Perspectives on the use of the Combined Bowling Rate in Cricket

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ABSTRACT

The combined bowling rate *CBR* is a well-established bowling performance measure that has been used widely to compare the performances of bowlers in limited overs matches. It can be used to compare career performances, but also to compare bowlers' performances after a short series. In such a comparison it is logical that bowlers who had bowled a very small number of overs (compared to the rest) should either not be included in the ranking because the value of *CBR* may be very good due to early success, or alternatively, special provision should be made for such a situation. A possible solution to this problem is to adjust the combined bowling rate to take the number of overs bowled into account, thereby making comparisons more reasonable. The purpose of this study is to propose a procedure and to determine how satisfactory this approach is.

Key words: Cricket Bowling, Performance Analysis, Player Statistics, Sport Analytics, Twenty20 Cricket

INTRODUCTION

The traditional bowling performance measures are A, the bowling average, E, the economy rate and S, the strike rate – cf. [1]. Measures which combine two of the measures can be found in [2], [3] and [4]. Lemmer [5] proposed a measure, the combined bowling rate *CBR*, based on all three measures and he gave a further refinement in [6]. Other approaches can be found in [7] where a production function approach was used to determine the best batting and bowling strategy to maximize the probability of winning, and [8] where the strike rates of bowlers were used to calculate the probability of dismissing the opposing team. Beaudoin and Swartz [9] proposed a statistic 'runs per match' that can be used for batsmen and bowlers alike. It utilizes the Duckworth/Lewis resource table in a very sensible way. Its use is restricted, especially in the case of bowlers, by the fact that data recording is such that it requires an enormous effort to extract the necessary data for analyses.

The combined bowling rate *CBR* is a useful measure of bowling performance that can be used irrespective of the number of overs bowled. Let O = number of overs bowled by a

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bowler, R = number of runs scored off his bowling and W = number of wickets taken by the bowler. Then the average $A = R/W$, the economy rate $E = R/O$ and the strike rate $S = 6O/W = B/W$ with B the number of balls bowled. CBR was constructed by using the harmonic mean of A, E and S. For calculation purposes it can be written as

$$CBR = \frac{3R}{(W + O + W\frac{R}{B})} \tag{1}$$

Its value can be quite variable if the number of overs bowled is small. This, however, does not detract from its legitimacy. As in the case of most statistical measures, discretion should be exercised when *CBR* is used for a very small data set. In a recent study Bhattacharjee [10] used *CBR* to rank a group of bowlers after completion of the Indian Premier League (IPL) V series. LR Shukla, who had bowled only two overs and taken one wicket, ranked first before the rest of the bowlers who had bowled between ten and sixty overs each – cf. Table 3 in the *Results* section. This was seen as a deficiency of *CBR*. Bhattacharjee's [10] remedy was to define a new measure, the linear bowling performance measure *LBPM*, that takes not only A, E and S into consideration, but O as well. The present author raised doubts about the use of O, arguing that bowlers who had bowled a large number of overs may rank highly mainly due to their number of overs bowled and not to good bowling. This phenomenon is clearly shown in the present study and the purpose is to propose a fair procedure that can be used to determine the best bowler in the case of a group of bowlers where some had bowled a small number of overs. The question whether and how the inclusion of O into *CBR* could be achieved and how successful this could be to address Bhattacharjee's criticism is discussed. Some alternatives are also discussed.

Various adaptations of the combined bowling rate have appeared in the literature. In [6], it was argued that a bowler should get more credit for taking the wickets of top order batsmen than for tail-enders. Wicket weights were introduced and the combined bowling rate using wicket weights, *CBR**, was defined similar to *CBR* with W^*, the sum of the weights of the wickets taken, replacing W in the formula of *CBR*. In [11] the consistency of bowlers was defined and this was included in the measure of current bowling performance, *CBP*. In [12] it was argued that the performance of a bowler does not only depend on his own ability, but also on the strength of his opponents. Hence *CBP* was adjusted by weighting the different teams, resulting in the measure of current bowling performance adjusted for weights, *CBPW*. This measure was refined in [13] to measure bowlers' performances based on their local (domestic) and international scores alike. In [14] a further measure, the combined bowling rate adjusted for match conditions, $CBR^{\#}$, was developed in order to take match conditions into account.

