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Categorizing the best Batsmen in Test Cricket and Separating the Great from the Good

Arjun Tan

Department of Physics, Alabama A & M University,
Normal, AL 35762, U. S. A.

Abstract

In the game of cricket, a batsman is most frequently judged by his batting average, aggregate runs scored and centuries made, in that order. Of the three quantities, the batting average is an intensive quantity which is fairly independent upon the number of innings batted and therefore best reflects the quality of the batsman. In this study, the best batsmen in cricket history are compared based upon their Test batting averages, who have batted in at least 100 innings and ended their careers by 2021. A baseline average of 40 is seen cover most of the well-known batsmen. Further an average of 50 is seen to separate the great batsmen from the good. From the list of 92 qualified batsmen, 25 fall into the great category and the rest 67 are reckoned to be good batsmen. The good and the great are further separated into three sub-categories each having batting average ranges of 3.33 each. The sub-categories are designated as (1) exceptional (batting average range: 56.67−59.99); (2) outstanding (53.34−56.66); (3) basic great (50.00−53.33); (4) excellent (46.67−49.99); (5) very good (43.34−46.66); and (6) basic good (40.00−43.33). The six sub-categories contained 6, 3, 16, 17, 20 and 30 batsmen respectively. A batting average curve is obtained by plotting the batting average against the rank of the batsman whence an exponential trend is obtained. The frequency of batsmen in each sub-category according to the exponential model deviated slightly from the actual frequencies. The batsmen with 10,000 total runs and 30 Test centuries were identified. There were 13 batsmen in each category, of which 11 were common. Further, all but two of them belonged to the great category. This indicates that batsmen who score more runs and centuries also end up with higher Test averages in general.

INTRODUCTION

The game of Cricket is unsurpassed in terms of statistical categories recorded. For batting-related categories, the number of matches played, innings batted, not outs, runs scored, batting averages, centuries made, additional 50s scored, etc., are amongst the most common. Of these, the batting average is perhaps the most important parameter by which the quality of a batsman is judged. However, the aggregate runs and centuries scored are also very important, especially when the batting averages are comparable. The reason for this is that runs scored and centuries made are ***extensive quantities*** which depend upon the number of innings batted. The batting average, on the other hand, is an ***intensive quantity***, which is generally independent of the innings batted. However, when considering the batting average, the qualification of a minimum number of innings is generally applied to satisfy adequate sample size. Also, even though being an intensive quantity, the batting average tends to diminish slightly if the batsman prolongs his career too far beyond his prime. In this paper, we consider the best batsmen in Test cricket according to their batting averages subject to certain criteria and separate the great batsmen from the good. We also place the batsmen in each group into sub-categories according to their batting averages.

SEPARATING THE GREAT BATSMEN FROM THE GOOD

Test cricket data are readily available in the world-wide-web such as cricketarchive.com [1] and espncricinfo,com [2] websites. Table I lists the 92 batsmen having the highest batting averages in Test cricket who have batted in at least 100 Test innings averaging at least 40 and ended their careers by 2021. The baseline average of 40 insures that nearly all the well-known batsmen are included. It is also a meaningful figure since the mean batting average of all Test batsmen since the First World War was estimated to be just under 30 [3, 4]. Absent in the list is Don Bradman, universally regarded as the greatest batsman by far, whose Test average of 99.94 is estimated to be 4.4 standard deviations above the mean in a normal distribution curve [5]. That average constitutes a ***Dirac Delta function***, which lies outside the realm of normal statistical analysis. Also absent are George Headley (60.83) and Herbert Sutcliffe (60.73) because of the minimum innings criterion. It appears that the 60 batting average constitutes an ***upper limit*** which has not been breached by any batsman with a full Test career with the exception of Bradman, of course. In conjunction with the ***lower limit*** of 40, it appears reasonable to draw the dividing line between the ***good*** and the ***great batsmen*** at 50. This places only 25 of the 92 batsmen with the best averages in the great category, and the rest (67) not quite up there.

Relating to Table I, if R is the aggregate runs scored in I innings batted and N is the number of unbeaten innings (not outs), then the Test average A of a player is:

$$A = \frac{R}{I-N} \tag{1}$$

In Fig. 1, the batting averages y of the 92 batsmen are plotted against their ranks x. This ***batting average curve*** can be fitted with a 2-parameter ***least-squares exponential trend-line***:

$$y = A_0 e^{-\alpha x} \tag{2}$$

where A_0 is the ***amplitude*** and α is the ***decay constant***. The constants A_0 and α are determined from two ***normal equations***. Taking the logarithms of Eq. (2), multiplying both sides by x and summing over both equations gives:

$$n log A_0 - \alpha \sum x = \sum log y \tag{3}$$

and

$$log A_0 \sum x - \alpha \sum x^2 = \sum x log y \tag{4}$$

Solving Eqs. (3) and (4) simultaneously, we get:

$$log A_0 = \frac{\sum x \sum x log y - \sum log y \sum x^2}{(\sum x)^2 - n \sum x^2} \tag{5}$$

and

$$\alpha = \frac{n \sum x log y - \sum log y \sum x}{(\sum x)^2 - n \sum x^2} \tag{6}$$

where the number of data points n = 92. Putting the values from Table I, one gets from Eqs. (5) and (6): A_0 = 55.321 and α =.004.

