Yao 9.376, Gasol 8.578, Stoudemire 7.158, O'Neal 3.218, Duncan 2.292 units.

Table 1: Fibonacci sequence corresponding with the basketball technical indicators

1	1	2	3	5	8	12	21
Shooting	Steals	Block	Assists	Free shot	Shooting throw	Board	Score

Table 2: Perfect fibonacci sequence basketball technical indicato

Mathematical	Index	Mathematical	Index
5	Free number	8	Shooting number
1	Shooting rate	13	Board
1	Steals	3	Assists
2	Block	21	Score

Table 3: Yao Ming season average data

Season	Score	Shooting	Free	Board	Assists	Block	Steal number	Rate number
2002-2003	13.5	4.9	0.498	3.7	8.2	1.7	1.8	0.4
2003-2004	17.5	6.5	0.522	4.4	9.0	1.5	1.9	0.3
2004-2005	18.3	6.7	0.552	4.9	8.4	0.8	2.0	0.4
2005-2006	22.3	8.2	0.519	5.9	10.2	1.5	1.6	0.5
2006-2007	25.0	8.8	0.516	7.4	9.4	2.0	2.0	0.4
2007-2008	22.0	7.9	0.507	6.3	10.8	2.3	2.0	0.5
2008-2009	19.7	7.4	0.548	4.9	9.9	1.8	1.9	0.4
2009-2010	10.2	3.6	0.486	3.0	5.4	0.8	1.6	0.0
Career	19.0	7.0	0.524	5.1	9.2	1.6	1.9	0.4

Table 4: Fibonacci sequence comparison with Yao Ming season average data

	1	1	2	3	5	8	13	21
Different	0.524	0.4	1.9	1.6	5.1	7.0	9.2	19.0
	-0.476	-0.6	-0.1	-1.4	+0.1	-1	-3.8	-2

Table 5: Yao Ming basketball career data is reached by the Fibonacci list

Mathematical	Index	Mathematical	Index
5.1	Free number	7	Shooting number
0.524	Shooting rate	9.2	Board
0.4	Steals	1.6	Assists
1.9	Block	19	Score

- Difference of five players with perfect Fibonacci sequence "in basketball technical indicators, the standard deviation of the distance for Duncan, and the smallest just under 2.292 units.
- The five players with the perfect close to the Fibonacci sequence "ranking: Duncan, O'Neal, A Stoudemire, Pau Gasol, Yao Ming. , Duncan Over the last few seasons since their performance the most prominent, better than the other four players, is the highest performance players.

BASIC MODEL

Proposed with player evaluation comparison of the Fibonacci sequence. The main indicators considered in the evaluation of the players have to score, rebounds, and the number of shooting, shooting, free throws, hits, steals, blocks, assists these indicators, the center player is no exception (Table 1)

Shown Table 2, 8 conventional indicators as a reaction to the competitive level of the center players, evaluate the performance of the player's personal value and contribution to the team.

Performance, purely from the point of view of linguistics contains achievements and effective means. In economic management activities, socio-economic results and the effectiveness of management activities; sed in the management of human resources, the behavior of the subject or the results of the input-output ratio; measure of the effect of government activities in the public sector, is the concept of a diversified objectives, including; from the management perspective, the organization expected the organization to achieve its objectives and to show different levels of effective output, which includes both individual performance and organizational performance (Zhang and Xu, 1997), Difficult to find from the above interpretation of performance, evaluation of the effect of material activities. Therefore, the application in the evaluation of players refers to the size of the achievements of the efficiency of individual players and helps the team.

Comprehensive model: Yao Ming season data (Table 3). Yao Ming season average data, Fibonacci sequence comparison with Yao Ming season average data (Table 4).

Yao Ming season average data calculated Fibonacci sequence to achieve the growth pattern from the standard deviation of 9.376 units. Yao Ming's season average data through the Fibonacci list of the following diagram (Table 5). Yao Ming From the standard deviation of 9.376 units.

Gasol season data (Table 6). Gasol each season average data analysis, Fibonacci sequence comparison with Gasol season average data (Table 7).

Gasol's season average data calculated to achieve the growth pattern of the Fibonacci sequence is the standard deviation of 8.578 units.

Table 6: Gasol season average data

Season	Score	Shooting	Free	Board	Assists	Block	Steal number	Rate number
2001-2002	17.6	6.7	0.518	4.1	8.9	2.7	2.1	0.5
2002-2003	19.0	6.9	0.510	5.1	8.8	2.8	1.8	0.4
2003-2004	17.7	6.5	0.482	4.7	7.7	2.5	1.7	0.6
2004-2005	17.8	6.5	0.514	5.0	7.3	2.4	1.7	0.7
2005-2006	20.4	7.5	0.503	5.3	8.9	4.6	1.9	0.6
2006-2007	20.8	7.8	0.538	5.1	8.9	3.4	2.1	0.5
2007-2008	18.9	7.2	0.534	4.4	8.4	3.2	1.5	0.5
	18.9	7.2	0.501	4.5	8.8	3.0	1.4	0.4
	18.8	7.3	0.589	4.3	7.8	3.5	1.6	0.5
2008-2009	18.9	7.3	0.567	4.2	9.6	3.5	1.0	0.6
2009-2010	18.3	7.0	0.536	4.4	11.3	3.4	1.7	0.6
2010-2011	22.8	9.1	0.564	4.6	12.1	4.1	1.7	0.6
Career	18.9	7.1	0.522	4.7	9.0	3.2	1.7	0.5

