

Statistician's Report on Bonus Points – 2016

Background

Before the start of the 2015 season, the Surrey Championship carried out a complete overhaul of the points system, to be used in all XIs and divisions. A summary of the changes can be seen in Table 1 below:

	Limited Overs Format		Declaration Format	
	Pre-2015	2015	Pre-2015	2015
Win	9	20	13	24
Loss	0	0 + bp	0	0 + bp
Tie	5	10	7	12
Winning Draw			4	2 + bp
Equal Draw			2	1 + bp
Losing Draw			1	0 + bp
Abandoned	1		1	4
Batting Points		max. 5		max. 5
Bowling Points		max. 3		max. 3
Result Points	1			

Table 1: Summary of changes to points system

I have conducted a thorough statistical analysis of the results data from the last 2 years of the Championship, and have also analysed some 2014 data to provide a control. When analysing the data, I have considered four criteria, and will base any recommendations from this paper on them:

- Fairness – is the system biased in any way?
- Representativeness – are the various result scenarios given fair value?
- Gameplay – have tactics changed due to the new system?
- Players – do the opinions of the players reflect what the data shows?

Study 1 – Comparison of batting and bowling points

See Appendix 1 for data table.

The headline statistic heralded throughout the 2015/16 close-season was that, despite the awarding of nearly 6000 points in the 2015 season, a difference of only 35 points was seen. The 2015 analysis did also show that there were clear disparities between XIs and across formats, with a clear weighting for batting seen in 1st and 2nd XI cricket, and in the timed format.

The 2016 picture, as shown by the large swathes of red in the diagram, shows a very different story, and the rain has much to thank for that. While only 30 less bowling points were awarded, compared with 2015, the difference in batting was almost 750 points. This difference is clearly linked to the displays in the timed format, as it seems the gap between batting and bowling points in the shorter format remained constant, or even decreased.

This is a concerning set of data. While it is true that 2016 was an unusually wet season, and thus the true picture is perhaps not as bad as this data suggests, 2015 was an unusually dry summer. I suggest the average value is around the centre point between these two extremes:

Overall bonus points (5500 awarded) skewed by around 350 points in favour of bowling. Batting points skewed 60-40 in favour of long format, bowling 57-43. 1st XI shows a small batting skew, 2nd XI a small bowling skew, 3rd and 4th XI shows a large bowling skew.



Study 2 – Comparison between different result types

See Appendix 1 for data table.

The 2015 statistics showed that the winning draw was worth, on average, 4 points more than a losing draw, which was itself worth 1.25 points, on average, more than a loss. All results were worth more than their 2014 comparison score, but the increase in value was vastly greater for the loss and the losing draw than for the winning draw.

The 2016 figures show a substantially different picture. The values of all results were down, but most significantly for winning draws than for any other result. In fact, such was the decline in points (over a point less than 2015), that the winning draw was worth, on average, less in 2016 than before the new points system was implemented.

As usual, the different XIs also show different statistics, and once again, the 1st and 2nd XIs have better values than the average, with 3rd and 4th XIs faring considerably worse in some cases.

Again, we can try and predict an average figure for these points, based on a compromise position between the two extremes we have seen:

Winning draw worth approx. 7 points (1% less than 2014). Losing draw worth approx. 3.5 points (7% more than 2014). Loss worth approx. 2.5 points (10% more than 2014).

I have also been asked to comment on the bonus points that would have been awarded to winning teams, and to teams in a game that has been abandoned. For a win, approximately 5 bonus points would have been earned (very similar to the winning draw value). For an abandoned game, the average points earned would be similar to a loss, at around 2.5 points.

Study 3 – Comparison of various declaration statistics

See Appendix 1 for data table.

In 2015, some surprising statistics developed. There were slightly more declarations than 2014, and of these games, a very similar proportion were drawn. The average value of the declaration had risen significantly, by 24 runs on average and 34 runs in one case, potentially showing that extra points for reaching milestones have encouraged teams to declare later.