Applications of *CBR* and its variants can be found in [15], where players' performances in the first Twenty20 World Cup series have been analyzed, in [16] where bowlers' performances in the fourth IPL series have been compared and in [17], where the performances of bowlers in the IPL IV series was predicted, using their performances in the IPL I-III series. See also [18, 19].

METHOD

Consider a series of matches played between a group of teams; e.g., an IPL Twenty20 series. The measure *CBR* can be extended to include O. Due to the fact that the value of O will increase as the bowler continues bowling, it is better to compare his number of overs bowled with the average number of overs bowled by all bowlers in the comparison. Let $N_1 = O/\bar{O}$ where $\bar{O}$ denotes the average number of overs bowled. Obviously, N_1 will have a larger value for a good bowler who had bowled more overs than a weaker bowler who had bowled a small number of overs. The value of N_1 may not be comparable with those of *A*, *E* and *S*, so it is advisable to work with $N_2 = c.N_1 = c.O/\bar{O}$ with c a constant whose value will have to be determined. Small values of *A*, *E* and *S*, but large values of N_2, indicate good performances. Therefore it is logical that the inverse of N_2 should rather be used. Let $N = 1/N_2 = \bar{O}/(c.O)$.

The method used to adjust *CBR* is the same as that of [5]. Therefore the same notation will be used. The harmonic mean of *A*, *E*, *S* and *N* is

$$CBRA = \frac{4}{\left(\frac{1}{A}+\frac{1}{E}+\frac{1}{S}+\frac{1}{N}\right)} = \frac{W.A+O.E+T.S+U.N}{(W+O+T+U)} \quad (2)$$
$$\text{with } T = \frac{W.R}{B} \text{ and } U = \frac{c.O.R}{\bar{O}} = \frac{R}{N}$$

In [6] it was mentioned that *CBR* was the appropriate measure for limited overs matches whereas the dynamic bowling rate *DBR* was defined for unlimited overs matches. *CBRA* is now developed for IPL matches by using the bowling figures of the IPL I–V matches. For this data set obtained from Cricinfo [20], consisting of 205 bowlers who had bowled at least three overs and taken at least one wicket, the average values of *A*, *E* and *S* are $AM = 34.10$, $EM = 8.16$ and $SM = 24.75$. Consider a 'typical' bowler whose performance is the same as the average of the data set. If he had bowled 25 overs, then approximately $R = 204.06$, $W = 5.98$, $T = 8.14$, $U = 86.32c$ and the average value of *N* is $NM = \bar{O}/(c.O) = 59.10/(25c) = 2.36/c$. Thus

$$CBRA = \frac{5.98A+25E+8.14S+86.32cN}{(5.98+25+8.14+86.32c)} = \frac{5.98A+25E+8.14S+86.32cN}{(39.13+86.32c)} \quad (3)$$

In order to find a realistic value for c, use the alternative method of Lemmer [5], namely the average of the standardized values $AG = A/AM$, $EG = E/EM$, $SG = S/SM$ and $NG = N/NM$. Thus

$$RG = \frac{\frac{A}{34.10}+\frac{E}{8.16}+\frac{S}{24.75}+N/\left(\frac{2.36}{c}\right)}{4} = \frac{A}{139.39}+\frac{E}{32.65}+\frac{S}{98.99}+CN/9.46 \quad (4)$$

In [5] it was found that for the test data set $RG = 0.13\text{x}CBR$. There was a constant, 0.13, that gave the relation between RG and CBR. For the IPL data set, by using *A*, *E* and *S* only, it is found that the relation is $RG = 0.06\text{x}CBR$. In order to find the value of c, equate the coefficients of *A* in Eqns. (3 & 4): 1/136.39 = 0.06x5.98/(39.13 + 86.32c). This gives c =

0.15. If the coefficients of E (or S) are equated, the same value is obtained. The adjusted combined bowling rate is thus given by

$$CBRA = \frac{4R}{\left(W + O + W.\frac{R}{B} + 0.15xO.\frac{R}{\overline{O}}\right)} \tag{5}$$

