

# Beyond Easy Averages:

*Improved Performance Metrics in  
Limited Overs Cricket*

Steven E Stern  
Professor of Statistics (ABS Chair)  
Queensland University of Technology

# The Ubiquitous Statistic

Averages are:

- Simple and easy to calculate
- Familiar and (generally) interpretable

But, they rely heavily on:

- Comparability and
- “Equi-relevance” of each component

# In Limited Overs Cricket

Batsmen assessed via:

- ⦿ Batting average (runs per dismissal)
- ⦿ Strike rate (runs per delivery)

Bowlers assessed via:

- ⦿ Bowling average (runs per dismissal)
- ⦿ Economy rate (runs per over)

# In Limited Overs Cricket

Batsmen assessed via:

- ⦿ Batting average (runs per dismissal)
- ⦿ Strike rate (runs per delivery)

Bowlers assessed via:

- ⦿ Bowling average (runs per dismissal)
- ⦿ Economy rate (runs per over)

No **CONTEXT** to components of averages!  
i.e., not equi-relevant

# “Resource”-based Approach

- ⦿ “Under what circumstances” as important as “How many”
- ⦿ Measure output against available resources
  - Utilisation = runs scored per resources consumed
- ⦿ How to measure resources?
  - The D/L/S Formula

# ASIDE: The D/L/S Formula

## ● *Duckworth-Lewis-Stern Method*

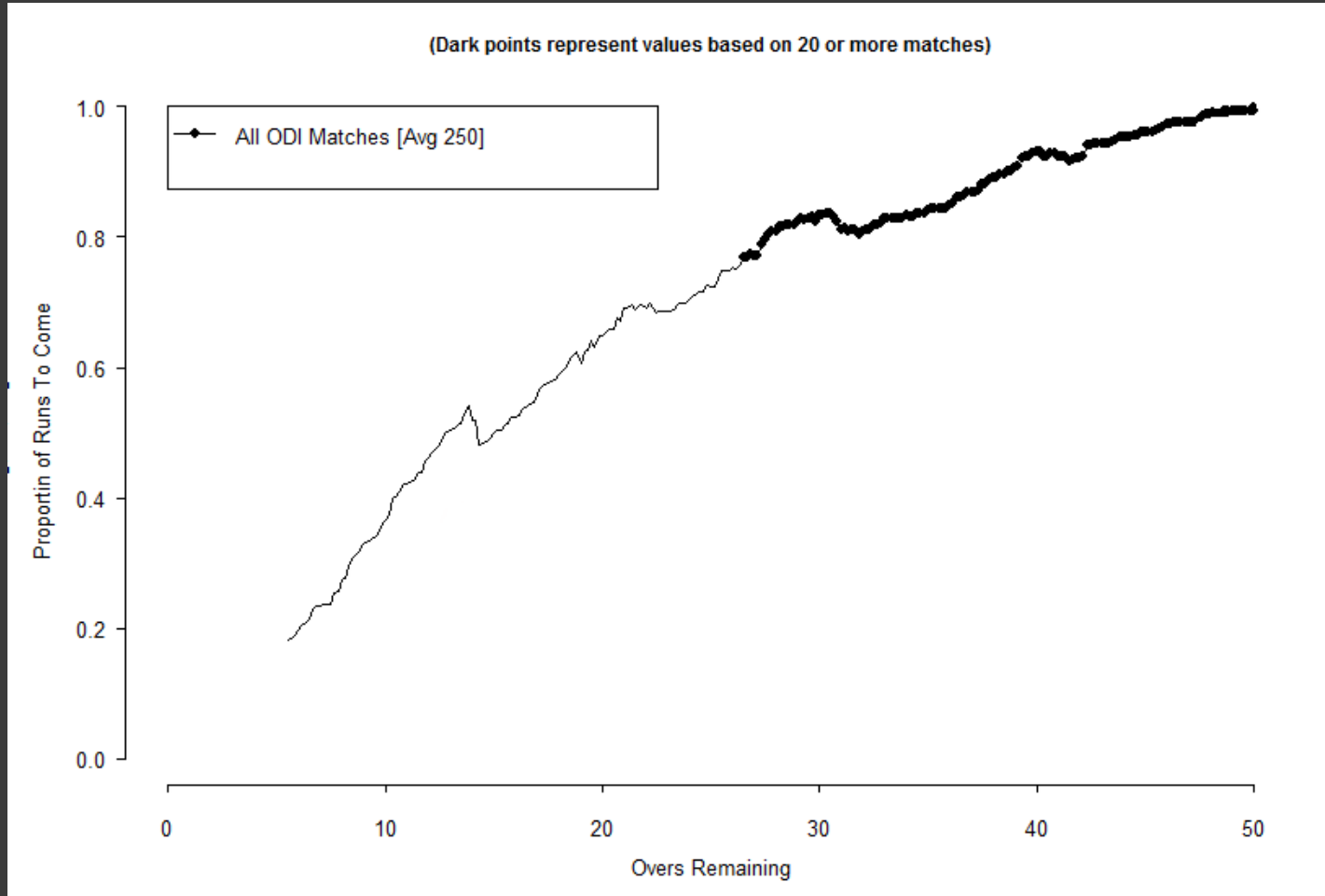
Resources available with  $u$  overs remaining and  $w$  wickets down:

$$R(u, w, \lambda) = F_w \lambda^{n_w - n_0} \frac{(1 - e^{-bug(u, \lambda)/F_w \lambda^{n_w}})}{(1 - e^{-50b/\lambda^{n_0}})}$$

- $F_w$ 's and  $n_w$ 's estimated (proprietary) parameters
- $\lambda$  = “match factor” [ $\lambda^{n_0}(1 - e^{-50b/\lambda^{n_0}})$  = first innings total score]
- $g(u, \lambda)$  is DLS “differential straightening” adjustment.

# ASIDE: The D/L/S Formula

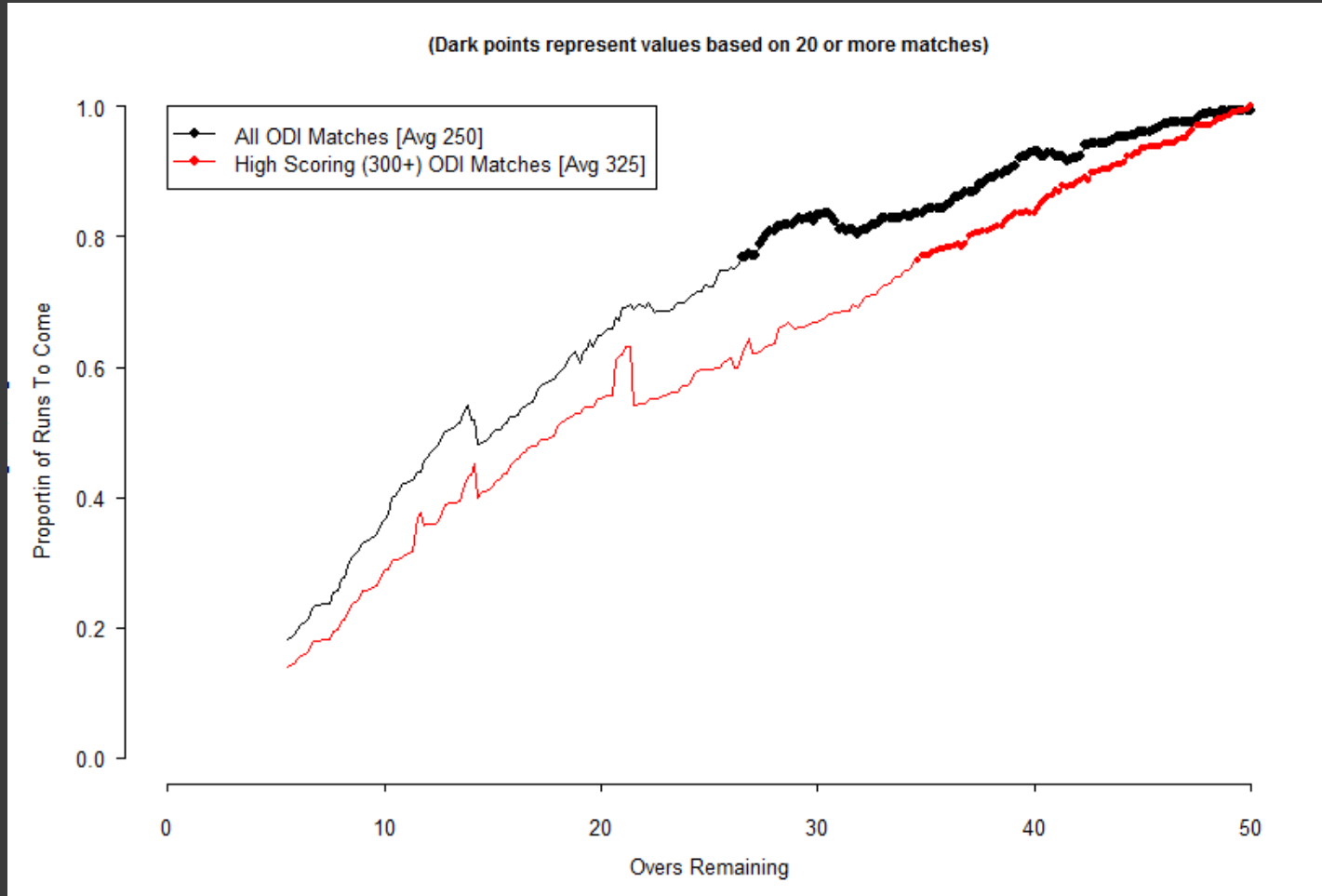
The “D/L” methodology models “standard” accelerations