2016 shows a starkly different picture, which is unsurprising given the high levels of rain in the year. There were substantially fewer declarations, and while fewer of these games ended in draws, the proportion is not tremendously different. The average declaration score, however, has returned to the 2014 value, and this is true across the board in a rare display of similarity between the XIs. The compromise position is thus:

Slightly less declarations than under previous points system, with a similar number of games ending in draws. Average declaration score of around 235-240, an increase of 10-15 runs on pre-bonus point values.



Study 4 – Comparison of league tables

See Appendix 1 for data table.

The 2015 league tables showed almost no changes at all, with no changes in relegation and only one change in promotion, as well as three changes of division champions. In terms of points requirements, it did require a higher proportion of points to become a champion, gain promotion or avoid relegation – however, given the accompanying change in the value of a losing draw and a loss, this was to be expected.

2016 showed more changes than the previous year. There were 31 changes in position, up from 24, and this year, there were no changes in champions or promotion – but two relegation positions would have changed.

The points needed for positions 1, 2 and 8 in the table were still up in 2014, but down on 2015. All three sets of figures were in a similar area, and so nothing can be defined from it.

Conclusions and Recommendations

Throughout this study, I have considered four criteria:

- Fairness – is the system biased in any way?
- Representativeness – are the various result scenarios given fair value?
- Gameplay – have tactics changed due to the new system?
- Players – do the opinions of the players reflect what the data shows?

In terms of fairness, Study 1 gave a highly biased picture in favour of bowling points, and even an average scenario would support this. It is also clear that 1st and 2nd XI cricket is operating very differently from 3rd and 4th XI. Study 2 showed that the winning draw is not so very different from the losing draw, and perhaps a wider gap is needed – which is supported by the players.

Study 2 was the main catalyst for looking at how representative the system is, and the data shows that all results have been given more value under the BP system. However, given the points awarded for the winning draw and for an abandonment, a question is raised over whether these are worth enough.

The gameplay has certainly changed in the timed format, as declaration values seem to be higher – although we aren't seeing these higher values resulting in more drawn games.

My recommendations, based on the data and the views of the players, are thus:

1. **Increase the value of the winning and losing draw:** Studying the other ECB Premier Leagues around the country, it becomes clear what a disparate situation we are in. Surrey has the lowest values anywhere in the country. Given the way we award BPs, I would suggest that draws be **6 for winning, 4 for equal and 2 for losing (& BPs)**. This allows for a maximum of 14 pts in a drawn game, as well as providing a decent gap between the draw outcomes and upgrading all draw values.
2. **Abandonments:** Much was made of the final league games of the season, including the game I was scoring between Guildford and Ashted. When the game was called off, Guildford had already accrued 5 bonus points, and thus lost a point as a result of the abandonment. This was not an isolated incident. I feel the players' suggestion is sound, and I recommend that abandonments be **4 points or the bonus points accrued, whichever is higher**. We do not wish to encourage sides to take the rain option, so increasing the abandonment points further (as other leagues have done) is not prudent.

Appendix 1: Data Tables

Study 1 – Comparison of batting and bowling points

	1st XI		2nd XI		3rd XI		4th XI		Total	
	2015	2016	2015	2016	2015	2016	2015	2016	2015	2016
Total Batting Points	998	810	983	687	550	416	385	257	2916	2170
Total Bowling Points	923	862	883	895	659	708	486	456	2951	2921
Difference (±)	75	-52	100	-208	-109	-292	-101	-199	-35	-751
Batting % (LO 1)	21	28	14	21	14	21	11	17	15	22
Batting % (LO 2)	19	31	18	27	16	21	22	28	19	27
Batting % (T)	61	41	67	52	70	59	67	55	66	52
Difference (±%)	21	-18	35	4	40	17	34	10	33	3
Bowling % (LO 1)	19	23	17	20	19	20	21	16	19	20
Bowling % (LO 2)	23	24	24	21	23	23	24	23	24	23
Bowling % (T)	58	53	59	59	58	56	55	61	58	57
Difference (±%)	16	6	18	18	16	13	10	22	15	15
Difference (LO 1)	29	27	-12	-36	-48	-59	-58	-30	-89	-98
Difference (LO 2)	-21	48	-29	-4	-61	-77	-34	-33	-145	-66
Difference (T)	67	-127	141	-168	0	-156	-9	-136	199	-587