Note that $\overline{O}$ denotes the average number of overs bowled by all the bowlers in the group whose performances are compared. *CBRA* is data dependent in the sense that a specific bowler's value can only be calculated if $\overline{O}$ is known. This is a limitation on the applicability of *CBRA* because it can only be calculated once the group of competitors is defined. On the other hand it makes sense when bowlers' performances in a specific series are compared. This is what it has been developed for. The ideal is that the ratio $O/\overline{O}$ should reflect the relative strength of the bowler within the designated group as well as possible. If one can reason that the number of overs bowled by a bowler is proportional to his bowling ability, the inclusion of N (i.e., O) in the measure makes sense. This will probably be the case in a series of matches where the best bowlers are selected for all the matches, but others less frequently, as in a series or short season of matches. It will not hold in general for bowlers who had bowled a very large number of overs, as in the case of career data. This can easily be seen by analyzing the components of the denominator of *CBRA*, namely $W + O + T + U$, where $U = 0.15xO.R/\overline{O}$ will increase in value much more rapidly than the other components as O becomes very large, causing a decrease in the value of *CBRA*. It will be shown that the use of *CBRA* should be limited to the case of a small number of overs bowled.

RESULTS

If *CBR* is calculated cumulatively after each completed over, its value stabilizes rapidly, giving a reliable assessment of the bowler's performance. Ten to twelve overs are normally sufficient for comparative purposes. Table 1 shows the bowling figures of S Narine in his first sixteen overs of the IPL V series. The cumulative number of overs, runs and wickets are given in columns 4-6 of Table 1.

Figure 1 shows that in his first seven overs he did not take any wickets and his *CBR* value was bad, but as he started taking wickets, his measure quickly stabilized on much better values. Note how *CBR* improved when wickets were taken or a small number of runs conceded. This shows that *CBR* is a very useful measure for coaches who can monitor the performance of a bowler on a ball-by-ball basis.

By incorporating O, the number of overs bowled, into *CBR*, the problem of a bowler ranking highly due to early success in a very small number of overs bowled, is addressed. In order to get the best possible information about IPL performances, the bowling figures of all bowlers (205 in total) who had bowled at least three overs and taken at least one wicket in the IPL I-V series have been considered. These are Twenty20 matches played between the different teams of the Indian Premier League. The bowlers have been ranked according to O in order to see how *CBR* and *CBRA* behave as O increases. The bowling figures of a sufficiently large selection of the bowlers are given in Table 2 (Appendix).

Table 1. Bowling Figures of S Narine in his First Four Matches in the IPL V Series
CBR = Combined Bowling Rate (Eqn. (1)).

Over no.	Runs	Wickets	Overs (cum)	Runs (cum)	Wickets (cum)	CBR
1	7	0	1	7	0	21.00
2	6	0	2	13	0	19.50
3	7	0	3	20	0	20.00
4	9	0	4	29	0	21.75
5	10	0	5	39	0	23.40
6	4	0	6	43	0	21.50
7	5	0	7	48	0	20.57
8	3	1	8	51	1	15.21
9	2	1	9	53	2	12.27
10	3	1	10	56	3	10.63
11	3	2	11	59	5	8.65
12	11	1	12	70	6	8.81
13	5	0	13	75	6	9.08
14	5	0	14	80	6	9.33
15	4	1	15	84	7	8.83
16	10	1	16	94	8	8.86

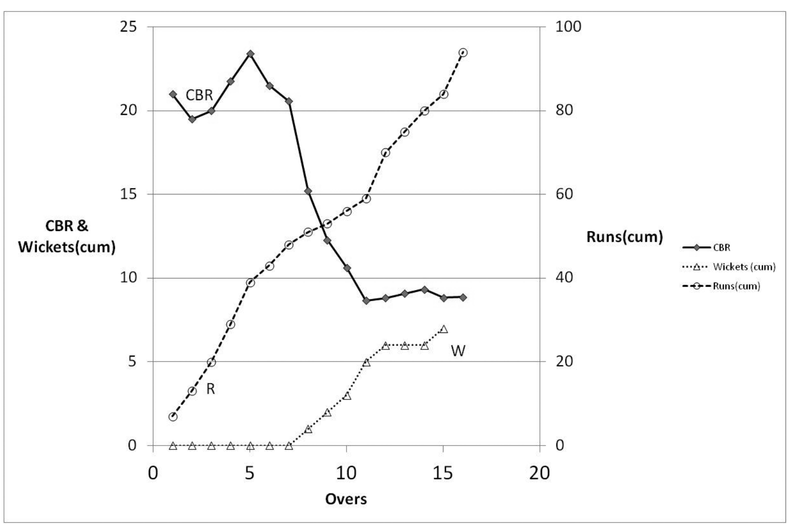

Figure 1. Scatterplot Showing the Data from Table 1: Cumulative Wickets Taken, Cumulative Runs Conceded and the Effect on the Combined Bowling Rate