[NOTE: Focus on 0 wickets down, for clarity]

# ASIDE: The D/L/S Formula

The “/S” component models “straightening” in high scores

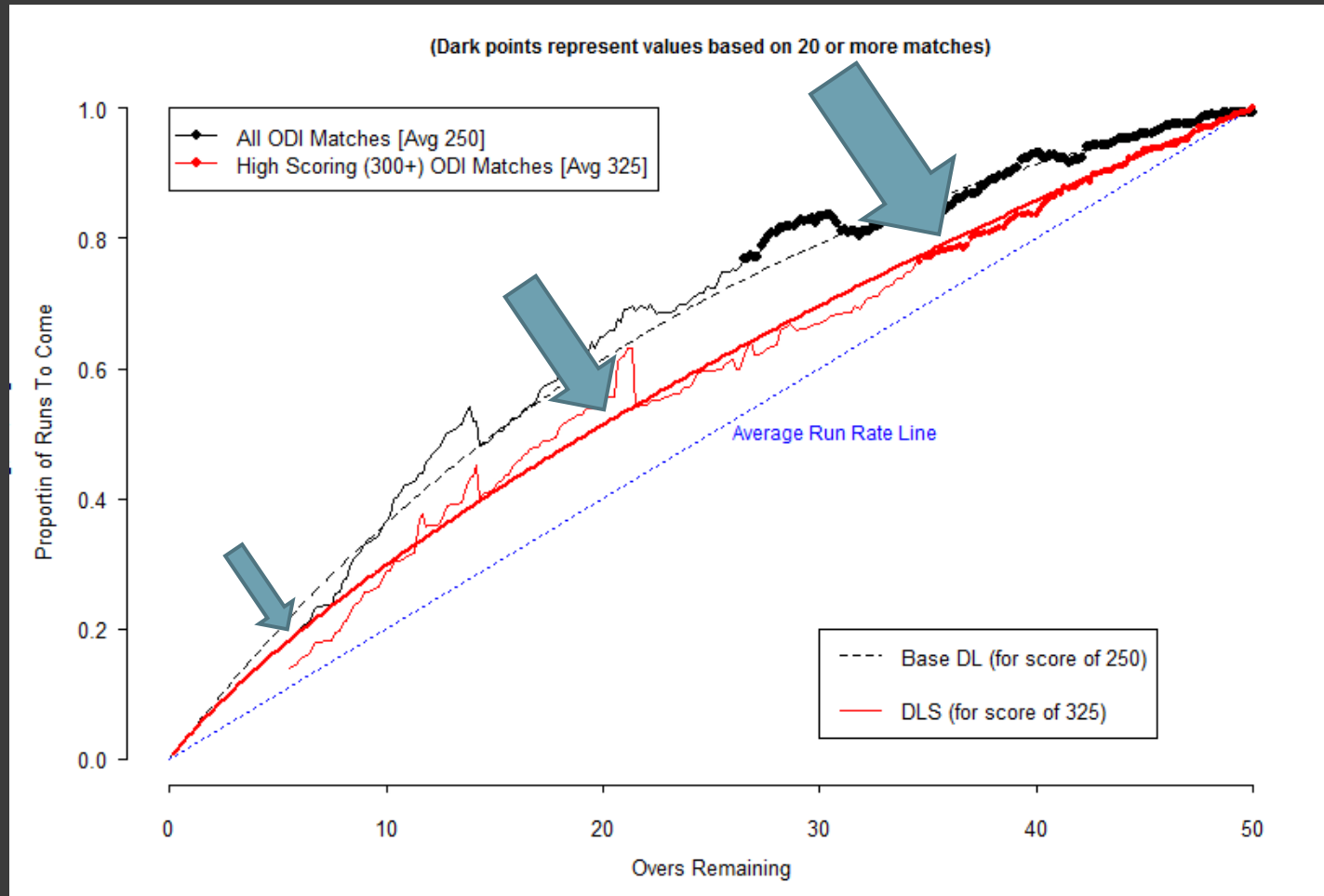


[NOTE: Focus on 0 wickets down, for clarity]



# ASIDE: The D/L/S Formula

NOTE: “Straightening” in high scores is “differential”



[NOTE: Focus on 0 wickets down, for clarity]

# Individual Performances

- Assess individual's utilisation rate relative to other players in the match:

- Net Runs Attributable:

- Batsman  $i$ :

$$NRA_i = \sum_{k \in K_i} (\sigma_k - U_i \rho_k)$$

- $K_i$  = set of indices of balls faced by batsman  $i$
- $\sigma_k$  = score (off the bat) on ball  $k$
- $\rho_k$  = D/L/S resources associated with ball  $k$
- $U_i$  = utilisation rate of all other batsmen =  $\frac{S_1 + S_2 - s_i}{R_1 + R_2 - r_i}$

# Individual Performances

- Assess individual's utilisation rate relative to other players in the match:

- Net Runs Attributable:

- Bowler  $j$ :

$$NRA_j = \sum_{k \in L_j} (V_j \rho_k - \sigma_k) + X_j r_j - w_j$$

- $L_j$  = set of indices of balls delivered by bowler  $j$
- $X_j$  = extras rate for all other bowlers =  $\frac{W_1 + W_2 - w_j}{R_1 + R_2 - r_j}$
- $V_j$  = utilisation rate of all other bowlers =  $\frac{S_1 + S_2 - s_j}{R_1 + R_2 - r_j}$

# Individual Performances

- ◎ Individual *NRA*'s now “equi-relevant”.

*Almost!*

# Individual Performances

- ⦿  $aNRA$  — Adjust for performance levels of opponents faced

- For Batsmen:

$$aNRA_i = NRA_i + \alpha \sum_{j \in J_i} \sum_{k \in K_i \cap L_j} NRA_j (\rho_k / r_j)$$