Study 2 – Comparison between different result types

		1st XI		2nd XI		3rd XI		4th XI		Total		% of win		2014%	± %		YOY	
		2015	2016	2015	2016	2015	2016	2015	2016	2015	2016	2015	2016	2015	2016	15/16		
W Draw	Pts.	318	192	421	251	222	182	194	129	1155	754							
	Games	56	39	73	52	39	42	35	31	203	164							
	Ave.	5.68	4.92	5.77	4.83	5.69	4.33	5.54	4.16	7.69	6.60	32.0%	27.5%	30.8%	1.3%	-3.3%	-4.6%	
	% of win	32.0%	28.8%	32.4%	28.4%	32.1%	26.4%	31.4%	25.7%									
	± %	1.2%	-1.9%	1.6%	-2.3%	1.3%	-4.4%	0.7%	-5.1%									
L Draw	Pts.	240	140	279	186	136	115	108	81	763	522							
	Games	56	39	73	52	39	42	35	31	203	164							
	Ave.	4.29	3.59	3.82	3.58	3.49	2.74	3.09	2.61	3.76	3.18	15.7%	13.3%	7.7%	8.0%	5.6%	-2.4%	
	% of win	17.9%	15.0%	15.9%	14.9%	14.5%	11.4%	12.9%	10.9%									
	± %	10.2%	7.3%	8.2%	7.2%	6.8%	3.7%	5.2%	3.2%									
Loss	Pts.	1309	1340	1165	1144	853	827	569	503	3896	3814							
	Games	450	462	437	433	366	436	284	291	1537	1622							
	Ave.	2.91	2.90	2.67	2.64	2.33	1.90	2.00	1.73	2.53	2.35	10.6%	9.8%	0.0%	10.6%	9.8%	-0.8%	
	% of win	12.1%	12.1%	11.1%	11.0%	9.7%	7.9%	8.3%	7.2%									
	± %	12.1%	12.1%	11.1%	11.0%	9.7%	7.9%	8.3%	7.2%									
Win	Pts.	2468	2384	2250	2122	1740	1825	1158	1088	7616	7419							
	Games	449	461	433	432	362	410	258	249	1502	1552							
	Ave.	5.50	5.17	5.20	4.91	4.81	4.45	4.49	4.37	5.07	4.78							
Abandon	Pts.	22	39	53	73	23	55	9	39	107	206							
	Games	9	20	17	34	7	28	4	16	37	98							
	Ave.	2.44	1.95	3.12	2.15	3.29	1.96	2.25	2.44	2.89	2.10							

Study 3 – Comparison of various declaration statistics

	1st XI			2nd XI			3rd XI			4th XI			Total		
	2014	2015	2016	2014	2015	2016	2014	2015	2016	2014	2015	2016	2014	2015	2016
Games declared	80	64	46	80	102	59	64	68	61	54	60	44	278	294	210
% drawn	50%	33%	30%	39%	42%	39%	39%	35%	31%	26%	48%	41%	38%	40%	35%
Total declaration runs	18436	16909	10834	18176	25645	13360	14565	16725	13945	11098	13660	8981	62275	72939	47120
Ave. declaration score	231	265	236	228	252	227	228	246	229	206	228	205	225	249	225

Study 4 – Comparison of league tables

	1st XI		2nd XI		3rd XI		4th XI		Total		± %	
	2015	2016	2015	2016	2015	2016	2015	2016	2015	2016	2015	2016
Changes in Position	4	9	5	9	13	7	2	6	24	31		
Relegation Changes		2							0	2		
Promotion Changes	1								1	0		
Championship Changes			1		1		1		3	0		

	2014	2015	2016	2014	2015	2016	2014	2015	2016	2014	2015	2016	2014	2015	2016		
% points of Champions	68%	72%	70%	63%	68%	68%	66%	70%	67%	65%	69%	62%	66%	70%	67%	4%	1%
% points for promotion	62%	67%	61%	57%	63%	58%	56%	61%	62%	60%	67%	59%	59%	65%	60%	6%	1%
% points for relegation	26%	36%	35%	30%	37%	33%	30%	37%	31%	27%	31%	32%	28%	35%	33%	7%	5%

N.B. Relegation % uses penultimate position, regardless of actual numbers of relegated teams