SUB-CATEGORIZING THE GOOD AND GREAT BATSMEN

The 25 leading batsmen in Table I all easily earn their places in the great category. Viv Richards, the most dominant batsman of his time, barely makes the list as does Dennis Compton, another compelling batsman of his era. However, the baseline average of 50 is quite cruel to the next three batsmen: The Test averages of Mahela Jayawardene and Inzamam-ul-Haq dipped below 50s in their final innings batted; whereas that of the swashbuckling Virender Sehwag went under 50 in his last two innings!

With 67 batsmen in the good category in a relatively large batting average range between 40 and 50, it is compelling to separate them into different sub-categories. A range of 10 can be divided into three equal parts of 10/3. We come up with the following six sub-categories of the good and great batsmen: (1) ***Basic Good*** (batting average 40.00 – 43.33); ***Very Good*** (43.34 – 43.66); ***Excellent*** (46.67 – 49.99); ***Basic Great*** (50.00 – 53.33); ***Outstanding*** (53.34 – 56.66); and ***Exceptional*** (56.67 & above) (Table II).

Six batsmen grace the exceptional sub-category: Barrington, Hammond, Sobers, Sangakkara, Hobbs and Hutton. Barrington, a great defensive batsman and an unsung hero of many Test matches, raised his performance in Test cricket like no other player did. From an over-all first-class average of 45.63, he achieved a Test average of 58.67 to lead all batsmen. The 'three Hs', Hobbs, Hammond and Hutton, all leading batsmen in the England team in different eras, made it to the exceptional sub-category. Sobers, long acknowledged as the greatest batting all-rounder and Sangakkara, a leading wicketkeeper-batsman, round off the exceptional sub-category list. Kallis, Greg Chappell and Sachin Tendulkar are the only three batsmen in the outstanding sub-category. Greg Chappell was the number one batsman in the world in his time and some people consider Kallis as a contender for the greatest all-rounder of all time. And according to Bradman himself and many others, Tendulkar was the greatest batsman after Bradman. Altogether 16 batsmen make it to the basic great sub-category, all in their own rights. There are excellent batsmen in the good category who failed to make the great category for one reason or another, many of them for prolonging their careers when the ***law of diminishing returns*** of Economics starts to settle in.

REMARKS

It may be instructive to take a look at the extensive quantities such as the aggregate runs and the number of centuries scored in the Tests. We find that 13 of the 92 batsmen scored over 10,000 Test runs: (1) Tendulkar: 15,921; (2) Ponting: 13,378; (3) Kallis: 13,289; (4) Dravid: 13,288; (5) Cook: 12,472; (6) Sangakkara: 12,400; (7) Lara: 11,953; (8) Chanderpaul: 11,867; (9) Jayawardene: 11,814; (10) Border: 11,714; (11) S Waugh: 10,927; (12) Gavaskar: 10,122; and (13) Younis Khan: 10,099 (Highlighted in Table I). An equal number of batsmen scored 30 or more Test centuries: (1) Tendulkar: 51; (2) Kallis: 45; (3) Ponting: 41; (4) Sangakkara: 38; (5) Dravid: 36; (6 – 9) Gavaskar, Lara, Jayawardene & Younis Khan: 34 each; (10) Cook: 33; (11) S Waugh: 32; (12, 13) Chanderpaul & Hayden: 30 each (Highlighted in Table I). It is interesting to note that 11 of these batsmen achieved both of these benchmarks (10,000 runs & 30 centuries). Also, by leading in both categories by wide margins, Tendulkar cements his position as the closest batsman in history to Bradman. Furthermore, all but two of the batsmen (Jayawardene & Cook) averaged over 50 and therefore belonged to the great category. This indicates that ***batsmen who score more runs and centuries also end up with higher Test averages***.