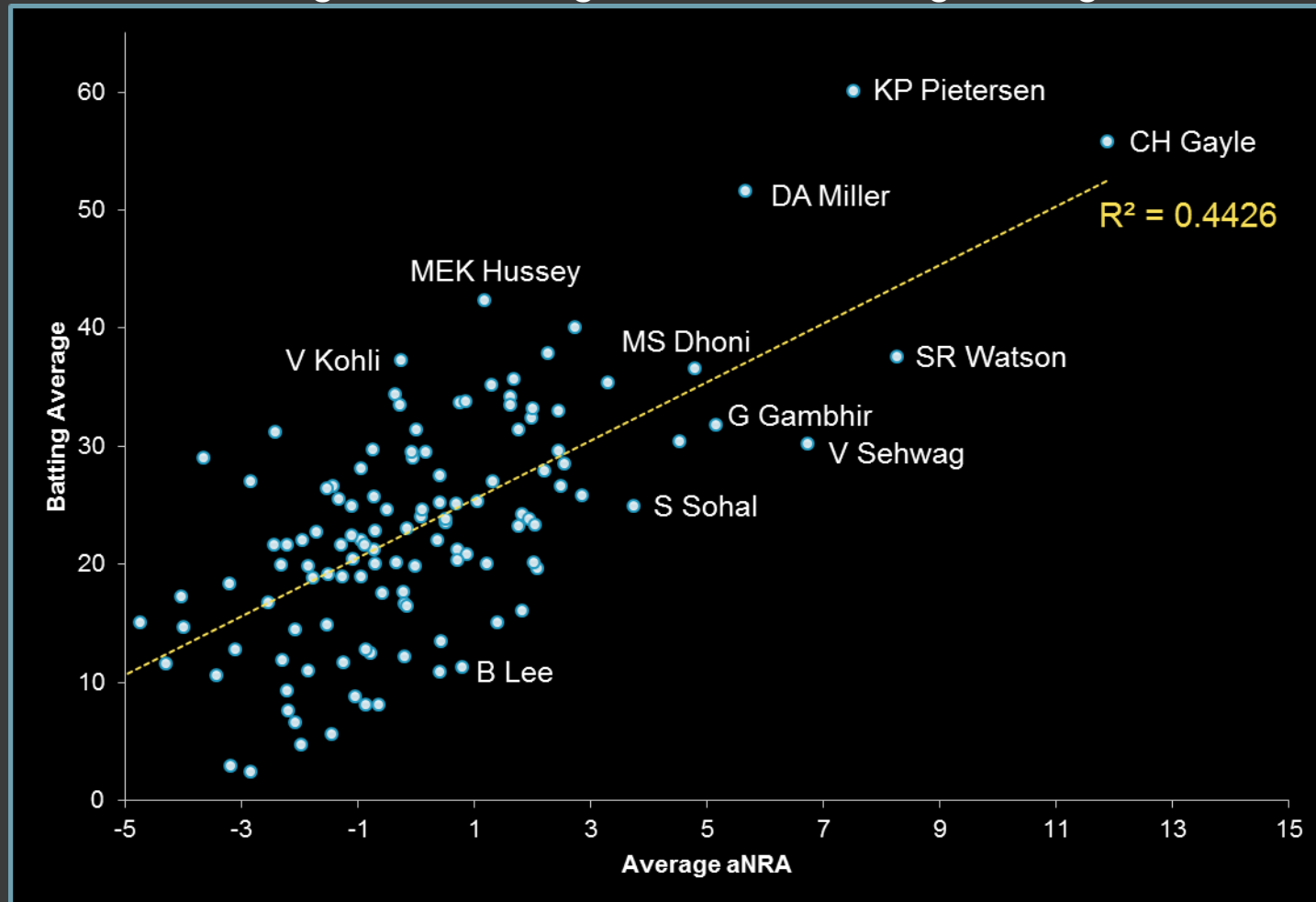
- $\alpha$  = “tuning” factor (currently set at 0.1)
- $J_i$  = set of indices of bowlers faced by batsman  $i$
- Similarly for Bowlers

# Indian Premier League (IPL)

- ⦿ During 2010 to 2013 seasons:
  - 286 Matches scheduled (282 completed)
  - 328 Players participated
  - 125 Batsmen with at least 10 contributions
  - 106 Bowlers with at least 10 contributions
- ⦿ Player salaries set periodically at auction
  - Are 2014 salaries commensurate with past performance? With 2014 performance?