As the number of overs increases, the value of *CBR* only varies according to performance, but the value of *CBRA* decreases in general, suggesting better performances. However, this only shows the effect of *O* and confirms the argument that the introduction of *O* into the formula must be handled with caution. In the present study, *O* will only be used in the case of a very small number of overs bowled. The approach is to rely entirely on *CBR* for twelve or more overs and to use the modified form only for a small number of overs. The numerical values of *CBR* and *CBRA* are not comparable because they are not on the same scale. Ordinary standardization will not be useful for the present purpose. In order to have a sensible transition from *CBRA* to *CBR* as the number of overs increases beyond twelve, by trial and error change the weight factor 'c' in Eqn. (5) of *CBRA* from 0.15 to 0.30 to get *CBRI*; i.e.,

$$CBRI = \frac{4R}{\left(W + O + W.\dfrac{R}{B} + 0.3 \times O.\dfrac{R}{\overline{O}}\right)} \tag{6}$$

The difference between CBRI and CBR is defined as

$$D = CBRI - CBR \tag{7}$$

Looking at the difference in Figure 2 (see also Table 2 in the Appendix), it is clear that *CBR* and *CBRI* are approximately equal when *O* is close to twelve. In order to locate the transition of *O* from positive to negative as accurately as possible, all bowlers who had bowled between eight and sixteen overs have been kept when the selection was made. The proposed procedure is to use *CBR* whenever $O \geq 12$ and to use *CBRI* for small values of *O* only. In this way the bowler is 'penalized' for having bowled very few overs and the criticism of [10] is addressed. Bracewell's very good *CBR* value of 8.73 after four overs is replaced by a more moderate value of 10.99.

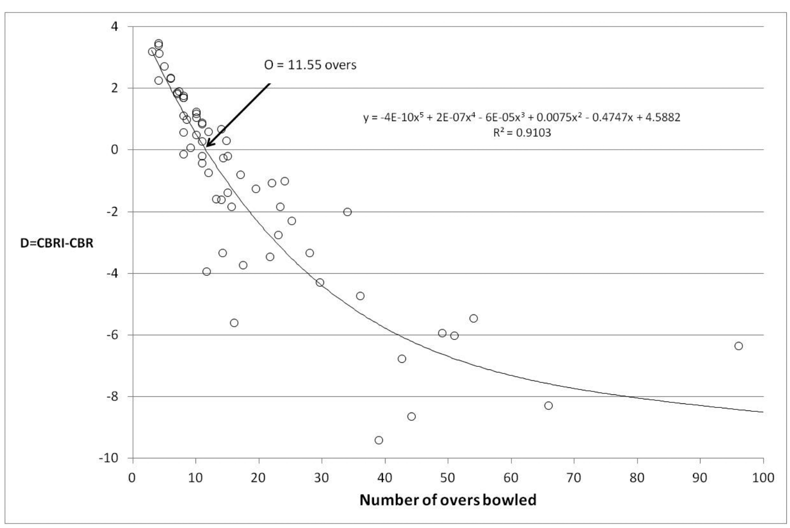

Figure 2. The Difference D (Eqn.(7)) Between *CBRI* and *CBR* Plotted as a Function of the Number of Overs Bowled in IPL Series I-V. (Data in Table 2 in Appendix)

