Effectiveness of Top 3 Batsmen helping team in Winning ODI Matches

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Abstract

Background: This Research paper tells us about how effective a role Top 3 batsman plays in competitive cricket. Cricket has become one of the majorly-watched sport across the globe in recent years. Over the years the game of cricket has evolved drastically with changes in formats and also playing style and strategy. Winning a game of cricket depends on many factors like winning the toss, home advantage, player combination, team composition and, individuals’ performance, this research paper takes into consideration the impact of the top 3 batsmen helping a team to score a big total (runs) in ODIs.

Methods: The teams that have been selected for the study are the current top 5 ranked teams in ICC’s latest ODI Rankings - England, India, New Zealand, South Africa and Australia ranked 1, 2, 3, 4 and 5 respectively, the number of times they have scored more than 300 runs and the contribution of Top 3 Batsman’s.

Conclusion: The study will act as valuable aid and help the team management to select the right combination of players at Top 3 in the playing XI to win the match. The contribution of Top 3 Batsman’s had an impact on the match result, researchers have found that when team scoring more than 300, their team has won the match 80.7% of times.

Keywords: Batsman, Cricket, One Day International match, Players Performance


1. Introduction:

Cricket is one of the sports which has evolved over a long period of time. Nowadays, Cricket is very famously known for its two formats i.e. One day International which is classified as Limited over format and Test matches as Non-Limited overs format, which is played for several days, the allotted number of days for a test match is 5 days where both the teams get an equal chance to bat and ball twice over 5 days, there are three possible chances in test matches, either the team wins, loses or draws the Test match. Whereas in the case of limited-overs cricket which lasts for a certain period, it takes 8 hours to finish the game and for T20 Internationals it is just a matter of 3 hours to complete the game. This is why the limited-overs format is loved by many (¹).

In terms of the team’s participation or viewership all across the globe, cricket is considered to be the second most popular sport after soccer (²). In this research paper, the researcher has done the detailed analysis of the top 5 ranked teams’, top 3 batsmen’s performance whenever their team has scored 300+ runs in One Day format of the game. When discussing the analysis in cricket one needs to distinguish all the three formats of the game i.e. Test, ODI’s and T20’s. Test cricket tends to be slow though it consists of a lot of strategies. To bring more excitement into cricket and among the fans, new format One Day Cricket was started with the first world cup contested in the year 1975. One Day format falls under limited overs format of the game where the teams get a single inning of batting and bowling, batting is terminated by either dismissal or completion of 50 overs i.e. 300 balls. In cricket one over consists of six deliveries and in case if there is any illegal delivery that is either a wide ball or no ball, the bowler has to bowl an extra ball for it (³). The third form of cricket is known as Twenty 20 which is one of the fastest forms of the game in comparison.
to other formats, it was introduced in the year 2003 in an English domestic tournament. This format of the game has gained a large number of followers due to the huge cash involved and media publicity. The world’s wealthiest franchise-based T20 rivalry is the Indian Premier League (IPL), which is owned and controlled by the Board of Control for Cricket in India (BCCI). Prior to the inaugural tournament, the BCCI made close to 1.75 Billion USD from the sale of TV rights ($908 million), promotion ($108 million) and franchises ($728 million). The game of cricket has got its recognition in the entire world due to the expansion of the British Empire. The game’s governing body is International Cricket Council (ICC). Cricket has got a huge fan base. here, in India, which makes it one of the most popular sports in the country and you can find people playing it in every corner of the country. The Indian Cricket team is the only team to be in top 3 in all the formats according to the latest International Cricket Council (ICC) Team Rankings. Cricket got popular in India back in 1983, when Kapil Dev and his men won the first World Cup and brought pride to our country and after 28 long years under MS Dhoni, India won its second ODI World Cup, defeating Sri Lanka by 6 wickets in the Finals at Mumbai’s Wankhede Stadium, where there was some controversy at the toss, India had won the toss at first but due to some issue the toss was redone and this time Sri Lanka won it and decided to bat first but the toss did not turn out to be in their favour and in the end, it was India who lifted the cup.

This research is mainly based on ODIs as it is the most popular format of this game. In cricket, half an hour before the play starts, the two captains go for a toss, where one captain flips the coin in the air and the other captain calls for Heads or Tails, and the captain who wins the toss has the right to choose whether their team will bat or field at the start of the match. Toss is considered to be the most significant part in the game of cricket, as captains decide whether to bat or bowl first depending on the condition of the pitch. While toss doesn’t always play a vital role in the result, it becomes a factor when the nature of the wicket changes during the course of the game. In the 2016 edition of the T20 World Cup, the then captain of West Indies Cricket team Darren Sammy won all the Toss and, in the end, West Indies won their second T20 World Cup.

