Evaluating the Performance of Unorthodox Players in T-20 Cricket

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Abstract: This study investigates the performance of unorthodox players in T20 cricket, focusing on both batsmen and bowlers. The analysis evaluates the strike rates and batting averages of unorthodox batsmen to identify those who score quickly while maintaining consistency. For bowlers, the study compares economy rates and bowling averages to assess their effectiveness in limiting runs while taking wickets. Using data collected from 2005 to 2024, the research highlights players like Suryakumar Yadav, Andre Russell, and Saeed Ajmal, who excel in their respective metrics. Additionally, the study explores correlations between batting strike rate and average, as well as bowling economy and average, revealing statistically significant relationships that provide insights into player performance.

Keywords: T-20 cricket, Unorthodox players, Strike rate, Batting average, Bowling economy, Bowling average

1. Introduction

Cricket, at its core, is a bat-and-ball game played between two teams of eleven players each, with the objective of scoring runs and dismissing the opposing team's batters. The game has evolved from its humble origins as a pastime in 16th century England to become a global phenomenon (Allen, 2012). Over the centuries, the sport has witnessed the emergence of various formats, each with its own distinctive characteristics and challenges.

One of the most significant developments in cricket's history is the emergence of the T20 (Twenty20) format. T20 cricket, introduced in the early 2000s, is a shortened version of the game, where each team bats for a maximum of 20 overs. This format has captured the imagination of cricket enthusiasts worldwide, owing to its fast-paced nature, high-scoring matches, and the ability to produce thrilling finishes (Ray, 2021). The popularity of T20 cricket, exemplified by the success of tournaments like the Indian Premier League, has led to a growing demand for this format, often at the expense of traditional Test cricket (Fletcher et al., 2020).

Statistics have always played a vital role in cricket, providing a quantitative lens through which the game can be analyzed and understood. From tracking individual player performances to evaluating team strategies, statistics have become an integral part of the modern game (Ray, 2021). The rise of data analytics has further enhanced the use of statistics in cricket, enabling teams to make more informed decisions and develop more effective game plans (Fletcher et al., 2020).

The T20 format has also given rise to a new breed of cricketers, often referred to as "unorthodox players." These players, who defy conventional wisdom and challenge traditional playing styles, have become increasingly prevalent in T20 cricket. Unorthodox players, such as those who employ unorthodox batting or bowling techniques, have the ability to disrupt the opposition's plans and introduce an element of unpredictability to the game(Rumford,

2011)(Fletcher et al., 2020). In the fast-paced world of T20 cricket, where every run and wicket can make the difference between victory and defeat, the significance of individual player performance has become increasingly pronounced.

In the fast-paced world of T20 cricket, the significance of individual player performances cannot be overstated. Successful teams often rely on the contributions of key players who can deliver match-winning performances under pressure (Nicholls et al., 2023).

The primary objectives of this study are to compare the strike rates of different batsmen to identify the most aggressive players who score runs at a faster pace, and to analyze the relationship between batting average and strike rate to assess which batsmen maintain a balance between scoring quickly and consistently. For bowlers, the study aims to compare the economy rates of unorthodox bowlers to determine the most economical players, and to investigate the relationship between bowling average and economy rate to understand how these two performance metrics interact for each bowler.

2. Literature Review

Lemmer (2011) emphasizes that batting performance measures, which incorporate strike rate adjustments, reflect a key aspect of cricket: when two batsmen score the same number of runs, the one with a higher strike rate is considered to have performed better. However, match conditions, such as the quality of the pitch, can significantly affect both batting and bowling performances. For example, on a good pitch, a batsman may achieve a high score with a high strike rate, while on a challenging pitch, a similar score may come with a much lower strike rate. To address these variations, Lemmer proposes a method that adjusts a batsman's score based on how his strike rate compares to the overall strike rate in the same match. These adjusted scores are then used to calculate a more accurate average for the batsman. The method is demonstrated using data from the 2009 Indian Premier League Twenty20 series, leading to the conclusion that the traditional batting average may not be the best measure for comparing batsmen's performances in short series.

Barr et al. (2004) discuss how the batting average has traditionally been the primary statistic used to evaluate a batsman's value, particularly in first-class cricket. While this measure provides insight into potential performance at that level, it falls short in one-day cricket, where limited overs introduce a crucial time constraint. In this format, a high batting average paired with a low strike rate is inadequate, as slow scoring, even without losing wickets, often leads to defeat. As a result, assessing batting performance in one-day cricket requires a two-dimensional approach that considers both the number of runs scored and the speed at which they are scored. In their paper, Barr et al. propose a graphical model that places strike rate on one axis and the probability of getting out on the other, drawing parallels to the risk-return analysis used in portfolio management. This framework allows for more meaningful comparisons of batting performance. The authors also introduce a selection criterion that combines a player's average and strike rate, which they apply to the 2003 World Cup. Their analysis highlights the strong and consistent performances of Australian and Indian batsmen, providing a ranking of the top 20 run-scorers in the tournament.