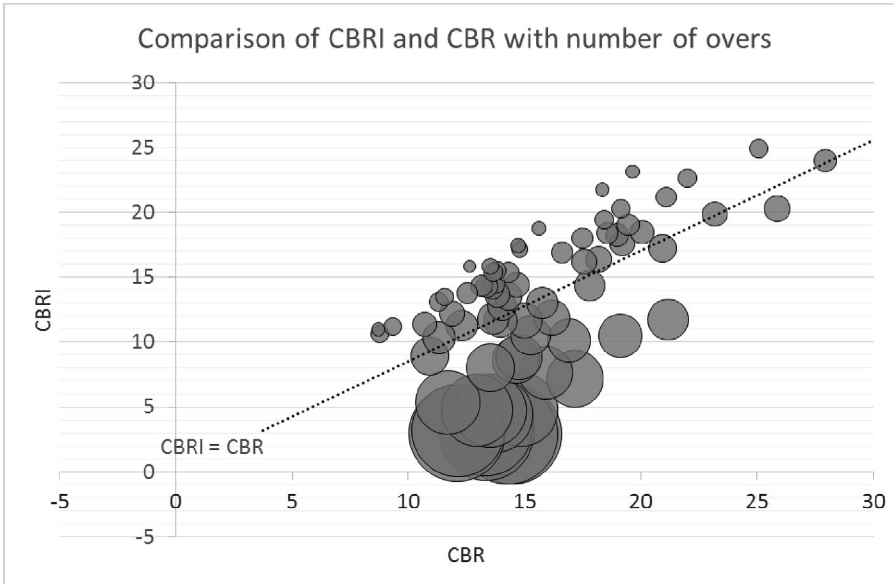

Figure 3. The Difference *D* (= *CBRI* - *CBR*, Eqn. (7)) Visualized using a Bubble Plot
The area of the circle shows the number of overs bowled. The graphic shows that for small number of overs, the circles lie above the *CBRI* = *CBR* Line, while for large number of overs, they are below that line.

Figure 3 shows a further visualization of the data using a bubble chart. In this representation, the size of the circles represents number of overs bowled. The line *CBRI* = *CBR* is shown on this figure for comparison purposes. Clearly the small circles (small number of overs) lie above the line, while the large circles (large number of overs) lie below it.

For calculation purposes the measure is defined as

$$CBRO = CBRI.\mathrm{ind}(O < 12) + CBR.\mathrm{ind}(O \geq 12) \tag{8}$$

with ind(.) the indicator function: ind(A) = 1 if A is true and ind(A) = 0 otherwise. Thus

$$CBRO = CBRI \text{ if } O < 12 \text{ or } CBRO = CBR \text{ if } \mathrm{O} \geq 12.$$

If *CBRA* had been used for small values of O and *CBR* otherwise, the transition at $O = 12$ would not work well. That is why the value of c was adjusted to obtain a smooth transition between *CBRI* and *CBR*. The calculations are illustrated by using the same data set as in [10]; i.e., the bowling figures of the bowlers of the Kolkata Knight Riders in the IPL V series. In Table 3, the values of the different measures are given with those of *CBRO* in the final two columns.

By using *CBR* indiscriminately, Shukla would be ranked first despite having bowled only two overs. According to *CBRO* he ranks fourth, which is more reasonable. It can be seen that in the calculation of *CBRO*, for Shukla and de Lange the values of *CBRI* have to be used. For the rest, *CBR* is used because they had bowled a sufficient number of overs.

Table 3. Calculation of the Bowling Performance Measure CBRO for a Small Data Set

Bowler	O	R	W	CBR	CBR rank	CBRI	CBRI rank	CBRO	CBRO rank
SP Narine	59.17	324	24	9.25	2	6.40	1	9.25	1
JH Kallis	54	403	15	13.79	5	8.13	2	13.79	5
R Bhatia	53.17	389	13	14.23	7	8.31	3	14.23	7
B Lee	38	299	7	16.56	8	10.68	6	16.56	8
L Balaji	30	162	11	9.55	3	8.57	4	9.55	2
SA Hasan	30	195	12	10.64	4	9.20	5	10.64	3
I Abdulla	22	144	4	14.23	6	12.40	8	14.23	6
YK Pathan	22	182	3	18.74	10	14.71	9	18.74	10
M de Lange	10	107	3	17.49	9	17.99	10	17.99	9
LR Shukla	2	12	1	9.00	1	11.65	7	11.65	4

CONCLUSION

The idea to incorporate *O* into a bowling performance measure in order to avoid the problem encountered by Bhattacharjee [10] was useful, but its consequences if *O* becomes large were unforeseen. In the development of *CBR,* there was no requirement that *O* should not be small. Its value can actually be calculated even if only one ball had been bowled (cf. Table 1), but it is advisable that the bowler should have bowled a number of overs before one can use *CBR* for comparative purposes. The inclusion of the number of overs bowled into the combined bowling rate *CBR* in order to address its alleged deficiency in the case of a small number of overs, was successful. The augmented measure *CBRI* is suitable for small values of *O*, but it has been shown convincingly that it should not be used for moderate or large values of *O*. The proposed measure *CBRO* is a compromise between *CBRI* and *CBR*. If some of the bowlers had bowled a small number of overs, they should either be ranked according to *CBRO* or excluded from the ranking.