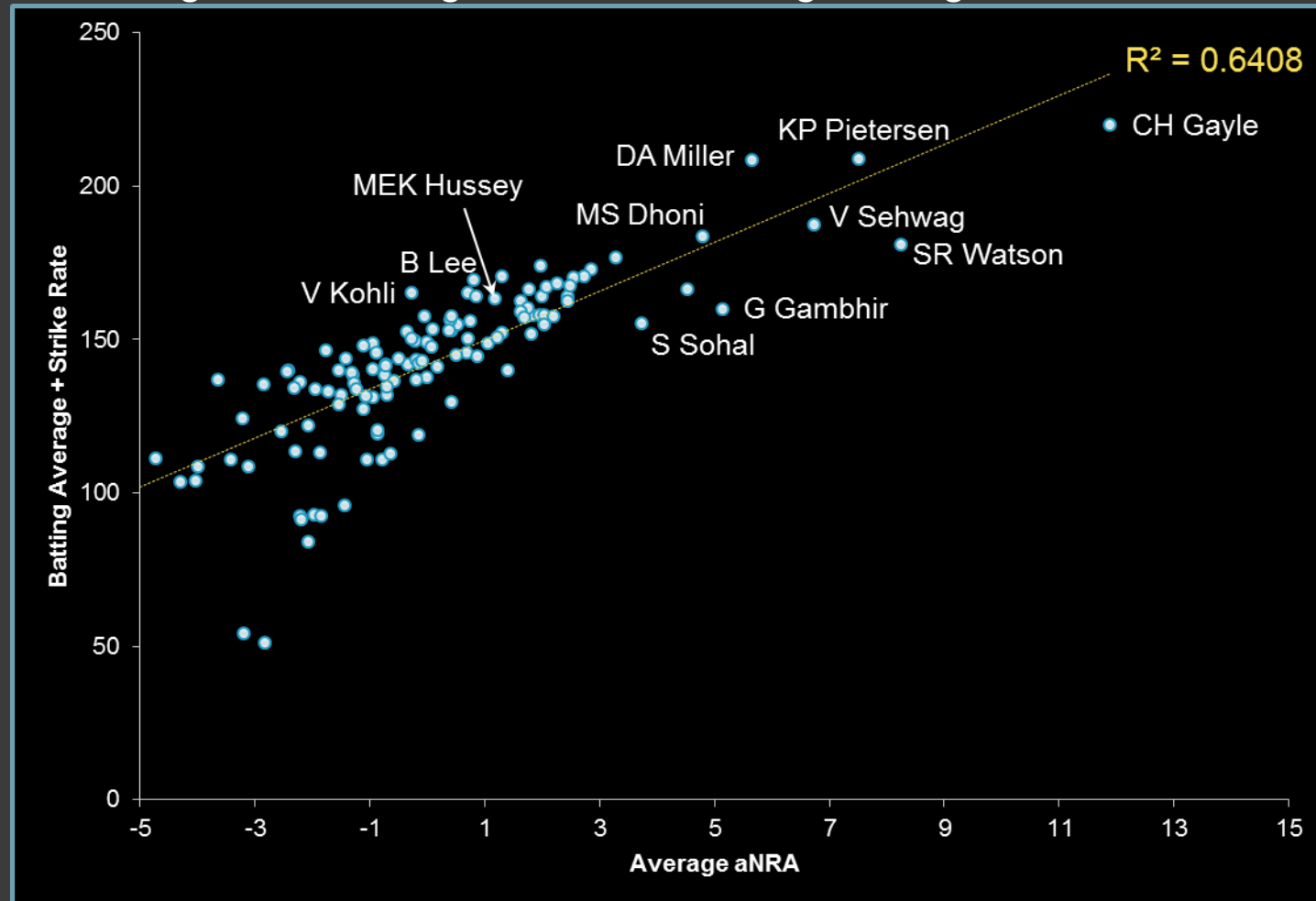
# Rating Batsmen: IPL 2010-3

Figure 1: Average *aNRA* vs Batting Average