In this research, the author’s main purpose is to find out what impact does top 3 batsmen have on their teams in ODI cricket, there are a total of 4255 ODI matches that have been played at the international level till now and in that, there are 740 ODI matches in which team has scored more than 300 runs irrespective of the team batting first or second i.e. chasing. Researchers have seen a lot of ODI scores, where a team scores a huge margin when they bat first and make it look impossible for the team batting second. Like, in the case of Highest ODI Score ever made was by England against their rival Australia at Nottingham in the year 2018, in the score of 481/6 in their 50 overs England top 3 contributed a total of 368 runs which is 76.51% of the teams total which made it difficult for the Australian team to chase. That’s the case of batting team, the researchers also have an example of one of the greatest ODI chases that happened in the history of ODI cricket back in 2006 when the mighty Australians set up a target of 435 which the cricket gurus believed that is was impossible to chase but the South African team has some other plan and that amazed the whole cricketing community with their remarkable chase, where the South African teams top 3 contributed 60.73% which is less as compared to Australians top 3 contribution which was 68.66% but South Africa’s top 3 batsmen had made their impact in the start of the innings which was then made the work easier for the rest of the batsman and Australia’s highest score in ODIs was there for few hours only and at that time history was created.

In this paper, deep study about the impact the Top 3 batsmen of the current top 5 ranked teams according to ICC’s latest ODI team ranking has on the match result is looked into. Many research papers the authors have listed down what are the factors that determine the winning in cricket and most of the papers they have listed down the toss, player’s performance, team combination, opponents, home advantage, but nowhere the study has shown the effectiveness of top 3 batsmen and what impact they create while batting in ODIs irrespective of the innings whether batting first or second. Here, the researcher will be focusing on the effectiveness of the top 3 batsmen in scoring a huge total for their team in ODIs and what impact they create; how crucial role they play. Team names with acronym used in this paper are Australia (AUS), England (ENG), India (IND), South Africa (SA), New Zealand (NZ), Pakistan (PAK), Afghanistan (AFG), Bangladesh (BAN), Scotland (SCO), Kenya (KEN), Netherlands (NET), Sri Lanka (SL), West Indies (WI),
United States of America (USA), Ireland (IRE), Bermuda (BER), Hong Kong (HON), Zimbabwe (ZIM), Canada (CAN), Namibia (NAM) and United Arab Republic (UAE).

2. Material & methods:

2.1. Selection of subjects

The subjects for the study are the ODI matches where the team have scored more than 300 runs. Around 4255 ODI's have been played till now and out of which there were 740 ODI's in which the team's score was more than 300.

2.2. Selection of variables

The dependent variable will be the runs scored by top 3 batsmen of the team and the independent variable will be the team scoring 300+ runs.

2.3. Data collection

The data regarding all the ODI matches are available on the official Website of International Cricket Council (ICC)(https://www.icc-cricket.com/) and espncricinfo.com. The scorecard was easily available on the ICC’s and ESPN Cricinfo’s website of the ODI matches where teams have scored more than 300 runs and after collecting all the data of 740 ODI matches this research was limited to the top 5 ranked team and the matches in which they have scored 300 runs or more, and matches with no results (N/R) and Tie was excluded, here researchers have segregated that data and a total of 436 matches and calculating the percentage their Top 3 batsman’s contribution to teams total score. The percentage of Top 3s contribution was taken when they contributed less than 50% of the team’s score, 50%-75% of the team’s score and more than 75% of the team’s total score.

2.4. Statistical Technique

SPSS version 24 and Excel were the software used in this paper, to collect the findings, Chi-Square goodness of fit test which is a non-parametric test has been used to find out how the observed value of a given phenomenon is significantly different from the expected value. Teams scoring 300 runs in first innings and second innings were also taken into consideration, to ensure the validation of the result, Chi-square and effect size was calculated and the level of significance was kept at 0.05. To find out the percentage of Top 3 batsman’s contribution to teams total score excel was used to explain with the help of charts.

3. Results and Discussion:

The given Figure 1, shows the number of times the Top 5 Ranked team (according to the latest ICC ODI Ranking) scored 300+.