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REFERENCES

1. Kimber, A.C., A Graphical Display for Comparing Bowlers in Cricket, *Teaching Statistics,* 1993, 15, 84–86.
2. Barr, G.D.I. and Kantor, B.S., A Criterion for Comparing and Selecting Batsmen in Limited Overs Cricket, 2004, *Journal of the Operational Research Society,* 55, 1266-1274.
3. Croucher, J.S., Player Ratings in One-Day Cricket, in: Cohen, G. and Langtry, T. eds., *Proceedings of the Fifth Australasian Conference on Mathematics and Computers in Sport*, Sydney University of Technology, Sydney, NSW, 2000, 95-106.
4. Basevi, T. and Binoy, G., The World's Best Twenty20 Players. Retrieved 3 October, 2007, from *http://content-rsa.cricinfo.com/columns/content/story/311962.html*, 2007
5. Lemmer, H.H., The Combined Bowling Rate as a Measure of Bowling Performance in Cricket, *South African Journal for Research in Sport, Physical Education and Recreation,* 2002, 24(2), 37-44.

6. Lemmer, H.H., A Method for the Comparison of the Bowling Performances of Bowlers in a Match or a Series of Matches, *South African Journal for Research in Sport, Physical Education and Recreation,* 2005, 27(1), 91-103.

7. Bairam, E.I., Howells, J.M. and Turner, G.M., Production Functions in Cricket: The Australian and New Zealand Experience, *Applied Economics,* 1990, 22, 871-879.

8. Cohen, G.L., Cricketing Chances, in: Cohen, G. and Langtry, T. eds, *Proceedings of the Sixth Australasian Conference on Mathematics and Computers in Sport,* Sydney University of Technology, Sydney, NSW, 2002, 1-13.

9. Beaudoin, D. and Swartz, T. B., The Best Batsmen and Bowlers in One Day Cricket, *South African Statistical Journal,* 2003, 37, 203–222.

10. Bhattacharjee, D. and Saikia, H., A Fairer Metric for the Performance Measurement of Bowlers in Cricket, *Gurukul Business Review*, 2012, 8, 1-5.

11. Lemmer, H.H., A Measure of the Current Bowling Performance in Cricket, *South African Journal for Research in Sport, Physical Education and Recreation*, 2006, 28(2), 91-103.

12. Lemmer, H.H., The Allocation of Weights in the Calculation of Batting and Bowling Performance Measures, *South African Journal for Research in Sport, Physical Education and Recreation*, 2007, 29(2), 75-85.

13. Lemmer, H.H., Batting and Bowling Performance Measures for List-A and First Class Cricket Matches, *South African Journal for Research in Sport, Physical Education and Recreation*, 2009, 31(1), 27-35.

14. Lemmer, H.H., Individual Match Approach to Bowling Performance Measures in Cricket, *South African Journal for Research in Sport, Physical Education and Recreation*, 2012, 34(2), 95-103.

15. Lemmer, H.H., An Analysis of Players' Performances in the First Cricket Twenty20 World Cup Series, *South African Journal for Research in Sport, Physical Education and Recreation,* 2008, 30(2), 73-79.

16. Bhattacharjee, D. and Pahinkar, D.G., Analysis of Performance of Bowlers Using Combined Bowling Rate, *International Journal of Sports Science and Engineering,* 2012, 6(3), 184-192.

17. Saikia, H., Bhattacharjee, D. and Lemmer, H.H., Predicting the Performance of Bowlers in IPL: An Application of Artificial Neural Network, *International Journal of Performance Analysis in Sport,* 2012, 12, 75-89.

18. Lemmer, H.H., Predicting the Names of the Best Teams after the Knock-Out Phase of a Cricket Series, *European Journal of Sport Science*, 2014, 14(Supplement 1), S191-S196, DOI:10.1080/17461391.2012.679315.