Table I. Batsmen with Highest Test Averages (Qualification 100 Innings)

Rank	Batsman	Team	Inngs	NO	Runs	Ave	100	50
1	Barrington	E	131	15	6,806	58.67	20	35
2	Hammond	E	140	16	7,249	58.45	22	24
3	Sobers	WI	160	21	8,032	57.78	26	30
4	Sangakkara	SL	233	17	12,400	57.40	38	52
5	Hobbs	E	102	7	5,410	56.94	15	28
6	Hutton	E	138	15	6,971	56.67	19	33
7	Kallis	SA	280	40	13,289	55.37	45	58
8	G Chappell	A	151	19	7,110	53.86	24	31
9	Tendulkar	I	329	33	15,921	53.78	51	68
10	Lara	WI	232	6	11,953	52.88	34	48
11	Miandad	P	189	21	8,832	52.57	23	43
12	Dravid	I	286	32	13,288	52.31	36	63
13	Md Yousuf	P	156	12	7,530	52.29	24	33
14	Younis Khan	P	213	19	10,099	52.05	34	44
15	Ponting	A	287	29	13,378	51.85	41	62
16	Flower	Z	112	19	4,794	51.54	12	27
17	Hussey	A	137	16	6,235	51.52	19	29
18	Chanderpaul	WI	280	49	11,867	51.37	30	66
19	Gavaskar	I	214	16	10,122	51.12	34	45
20	S Waugh	A	260	46	10,927	51.06	32	50
21	Hayden	A	184	14	8,625	50.73	30	29
22	De Villars	SA	191	18	8,765	50.66	22	46
23	Border	A	265	44	11,174	50.56	27	63
24	Richards	WI	182	12	8,540	50.23	24	45
25	Compton	E	131	15	5,807	50.06	17	28
26	Jayawardene	SL	252	15	11,814	49.84	34	50
27	Inzamam-ul-Haq	P	200	22	8,830	49.60	25	46
28	Sehwag	I	180	6	8,586	49.34	23	32
29	Clarke	A	198	22	8,643	49.10	28	27
30	Samaraweera	SL	132	20	5,462	48.76	14	30
31	Harvey	A	137	10	6,149	48.41	21	24

Table I. Batsmen with Highest Test Averages, continued (Qualification 100 Innings)								
Rank	Batsman	Team	Inngs	NO	Runs	Ave	100	50
32	Walters	A	125	14	5,357	48.26	15	33
33	Smith	SA	205	13	9,265	48.25	27	38
34	Dexter	E	102	8	4,502	47.89	9	27
35	Boycott	E	193	23	8,114	47.72	22	42
36	Gilchrist	A	137	20	5,570	47.60	17	26
37	Kanhai	WI	137	6	6,227	47.53	15	28
38	Peterson	E	181	8	8,181	47.28	23	35
39	Lawry	A	123	12	5,234	47.15	13	27
40	Simpson	A	111	7	4,869	46.81	10	27
41	May	E	106	9	4,537	46.77	13	22
42	Loyd	WI	175	14	7,515	46.67	19	39
43	Amla	SA	215	16	9,282	46.64	28	41
44	Misbah-ul-Haq	P	132	20	5,222	46.62	10	39
45	Martyn	A	109	14	4,406	46.37	13	23
46	Laxman	I	225	34	8,781	45.97	17	56
47	Crowe	NZ	131	11	5,444	45.36	17	18
48	Cook	E	291	16	12,472	45.35	33	57
49	Langer	A	182	12	7,696	45.27	23	30
50	Kirsten	SA	176	15	7,289	45.27	21	34
51	Zaheer Abbas	P	124	11	5,062	44.79	12	20
52	Greenidge	WI	185	16	7,558	44.72	19	34
53	Thorpe	E	179	28	6,744	44.66	16	39
54	Graveney	E	123	13	4,882	44.38	11	20
55	Kallicharran	WI	109	10	4,399	44.43	12	21
56	Richardson	WI	146	12	5,949	44.39	16	27
57	Gower	E	204	18	8,231	44.25	18	39
58	Cullinan	SA	115	12	4,554	44.21	14	20
59	Cowdrey	E	188	15	7,624	44.06	22	38
60	Trescothick	E	143	10	5,825	43.79	14	29
61	Saleem Malik	P	154	22	5,768	43.69	15	29
62	Smith	E	112	15	4,236	43.67	9	28

Table I. Batsmen with Highest Test Averages, continued (Qualification 100 Innings)