![Figure 1: Number of times the top 5 teams has scored more than 300+ runs](http://doi.org/10.36295/ASRO.2020.231715)
We can see from the figure that team India has scored 300+ runs for the maximum number of times among the top 5 teams and after India, Australia is the second team to have scored more than 100 times 300+ score and New Zealand has scored least number of times. The first time when the cricketing world saw a team scoring more than 300 was in the year 1975, 4 years after the start of ODI cricket,\(^{(11)}\). Ever since the T20 cricket started scoring big total didn’t seem that much difficult with power-play restrictions and flatter pitch\(^{(12)}\). This data includes matches which were tied and matches with No results as well.

Chi-Square good of fit test was used to find whether there was any significant difference between the match result or not can be seen in Table 1.

### Table 1: Chi-Square Goodness of Fit Test on Match Result

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Team</th>
<th>Win</th>
<th>Loss</th>
<th>Chi-Square Value</th>
<th>Significance Value</th>
<th>Effect Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>England</td>
<td>56</td>
<td>20</td>
<td>17.052632</td>
<td>0.00</td>
<td>0.47</td>
</tr>
<tr>
<td>2</td>
<td>India</td>
<td>88</td>
<td>23</td>
<td>38.063063</td>
<td>0.00</td>
<td>0.59</td>
</tr>
<tr>
<td>3</td>
<td>New Zealand</td>
<td>49</td>
<td>10</td>
<td>25.779661</td>
<td>0.00</td>
<td>0.66</td>
</tr>
<tr>
<td>4</td>
<td>South Africa</td>
<td>75</td>
<td>8</td>
<td>54.084337</td>
<td>0.00</td>
<td>0.81</td>
</tr>
<tr>
<td>5</td>
<td>Australia</td>
<td>91</td>
<td>16</td>
<td>52.570093</td>
<td>0.00</td>
<td>0.70</td>
</tr>
</tbody>
</table>

In table 1, the level of significance in all the teams above was found to be 0.00 showing significant differences between the match results, and the Effect size for the teams are England (0.47), India (0.59), New Zealand (0.66), South Africa (0.81) and Australia (0.7). It has been observed that the effect size for all the teams is close to 0.5 or greater than that, which indicates that the magnitude of the difference between the observed data and the expected data is Strong.

Chi-Square Goodness of fit test was used to find whether there was any significant difference between first innings and second innings of the match in which teams has scored more than 300+ runs or not can be seen in Table 1.

### Table 2: Chi-Square Goodness of Fit Test on Innings of the match

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Team</th>
<th>First Innings</th>
<th>Second Innings</th>
<th>Chi-Square Value</th>
<th>Significance Value</th>
<th>Effect Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>England</td>
<td>59</td>
<td>17</td>
<td>23.210526</td>
<td>0.00</td>
<td>0.55</td>
</tr>
<tr>
<td>2</td>
<td>India</td>
<td>82</td>
<td>29</td>
<td>25.306306</td>
<td>0.00</td>
<td>0.48</td>
</tr>
<tr>
<td>3</td>
<td>New Zealand</td>
<td>47</td>
<td>12</td>
<td>20.762712</td>
<td>0.00</td>
<td>0.59</td>
</tr>
<tr>
<td>4</td>
<td>South Africa</td>
<td>72</td>
<td>11</td>
<td>44.831325</td>
<td>0.00</td>
<td>0.73</td>
</tr>
<tr>
<td>5</td>
<td>Australia</td>
<td>92</td>
<td>15</td>
<td>55.411215</td>
<td>0.00</td>
<td>0.72</td>
</tr>
</tbody>
</table>

In table 2, the level of significance for all the teams was found to be 0.00 showing significant differences between the teams scoring 300+ runs in first innings and second innings, and the Effect size for all the teams are England (0.55), India (0.48), New Zealand (0.59), South Africa (0.73), and Australia (0.72) it is been observed that effect size for all the teams is close to 0.5 or greater than that, which indicates that the magnitude of the difference between the observed data and the expected data is Strong.

The figure 2, below shows the England team scoring 300+ runs against respective opponents. England has score more than 300+ runs against 11 opponents.
Figure 2: England team scoring 300+ runs against which opponent.

It shows that England has scored more than 300 against India, Australia and Pakistan on maximum number of occasions. There were 12 occasions where the number 1 ranked team currently went on the bowling unit of these teams, and completely outplayed them.

Indian team is currently ranked at number 2, Figure 3, shows the dominance of Indian cricket team against the other teams.