# Rating Batsmen: IPL 2010-3

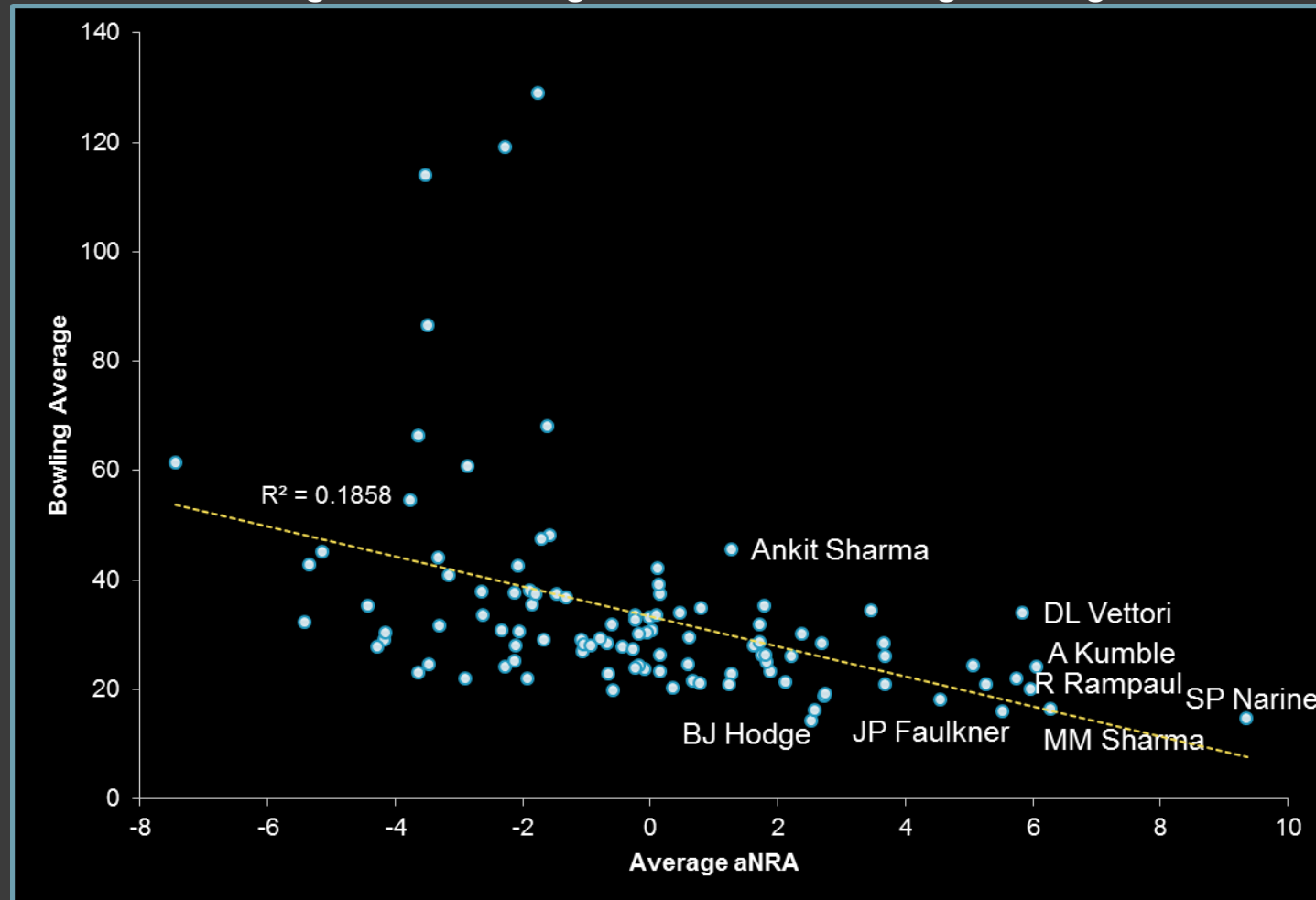
Figure 2: Average *aNRA* vs Batting Average + Strike Rate