Table 7: Fibonacci sequence comparison with Gasol season average data

	1	1	2	3	5	8	13	21
Different	0.522	0.5	1.7	3.2	4.7	7.1	9.0	18.9
	-0.478	-0.5	-0.3	+0.2	-0.3	-0.9	-4	-2.1

Table 8: Gasol basketball career data is reached by the Fibonacci

Mathematical	Index	Mathematical	Index
4.7	Free number	7.1	Shooting number
0.522	Shooting rate	9.0	Board
0.5	Steals	3.2	Assists
1.7	Block	18.9	Score

Table 9: Stoudemire season average

Season	Score	Shooting	Free	Board	Assists	Block	Steal number	Rate number
2002-2003	13.5	4.8	0.472	3.9	8.8	1.0	1.1	0.8
2003-2004	20.6	7.5	0.475	5.6	9.0	1.4	1.6	1.2
2004-2005	26.0	9.3	0.559	7.3	8.9	1.6	1.6	1.0
2005-2006	8.7	3.0	0.333	2.7	5.3	0.7	1.0	0.7
2006-2007	20.4	7.4	0.575	5.6	9.6	1.0	1.3	1.0
2007-2008	25.2	9.0	0.590	7.0	9.1	1.5	2.1	0.8
2008-2009	21.4	7.6	0.539	6.1	8.1	2.0	1.1	0.9
2009-2010	23.1	8.5	0.557	5.9	8.9	1.0	1.0	0.6
2010-2011	23.1	8.5	0.504	5.8	8.5	2.4	1.9	1.0
Career	21.4	7.7	0.542	5.9	8.9	1.3	1.4	0.9

Table 10: Fibonacci sequence comparison

	1	1	2	3	5	8	13	21
Different	0.542	0.9	1.4	1.3	5.9	7.7	8.9	21.4
	-0.458	-0.1	-0.6	-1.7	+0.9	-0.3	-4.1	+0.4

Table 11: Stoudemire basketball career data is reached by the Fibonacci

Mathematical	Index	Mathematical	Index
5.9	Free number	7.7	Shooting number
0.542	Shooting rate	8.9	Board
0.9	Steals	1.3	Assists
1.4	Block	21.4	Score

Gasol's season average data through the the Fibonacci list of the following diagram (Table 8).

Gasol from the standard deviation of 8.578 units Stoudemire season data (Table 9).

Stoudemire season average data analysis, Fibonacci sequence comparison with Stoudemire season average data (Table 10).

With Stoudemire season average data to achieve the growth pattern of the Fibonacci sequence Stoudemire season average data calculated from the standard deviation of 7.158 units. So, Stoudemire season average data after the Fibonacci list of the following diagram (Table 11).

Stoudemire from the standard deviation of 7.158 units O'Neill season data. (Table 12).

Season average data analysis, Fibonacci sequence comparison with O'Neal season average data (Table 13).

O'Neal's season average data calculated to achieve the growth pattern of the Fibonacci sequence distance standard was only 3.218 units. So, O'Neal each season average data after the Fibonacci list of the following diagram (Table 14). O'Neill Short of the 3.218 units from the Standard Duncan season data (Table 15).

Duncan each season average data analysis, Fibonacci sequence comparison with Duncan season average data(Table 16).

Duncan's season average data calculated to achieve the law of growth of the Fibonacci sequence distance criteria was only 2.292 units. So, Duncan season average data after the Fibonacci list of the following diagram (Table 17).

Duncan Short of the 2.292 units from the standard Reached by the Fibonacci. Five players each season, the