Malhotra and Krishna (2017) address two common beliefs in cricket: that faster bowling leads to improved performance, and that lower-order batsmen are more susceptible to pace. Their study tests these notions by statistically analyzing the performance of bowlers with varying average release speeds. Using a one-way ANOVA, the results indicate that faster bowlers generally perform better in terms of average and strike rate. However, no significant differences were observed in economy rate or combined bowling rate (CBR). Additionally, lower and middle-order batsmen were found to be more vulnerable to faster bowling, while no statistically significant differences were found in the performance of fast and fast-medium bowlers against top-order batsmen.

Davis et al. (2015) introduce a novel metric for evaluating players in Twenty20 cricket called "expected run differential." This metric estimates the additional runs a player contributes to their team compared to a standard player, whose role is determined based on their position. The metric is particularly useful for comparing players within the same positional category and can assess both career performance and current form. Interestingly, the metric shows low correlation with traditional statistics like batting average, strike rate, bowling average, economy rate, and the ICC rankings, offering fresh insights into player performance that may challenge common perceptions. The study also examines the financial aspects of player evaluation, identifying players in the Indian Premier League (IPL) who may be overpaid or underpaid based on their contributions.

3. Methodology
3.1 Data
The data for this study was meticulously collected from the official websites of Cricbuzz and ESPN Cricinfo,

known for their extensive and reliable cricket coverage. It includes statistics on 25 unorthodox batters and 20 unorthodox bowlers, spanning the years 2005 to 2024. This comprehensive dataset forms a strong basis for analyzing the impact and trends of these players in T-20 cricket over nearly two decades.

The research design prioritizes an equal focus on both unconventional batters and bowlers to provide a comprehensive assessment of their individual impacts on the game. Data is gathered from reliable sources renowned for their detailed coverage, allowing for an in-depth examination of performance trends over an extensive period in T-20 cricket. Nevertheless, the study recognizes certain limitations, such as the availability of data and the selective focus on specific players, which may limit the generalization of the results. These factors are critical in ensuring the research maintains its accuracy and relevance in the field of cricket analytics and player performance evaluation.

3.2 Bar chart
A bar chart is a graphical representation used to display and compare data across different categories or groups. It consists of rectangular bars where the length or height of each bar corresponds to the value it represents, making it easy to visualize differences between groups. One axis of the chart typically displays the categories, while the other axis shows the numerical values associated with those categories. Bar charts are commonly used to compare quantities, frequencies, or percentages and can be presented either vertically or horizontally depending on the orientation of the bars. This straightforward format makes bar charts an effective tool for highlighting trends, patterns, and differences in data (Karduni, 2020).

3.3 Correlation
Correlation is a statistical measure that indicates the strength and direction of the relationship between two variables. It reveals how changes in one variable are associated with changes in another. Correlation can be classified as positive, negative, or zero. In a positive correlation, an increase in one variable corresponds to an increase in the other, while a negative correlation indicates that an increase in one variable leads to a decrease in the other. Zero correlation means there is no relationship between the two variables, implying that changes in one do not predict changes in the other. The correlation coefficient, often represented as "r," quantifies this relationship and ranges from -1 to +1, where +1 signifies a perfect positive correlation, -1 denotes a perfect negative correlation, and 0 indicates no correlation at all (Asuero et al., 2006).
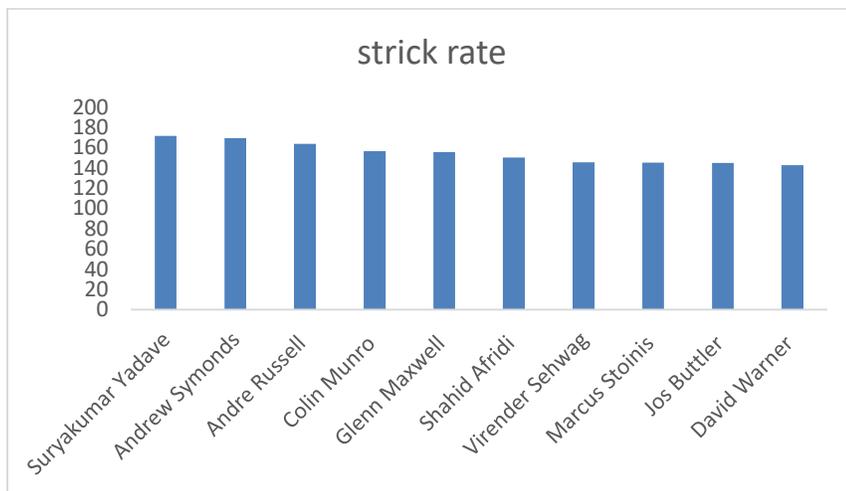
4. Analysis