19. Lemmer, H.H., The Single Match Approach to Strike Rate Adjustments in Batting Performance Measures in Cricket, *Journal of Sport Science and Medicine*, 2011, 10, 630-634.

20. Cricinfo, Indian Premier League I-V, Retrieved 11 November 2012 from *http://www.espncricinfo.com/indian-premier-league-2012/engine/series/520932.html*, 2012.

APPENDIX

Table 2. Bowling Figures and Statistics of Bowlers in the IPL I-V Series
O = Number of overs bowled, *R* = runs scored, *W* = wickets taken, *A* = bowling average, *E* = economy, *S* = strike rate; *CBR*, *CBRA* and *CBRI* – Different measures of Combined Bowling Rate defined in eqns. (1, 2 & 6) in this article, *D* = *CBRI-CBR.*

Bowler	*O*	*R*	*W*	*A*	*E*	*S*	*CBR*	*CBRA*	*CBRI*	*D*
Maxwell	3	22	1	22.00	7.33	18.00	12.64	16.33	15.83	3.20
Symonds	4	41	1	41.00	10.25	24.00	18.34	23.02	21.74	3.41
Bracewell	4	32	3	10.67	8.00	8.00	8.73	11.30	10.99	2.26
Tiwary	4	45	1	45.00	11.25	24.00	19.64	24.55	23.11	3.47
Sarkar	4.17	34	1	34.00	8.15	25.02	15.62	19.74	18.76	3.14
Khote	5	51	2	25.50	10.20	15.00	14.71	18.46	17.44	2.73
Ninan	6	65	3	21.67	10.83	12.00	13.53	16.87	15.85	2.33
Henderson	6	40	1	40.00	6.67	36.00	14.79	18.35	17.15	2.35
Thornely	7	40	3	13.33	5.71	14.00	9.33	11.79	11.20	1.87
Akhtar	7	54	5	10.80	7.71	8.40	8.79	11.14	10.61	1.82
Kemp	7.33	54	3	18.00	7.37	14.66	11.56	14.38	13.48	1.92
Geeves	8	91	1	91.00	11.38	48.00	25.06	28.56	24.94	-0.12
Nanda	8	57	2	28.50	7.13	24.00	13.82	16.85	15.52	1.70
Kalyankrishna	8	87	2	43.50	10.88	24.00	19.16	22.61	20.28	1.12
Salunkhe	8	78	1	78.00	9.75	48.00	22.02	25.55	22.61	0.59
Peterson	8	70	3	23.33	8.75	16.00	13.66	16.67	15.37	1.71
Dhawan	8	66	4	16.50	8.25	12.00	11.31	14.01	13.08	1.76
Malik	8.5	85	2	42.50	10.00	25.50	18.43	21.70	19.42	0.99
Joshi	9.17	82	1	82.00	8.94	55.02	21.10	24.17	21.18	0.09
Faulkner	10	81	4	20.25	8.10	15.00	12.53	15.10	13.78	1.25
De Lange	10	107	3	35.67	10.70	20.00	17.49	20.31	17.99	0.50
Hafeez	10	68	2	34.00	6.80	30.00	14.30	17.00	15.35	1.05
Harwood	10	73	3	24.33	7.30	20.00	13.15	15.78	14.34	1.19
Dole	11	112	5	22.40	10.18	13.20	13.72	16.22	14.57	0.85
Nagar	11	125	4	31.25	11.36	16.50	16.61	19.18	16.91	0.30
Clarke	11	67	2	33.50	6.09	33.00	13.37	15.85	14.27	0.90
Zoysa	11	99	2	49.50	9.00	33.00	18.56	21.10	18.39	-0.18
Flintoff	11	105	2	52.50	9.55	33.00	19.47	21.97	19.04	-0.42
Sudhindra	11.67	136	1	136.00	11.65	70.02	27.92	29.17	23.98	-3.94
Mota	12	97	4	24.25	8.08	18.00	13.61	15.94	14.21	0.60
Van der Wath	12	129	3	43.00	10.75	24.00	18.99	21.23	18.27	-0.73
Sathish	13.17	122	2	61.00	9.26	39.51	20.05	21.84	18.47	-1.58
Chandila	14	86	5	17.20	6.14	16.80	10.70	12.66	11.38	0.68
Gagand Singh	14	141	3	47.00	10.07	28.00	19.20	20.85	17.58	-1.61
Jhunjhunwala	14.17	129	1	129.00	9.10	85.02	23.19	24.19	19.86	-3.33
Bopara	14.33	132	5	26.40	9.21	17.20	14.66	16.60	14.42	-0.25
Collingwood	14.83	101	5	20.20	6.81	17.80	11.88	13.78	12.20	0.32
Gomez	15	124	5	24.80	8.27	18.00	13.83	15.69	13.65	-0.19