Table 12: O'Neal's season average data

Season	Shooting	Score	Free	Board	Assists	Block	Steal number	Rate number
1992-1993	23.4	9.0	0.562	5.3	13.9	1.9	3.5	0.7
1993-1994	29.3	11.8	0.599	5.8	13.2	2.4	2.9	0.9
1994-1995	29.3	11.8	0.599	5.8	11.4	2.7	2.4	0.9
1995-1996	26.6	11.0	0.573	4.6	11.0	2.9	2.1	0.6
1996-1997	26.2	10.8	0.577	4.5	12.5	3.1	2.9	0.9
1997-1998	28.3	11.2	0.584	6.0	11.4	2.4	2.4	0.7
1998-1999	26.3	10.4	0.576	5.5	10.7	2.3	1.7	0.7
1999-2000	29.7	12.1	0.574	5.5	13.6	3.8	3.0	0.5
2000-2001	28.7	11.0	0.572	6.7	12.7	3.7	2.8	0.6
2001-2002	27.2	10.6	0.579	5.9	10.7	3.0	2.0	0.6
2002-2003	27.5	10.4	0.574	6.7	11.1	3.1	2.4	0.6
2003-2004	21.5	8.3	0.584	4.9	11.5	2.9	2.5	0.5
2004-2005	22.9	9.0	0.601	4.8	10.4	2.7	2.3	0.5
2005-2006	20.0	8.1	0.600	3.7	9.2	1.9	1.8	0.4
2006-2007	17.3	7.1	0.591	3.1	7.4	2.0	1.4	0.2
2007-2008	13.6	5.4	0.593	2.8	9.1	1.5	1.4	0.5
	14.2	5.8	0.581	2.7	7.8	1.4	1.6	0.6
	12.9	5.0	0.611	2.9	10.6	1.7	1.2	0.5
2008-2009	17.8	6.8	0.609	4.1	8.4	1.7	1.4	0.7
2009-2010	12.0	4.9	0.566	2.1	6.7	1.5	1.2	0.3
2010-2011	10.4	4.2	0.633	2.0	6.3	0.8	0.6	0.4
Career	24.0	9.5	0.582	5.0	11.0	2.6	2.3	0.6

Table 13: Fibonacci sequence comparison with O'Neal season average data

	1	1	2	3	5	8	13	21
Different	0.582	0.6	2.3	2.6	5.0	9.5	11.0	24.0
	-0.418	-0.4	+0.3	-0.4	0	+0.5	-2.0	+3.0

Table 14: O'Neal basketball career datais reached by the Fibonacci

Mathematical	Index	Mathematical	Index
5.0	Free number	9.5	Shooting number
0.582	Shooting rate	11.6	Board
0.6	Steals	2.6	Assists
2.3	Block	24	Score

Table 15: Duncan season average data

Season	Shooting	Score	Free	Board	Assists	Block	Steal number	Rate number
1997-1998	21.1	8.6	0.549	3.9	11.9	2.7	2.5	0.7
1998-1999	21.7	8.4	0.495	4.9	11.4	2.4	2.5	0.9
1999-2000	23.2	8.5	0.490	6.2	12.4	3.2	2.2	0.9
2000-2001	22.2	8.6	0.499	5.0	12.2	3.0	2.3	0.9
2002-2002	25.5	9.3	0.508	6.8	12.7	3.7	2.5	0.7
2002-2003	23.3	8.8	0.513	5.6	12.9	3.9	2.9	0.7
2003-2004	22.3	8.6	0.501	5.1	12.4	3.1	2.7	0.9
2004-2005	20.3	7.8	0.496	4.6	11.1	2.7	2.6	0.7
2005-2006	18.6	7.2	0.484	4.2	11.0	3.2	2.0	0.9
2006-2007	20.0	7.7	0.546	4.5	10.6	3.4	2.4	0.8
2007-2008	19.3	7.5	0.479	4.3	11.3	2.8	1.9	0.7
2008-2009	19.3	7.4	0.50	4.5	10.7	3.5	1.7	0.5
2009-2010	17.9	7.2	0.518	3.5	10.1	3.2	1.5	0.6
2010-2011	13.8	5.7	0.490	2.4	9.2	2.8	2.0	0.9
Career	21.0	8.1	0.508	4.8	11.6	3.2	2.3	0.8

Table 16: Fibonaccisequence comparison with duncan season average data

	1	1	2	3	5	8	13	21
Different	0.508	0.8	2.3	3.2	4.8	8.1	11.6	21.0
	-0.492	-0.2	+0.3	+0.2	-0.2	+0.1	-1.4	+0

Table 17: Duncan basketball career datais reached by the fibonacci

Mathematical	Index	Mathematical	Index
4.8	Free number	8.1	Shooting
0.508	Shooting rate	11.6	number Board
0.8	Steals	3.2	Assists
2.3	Block	21	Score

Table 18: Players last season the difference of the data with

Name	Fibonacc Sequence Different	Ranking
Duncan	2.292	1
O'Neal	3.218	2
Stoudemire	7.158	3
Gasol	8.578	4
Yao Ming	9.376	5

average data with perfect Fibonacci sequence difference rankings. The Fibonacci sequence comparison and raning (Table 18).

CONCLUSION

To five players each season with the data "Fibonacci sequence" contrast, players from the perfect Fibonacci sequence difference in basketball technical indicators: Yao 9.376, Gasol 8.578Stoudemire 7.158 O'Neal 3.218, Duncan 2.292 unitsFive players with

perfect Fibonacci sequence "in basketball technical indicators, the standard deviation of the distance for Duncan, and the smallest just under 2.292 units.

The five players with the perfect close to the Fibonacci sequence "ranking: Duncan, O'Neal, A Stoudemire, Pau Gasol, Yao Ming., Duncan Over the last few seasons since their.

Player Duncan performance the most prominent, better than the other four players, is the highest performance players.

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