Pig 1. Top 10 unorthodox batsman strike rate
Pig 1. Showcases the strike rates of ten unorthodox batsmen in cricket. Andre Russell leads with the highest strike rate, followed by Suryakumar Yadav and Glenn Maxwell. Other notable players include David Warner and Jos Buttler, who also have impressive strike rates. Shahid Afridi and Virender Sehwag, known for their aggressive batting styles, are well-represented in this chart. This visual highlights the effectiveness of these players in scoring runs quickly, emphasizing their unique and unconventional batting techniques.

Table 1: Descriptive statistics of top 10 unorthodox batsman

Batters	Ave	Mat	SR	HS	Fifties	Fours	Sixes
Suryakumar Yadave	45.55	60	171.55	117	17	192	123
Andrew Symonds	48.14	14	169.34	85	2	33	10
Andre Russell	21.7	75	163.52	71	3	55	81
Colin Munro	31.34	65	156.44	109	11	132	107
Glenn Maxwell	30.09	106	155.51	145	10	205	127
Shahid Afridi	17.92	99	150	54	4	103	73
Virender Sehwag	21.88	19	145.38	68	2	43	16
Marcus Stoinis	29.37	59	145.06	78	2	77	44
Jos Buttler	34.84	114	144.61	101	22	263	123
David Warner	33.68	103	142.67	100	26	320	113

The above table shows that Suryakumar Yadav leads with an exceptional strike rate (171.55) and average (45.55), showcasing his ability to score quickly and consistently. Andrew Symonds also boasts a high strike rate (169.34) and the best average (48.14), while Andre Russell has a powerful strike rate (163.52) but a lower average (21.7), indicating a more aggressive, high-risk style. Players like Colin Munro and Glenn Maxwell demonstrate high strike rates (156.44 and 155.51) with solid performances in hitting boundaries. Shahid Afridi and Virender Sehwag, known for their boundary-hitting prowess, have lower averages, highlighting their aggressive yet less consistent approach. On the other hand, David Warner and Jos Buttler balance their aggression with consistency, reflected in their moderate strike rates (142.67 and 144.61) but higher averages and fifties, making them more reliable in longer innings.
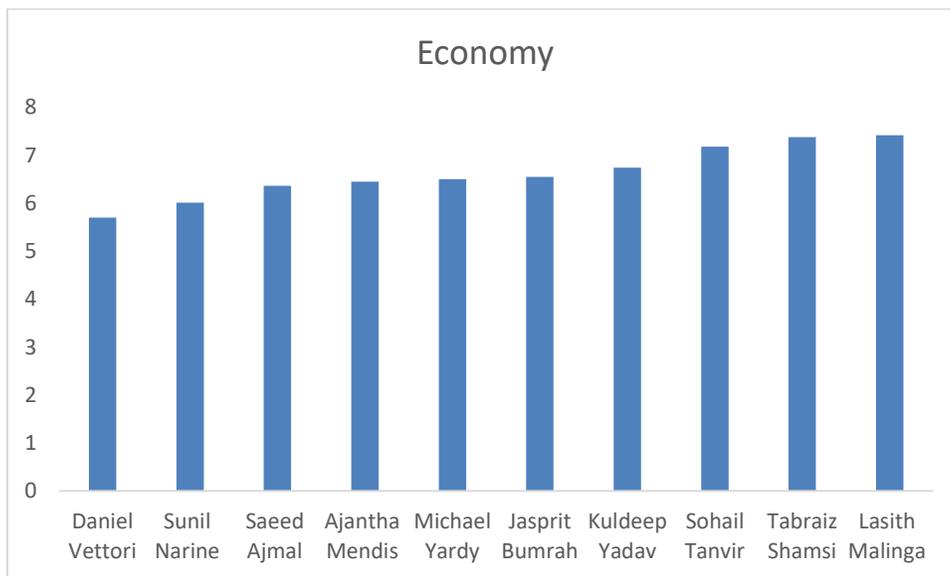

Pig 2. Top 10 unorthodox bowler economy
Pig 2. Compares the economy rates of ten unorthodox bowlers in cricket. Daniel Vettori has the lowest economy rate, indicating his effectiveness in limiting runs. Sunil Narine and Saeed Ajmal follow closely, showcasing their ability to control the scoring rate. On the other end, Lasith Malinga has the highest economy rate among the listed bowlers. This chart highlights the efficiency of these bowlers in maintaining a low run rate, which is crucial in restricting the opposition's scoring.