Figure 3: India team scoring 300+ runs against which opponent.

India have scored a maximum number of times 300+ score in ODI’s than any other top 5 ranked teams since their first 300 which came against arch-rival Pakistan in 1996, India at that moment became the last team to score 300 among the top test playing nations from there it was never looking back. Indian batsman seems to be very comfortable with the bowling unit of Sri Lanka as 21 times they have crossed the margin of 300 against them.

Figure 4 shows the statistics of New Zealand team scoring more than 300 runs against which opponents can be seen through the figure below.
New Zealand team is currently placed at number 3 according to the latest ICC ODI Ranking. New Zealand has scored more than 300 against 14 opponents, which can be seen in the figure, that there were 10 occasions that kiwi batsman was heavy on Indian bowling unit. They also seem to be well versed with Sri Lankan bowling attack as they have also scored 8 times 300 + score.

South African team has scored more than 300 runs 84 number of times, this score came against the 13 different opponents. The figure below gives the clear picture against which opponents they have scored 300+ runs.

South Africa is currently ranked no. 4 in ICC ODI team ranking. Likewise India, South Africa’s batsman like Sri Lanka’s bowling unit as there were 12 occasions where South African batsman had the upper hand on Sri Lankan bowling unit. South Africa also has a decent number against Australia which is 11 times.

Australian cricket is the second team after India who score 300+ runs more than 100 times, in an One Day International Cricket.
Mighty Australian side who are five times world champions are currently in the 5th position in ICC ODI ranking. Australian team have scored 300+ runs against 15 different opponents in which, 26 times they have scored 300+ runs against India. The team has seen a drastic change from captaincy under Clarke to Smith and to Tim Paine. This has also changed the approach of the team during recent years, that can be seen in figure 6. This team is been dominating world cricket.

The main objective of the research was to find out the contribution of the Top 3 batsmen play in winning ODI matches. The Figure 7, tells us about the contribution of the top 3 batsmen to the teams' total score.

Three parameters have been used i.e. more than 75%, between 50%-75% and less than 50% contribution of the top 3 batsmen. It can be seen that India’s top 3 has contributed more than 75%, the most number of time (19), India’s top 3 has again taken a lead in contributing 50%-75% to teams total on 58 times which is almost the half a number of matches in which they have managed
to score more than 300 runs and Australia’s top 3’s contribution less than 50% is very high (43) as compared to other teams.

The figure 8 below, shows the result of the match when the team’s top 3 batsman contribution was between 50%-75% to the teams' total score.

![Figure 8: Results when top 3 contribution was between 50%-75%](image)

Australia has maximum (47) wins with a win percentage of 88.67% compared to other teams after Australia if any team that has crossed more than 40 wins when their top 3’s contribution was between 50%-75% is India with 44 wins with a win percentage of 75.86, India has lost 6 times and a couple of times score was levelled and match tied. Here, South Africa has the best win percentage of 90.62% with 29 wins and 3 losses in their 32 matches.

Figure 9, shows the result of the match when the team’s top 3 batsman contribution was more than 75% of the teams' total score.

![Figure 9: Results when top 3 contribution was more than 75%](image)

New Zealand has 100%-win percentage when their top 3 batsmen contributed more than 75% there were 6 occasions when their top 3 scored more than 75% of teams total and have won all the 6 matches after New Zealand, next is India who has won 17 and lost 2 in 19 matches which a maximum number of times compared to other teams, where their top 3’s contribution was more.
than 75% this makes their win percentage 89.47%. South Africa has also got the win percentage of 92.30% and has won 12 out of the 13 matches in which their Top 3 batsman’s contribution was more than 75%.

Figure 10 below, shows the result of the match when the team’s top 3 batsman contribution was less than 50% of the teams' total score.

![Figure 10: Results when top 3 contribution was less than 50%](image)

South Africa has 87.17%-win percentage when their top 3 batsmen contributed less than 50% as the reason behind this could be one-man “Ab De Villiers” South Africa has 34 wins out of 39 matches with 4 losses and 1 N/R behind them there is Australia with the same number of wins (34) in 43 matches with 8 loss and 1 N/R making their win percentage 79.06%. There were total 189 matches in which the top 3 batsman’s contribution was less than 50%, out of which teams have managed to win 77.24% of times and the loss percentage was 21.16% which is too high when compared with the above two charts.