continued over

Bowler	***O***	***R***	***W***	***A***	***E***	***S***	***CBR***	***CBRA***	***CBRI***	***D***
Binny	15	131	3	43.67	8.73	30.00	17.57	19.15	16.19	-1.38
Narwal	15.67	185	5	37.00	11.81	18.80	18.19	19.54	16.35	-1.84
Russell	16	161	1	161.00	10.06	96.00	25.86	25.53	20.27	-5.59
Wagh	17	137	5	27.40	8.06	20.40	14.31	15.82	13.51	-0.80
Perera	17.5	157	2	78.50	8.97	52.50	20.94	21.31	17.22	-3.72
Taylor	19.5	157	6	26.17	8.05	19.50	14.04	15.19	12.79	-1.25
Sehwag	21.67	226	6	37.67	10.43	21.67	17.80	17.88	14.35	-3.45
Negi	22	152	7	21.71	6.91	18.86	12.30	13.34	11.25	-1.06
Suman	23	182	5	36.40	7.91	27.60	15.78	16.09	13.03	-2.75
Edwards	23.33	154	5	30.80	6.60	28.00	13.66	14.34	11.82	-1.83
Cooper	24	174	10	17.40	7.25	14.40	11.33	12.28	10.34	-0.99
Franklin	25.17	220	9	24.44	8.74	16.78	13.96	14.34	11.67	-2.29
Mendis	28	207	6	34.50	7.39	28.00	15.00	14.75	11.68	-3.32
B Sharma	29.67	251	7	35.86	8.46	25.43	16.18	15.33	11.89	-4.28
Hilfenhaus	34	233	14	16.64	6.85	14.57	10.92	11.08	8.94	-1.99
Styris	36	276	8	34.50	7.67	27.00	15.27	13.89	10.54	-4.73
Kohli	39	345	4	86.25	8.85	58.50	21.17	16.61	11.76	-9.40
J Sharma	42.67	419	12	34.92	9.82	21.34	16.92	13.99	10.14	-6.77
Dilshan	44.17	356	5	71.20	8.06	53.00	19.11	14.85	10.48	-8.63
Jayasuriya	49	390	13	30.00	7.96	22.62	14.76	12.20	8.84	-5.92
R Sharma	51	408	14	29.14	8.00	21.86	14.63	11.95	8.61	-6.02
McGrath	54	357	12	29.75	6.61	27.00	13.52	11.14	8.06	-5.46
Mathews	65.83	537	15	35.80	8.16	26.33	15.92	11.24	7.64	-8.27
Gayle	75.5	606	13	46.62	8.03	34.85	17.17	10.91	7.16	-10.01
Bollinger	96	693	37	18.73	7.22	15.57	11.71	8.00	5.37	-6.34
M Morkel	120	884	38	23.26	7.37	18.95	12.96	7.45	4.75	-8.21
Pollard	123.33	985	41	24.02	7.99	18.05	13.50	7.47	4.71	-8.79
Sreesanth	125	1031	35	29.46	8.25	21.43	14.86	7.70	4.78	-10.09
Watson	135.17	969	35	27.69	7.17	23.17	13.71	7.11	4.41	-9.30
Steyn	198.17	1304	59	22.10	6.58	20.15	12.15	5.33	3.19	-8.97
Warne	199	1447	57	25.39	7.27	20.95	13.35	5.48	3.23	-10.12
Harb Singh	214.5	1469	54	27.20	6.85	23.83	13.35	5.19	3.04	-10.31
Muralitharan	215	1395	63	22.14	6.49	20.48	12.09	5.03	2.98	-9.11
JA Morkel	230.17	1899	69	27.52	8.25	20.01	14.46	5.05	2.90	-11.55
Z Khan	230.33	1783	63	28.30	7.74	21.94	14.28	5.03	2.90	-11.38