Rank	Batsman	Team	Inngs	NO	Runs	Ave	100	50
63	Boon	A	190	20	7,422	43.65	21	32
64	Edrich	E	127	9	5,138	43.54	12	24
65	Taylor	A	186	13	7,525	43.49	19	40
66	Redpath	A	120	11	4,737	43.45	8	31
67	De Silva	SL	159	11	6,361	42.97	20	22
68	Tillakaratne	SL	131	25	4,545	42.87	11	20
69	Slater	A	131	7	5,312	42.83	14	21
70	Bell	E	205	24	7,727	42.69	22	46
71	Gooch	E	215	6	8,900	42.58	20	46
72	Amarnath	I	113	10	4,378	42.50	11	24
73	Fredericks	WI	109	7	4,334	42.49	8	26
74	I Chappell	A	136	10	5,345	42.42	14	26
75	Haynes	WI	202	25	7,487	42.29	18	39
76	Gayle	WI	182	11	7,214	42.18	15	37
77	Ganguly	I	188	17	7,212	42.17	16	35
78	Vengsarkar	I	185	22	6,868	42.13	17	35
79	Gibbs	SA	154	7	6,167	41.95	14	26
80	Gambhir	I	104	5	4,154	41.95	9	22
81	Viswanath	I	155	10	6,080	41.93	14	35
82	M Waugh	A	209	17	8,029	41.81	20	47
83	Prince	SA	104	16	3,665	41.64	11	11
84	Vaughn	E	147	9	5,719	41.44	18	18
85	Dilshan	SL	145	11	5,492	40.98	16	23
86	Strauss	E	178	6	7,037	40.91	21	27
87	Collingwood	E	115	10	4,259	40.56	10	20
88	Prior	E	123	21	4,099	40.18	7	28
89	Jayasuraya	SL	188	14	6,973	40.07	14	31
90	Fleming	NZ	189	10	7,172	40.06	9	46
91	Du Plessis	SA	118	14	4,163	40.02	10	21
92	Sarwan	WI	154	8	5,842	40.01	15	31

A = Australia; E = England. I = India; NZ = New Zealand; P = Pakistan; SA = South Africa; WI = West Indies; Z = Zimbabwe.

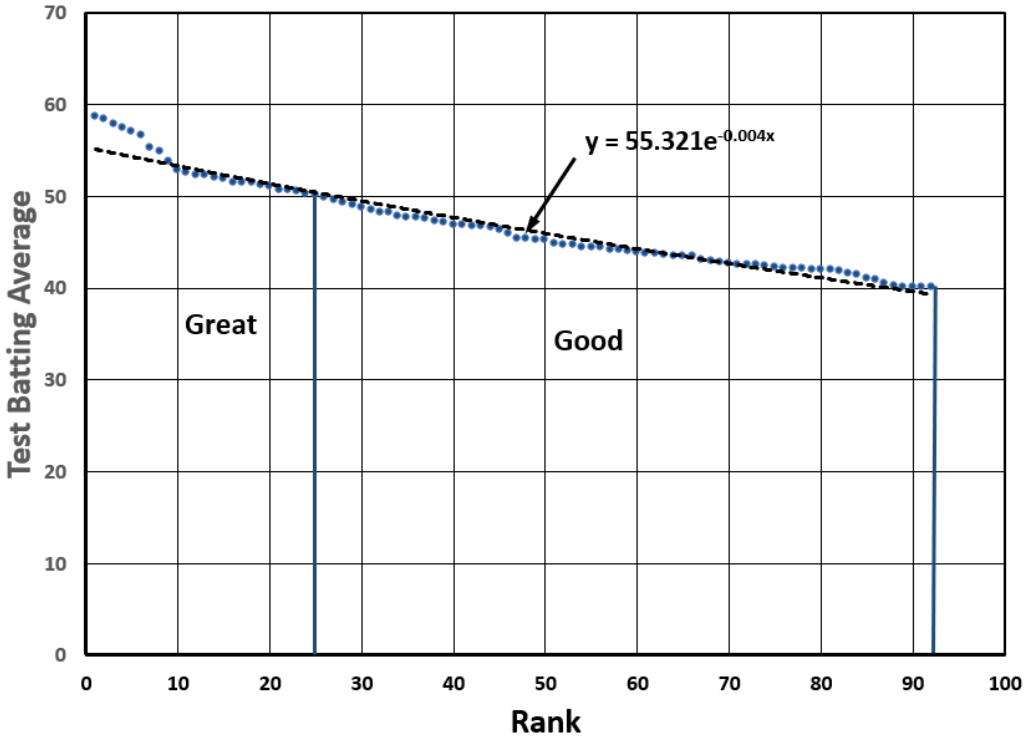

Figure 1

Table II. Categories and Sub-Categories of Good and Great Batsmen

Category	Sub-Category	Lower Limit	Upper Limit	Number of Batsmen	
				Model	Actual
Great	Exceptional	56.67	59.99	0	6
	Outstanding	53.34	56.66	15	3
	Basic Great	50.00	53.33	16	16
Good	Excellent	46.67	49.99	17	17
	Very Good	43.34	46.66	18	20
	Basic Good	40,00	43.33	20	30

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