In recent times, it has been seen that team’s perception towards ODI cricket has changed a lot, with the shorter format like T20’s it has been observed that teams mostly prefer to chase, so T20 cricket has created an impression that batting second and chasing will be useful in ODIs as well. 50 Overs game provides ample of time for the condition of the game to change, if it’s a day-night match so there are high chances that due factor may come into the picture and make chasing simple, this has been seen way often in Subcontinents, in this article, ‘ How much have ODIs changes in the last 20 years?’ By Mazumder, Monga and Sripath(16) have compared the world cup cricket matches to find out whether the game has changed a lot or not. The researcher somewhat agreed to the data shown in this article about the team winning the toss in a day game and select to field first more often as they were not sure of the result. In Day-Night games before the world cup, the team choose to bat first in order to prepare themselves for the world cup as they have to be prepared before going on a bigger platform where you have to opt with your team selection.

In Batting, strategy in Limited Overs Cricket paper where the authors, Preston and Thomas (17) has demonstrated that the optimal strategies used are different in first innings and second innings. The researchers have seen that the run rate keeps on increasing in first innings and in second innings it keeps on decreasing as the team reaches to its target. It was noticed that the team batting first has a different mindset to put up a huge total and pressure on batting team. The researchers have seen that 19.6% of times teams chasing has lost the game, as the required run rate was piling up constantly and their Top 3 failed to contribute much.

Swartz, Gill, Beaudoin, and DeSilva (13) have studied the first innings data so that the results of all the batsman could be compared on the same footing and simulated annealing method was used by the author to explore the optimal batting position, they didn’t mention what impact do Top 3 have in an ODI match, this study was mainly focusing which position one needs to bat

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on. Beaudoin and Swartz (18) have proposed a new statistical technique to assess the performance and find out the best batsman and bowler. In winning matches team need to select their best playing XI to be it, batsman or bowlers, so to score big runs teams need to have their best batsman in Top 3, for that using Traditional measures were finding the batting average where the total number of runs scored by the batsman divided by the number of innings in which he was out, and strike rates is calculated by the number of runs scored by the batsman in the number of balls, could be used to select the best combination at Top 3, but this statistics has some faults which show that if batsman came to bat in the last ball of the innings and he scored 6 runs off that ball and remained not out in that inning which will take his strike rate to 600.0 which doesn’t mean that he is the right choice to bat at Top 3, so Beaudoin am Swartz designed a statistical technique which will give us the standard error and will determine the real performance of the players.

Teams should understand that if they need to win the match, they need to pick players correctly, with properly analyzing their performance in the past games, and clearly stating the value they add to the team, a player will be clear about their roles in the team. So, if the player is selected to bat at top 3 then he needs to understand the importance of his innings, the runs he’ll score will have a direct impact on the result of the game.

5. Conclusion:

The evolution in the game of Cricket has led to a lot of new things in the past few years. With the introduction of the T20 format, the meaning of ODI has changed for some of the teams. It was seen that in some of the matches the players have played like T20 in the ODI game giving a great boost to the runs scored. So, the batsmen have also played a role in changing the scenario of the game. In the game of cricket, a batsman has to score the maximum number of runs for his team in a specified number of balls (limited-overs cricket). It is of utmost priority for a team to craft a batting line up which is optimal in terms of taking advantage of a player’s talent and abilities. With the help of this study, it can be seen that when the selectors or team management is selecting a team combination utmost importance should be given to Top 3 batsmen as they play a crucial role as they help in setting up a big target or to chase huge totals, their presence on the pitch for a longer duration of time may lead the team closer to victory. The study shows that teams like India and Australia have scored more than 300 runs a little more than 100 times out of which their team has won more matches when their Top 3s contribution was more than 50% of their team’s total, India with 53.50% wins and Australia with 52.77% of wins. For both these teams, their Top 3 batsmen are their main pillar, they are the backbone of their respective teams, and their team management also understands their value in the team, so they don’t make many changes at the top order and maintains consistency unless any circumstances occur like a player being injured or can’t play. This study can act as a valuable aid for the team management to select the best Top 3 Batsman’s considering the other factors like the toss, pitch report, climate etc. as long as teams Top 3 stay at the crease the more and more chances of winning the game, with the batting and the fielding side should try to take wickets of Top 3 as early as possible in start of the innings with the new ball, once the shine from the ball is gone and Top 3 batsman still being at the crease will make the situation tougher for their side to win it from there. Based on the findings of this research, teams need to look out for talent who can bat in the top three positions in ODIs as it greatly enhances a team’s competitiveness given the increasing competition in modern-day cricket.

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