Table 2: Descriptive statistics of top 10 unorthodox bowlers

Bowlers	Mat	Inns	Balls	Runs_Given	Wkts	Ave	Econ
Daniel Vettori	34	34	787	748	38	19.68	5.7

Sunil Narine	51	49	1102	1105	52	21.25	6.01
Saeed Ajmal	64	63	1430	1516	85	17.83	6.36
Ajantha Mendis	39	39	885	952	66	14.42	6.45
Michael Yardy	14	13	276	299	11	27.18	6.5
Jasprit Bumrah	62	61	1331	1455	74	19.66	6.55
Kuldeep Yadav	35	34	740	832	59	14.1	6.74
Sohail Tanvir	57	57	1214	1454	54	26.92	7.18
Tabraiz Shamsi	65	65	1408	1732	78	22.2	7.38
Lasith Malinga	84	83	1799	2225	107	20.79	7.42

The above table reveal a range of performances in terms of wickets taken, averages, and economy rates. Saeed Ajmal stands out with the best bowling average (17.83) and a solid economy rate (6.36), showcasing his ability to take wickets while keeping runs in check. Ajantha Mendis and Kuldeep Yadav also maintain exceptional averages (14.42 and 14.1) but have slightly higher economy rates around 6.5. Daniel Vettori and Jasprit Bumrah are similarly effective, both maintaining low averages (19.68 and 19.66) and economy rates below 7. Sunil Narine and Lasith Malinga balance their wicket-taking ability with solid economy rates, though Malinga has a slightly higher economy (7.42). Sohail Tanvir and Tabraiz Shamsi, though successful in taking wickets, show higher economy rates (above 7), indicating a more expensive bowling style. Michael Yardy, while economical (6.5), has the highest average (27.18), indicating fewer wickets per runs conceded. This analysis shows that bowlers like Ajmal, Mendis, and Yadav excel both in restricting runs and taking wickets, while others like Tanvir and Shamsi are less economical but still impactful in terms of wickets.

Table 3. Correlation between Average and strike rate

		Average	strike_rate
Average	Pearson Correlation	1	.434[*]
	Sig. (2-tailed)		.030
	N	25	25
strike_rate	Pearson Correlation	.434[*]	1
	Sig. (2-tailed)	.030	
	N	25	25
*. Correlation is significant at the 0.05 level (2-tailed).			

The correlation coefficient between batting average and strike rate is 0.434. This indicates a moderate positive correlation. In other words, as a batsman's strike rate increases, their batting average tends to increase as well, but the relationship is not very strong.
The p-value of 0.030 is less than the 0.05 significance level, meaning the correlation is statistically significant. This suggests that there is a meaningful relationship between the batting average and strike rate, and the result is unlikely to be due to random chance.

Table 4: Correlation between Average and Economy

		Average	Economy
Average	Pearson Correlation	1	-.514[*]
	Sig. (2-tailed)		.024

			20	19
		N	20	19
Economy	Pearson Correlation		-.514[*]	1
	Sig. (2-tailed)		.024	
		N	19	19

*. Correlation is significant at the 0.05 level (2-tailed).

The correlation coefficient between the bowling average and economy rate is -0.514. This indicates a moderate negative correlation. In other words, as a bowler's economy rate decreases (meaning they concede fewer runs per over), their bowling average also tends to decrease, which implies better performance. A lower bowling average means the bowler is taking wickets with fewer runs conceded, so a negative correlation suggests that bowlers with good (low) economy rates tend to also have good (low) bowling averages.

The p-value of 0.024 is less than the 0.05 significance level, indicating that the correlation is statistically significant. This means that the negative relationship between economy rate and bowling average is unlikely to have occurred by chance and is meaningful.

5. Conclusion

The findings indicate that unorthodox players, particularly in the T20 format, exhibit distinct performance characteristics. Batsmen like Suryakumar Yadav and Andre Russell demonstrate the ability to score runs quickly, while bowlers such as Saeed Ajmal and Daniel Vettori effectively limit runs and take wickets. The analysis of correlations between strike rates and averages for batsmen, as well as economy rates and averages for bowlers, underscores the significance of balancing aggression and consistency in T20 cricket. These insights contribute to a deeper understanding of player evaluation in the modern game, offering a more nuanced view than traditional metrics.

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