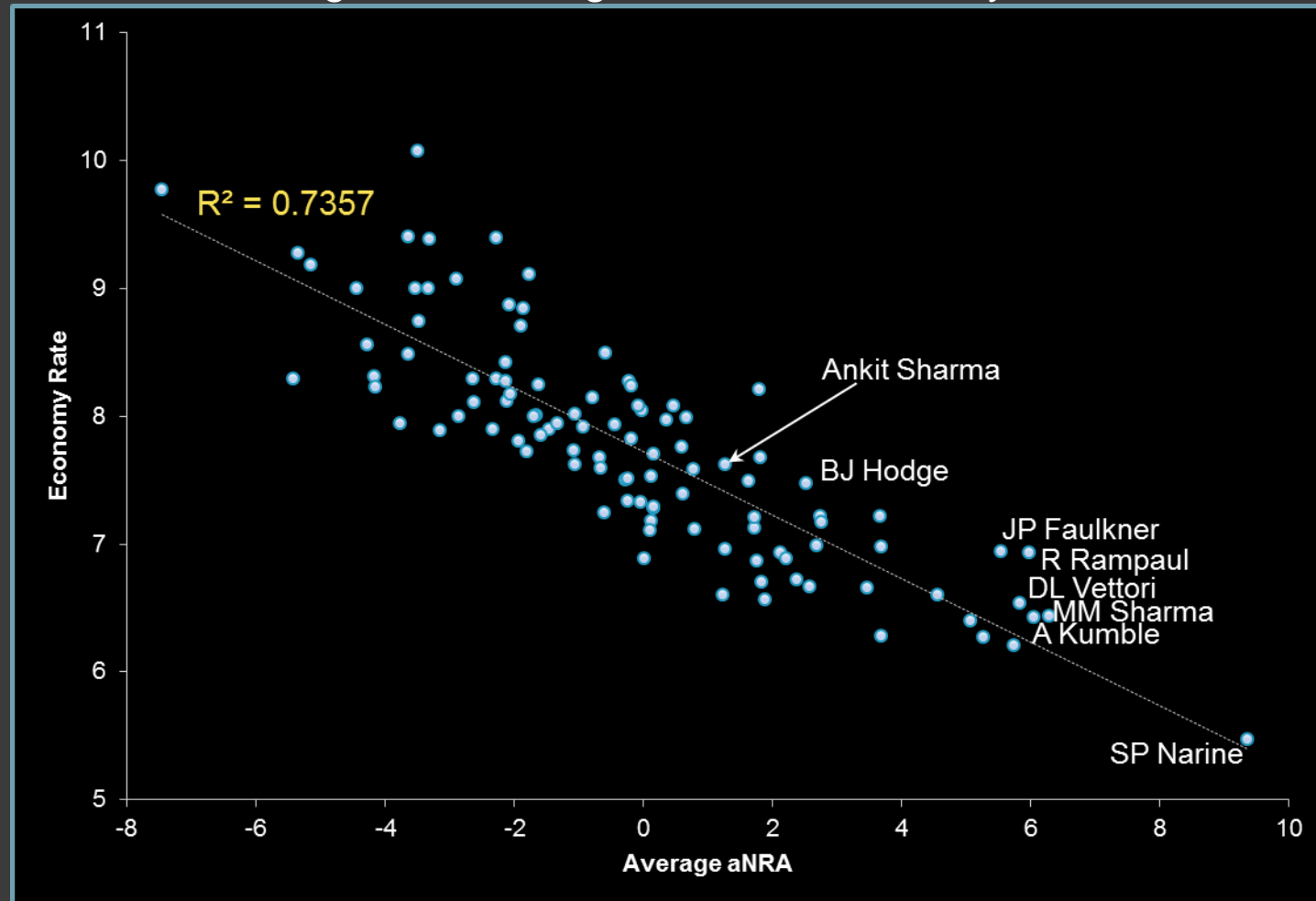
# Rating Bowlers: IPL 2010-3

Figure 3: Average *aNRA* vs Bowling Average



# Rating Bowlers: IPL 2010-3

Figure 4: Average *aNRA* vs Economy Rate



# “Expert” Evaluation

- Overall value in single match for individual player:

$$cNRA = aNRA(\text{batting}) + aNRA(\text{bowling})$$

- Breakdown of 282 Man of the Match Awards:
  - 147 (52%) MotM's = highest *cNRA*
  - 160 (57%) MotM's = highest *cNRA* on winning side
  - 227 (80%) MotM's = *cNRA* among top 3 in match

# “Expert” Evaluation

## Case Study #1

| Kolkata Knight Riders: 4/180 (20) |                       |  | Sunrisers Hyderabad: 7/132 (20) |                |  |
|-----------------------------------|-----------------------|--|---------------------------------|----------------|--|
| MS Bisla                          | 28(24) [116.7]        |  | PA Patel                        | 27(31) [87.1]  |  |
| <b>G Gambhir</b>                  | <b>53(45) [117.8]</b> |  | CL White                        | 34(31) [109.7] |  |
| EJG Morgan                        | 47(21) [223.8]        |  | KC Sangakkara                   | 2(3) [66.7]    |  |
| JH Kallis                         | 41(27) [151.9]        |  | DB Ravi Teja                    | 10(13) [76.9]  |  |
| YK Pathan                         | 3*(3) [100.0]         |  | A Ashish Reddy                  | 4(5) [80.0]    |  |
|                                   |                       |  | NLTC Perera                     | 36(25) [144.0] |  |
| <u>Bowling</u>                    |                       |  | GH Vihari                       | 1(2) [50.0]    |  |
| KV Sharma                         | 1/13(2) [6.50]        |  | KV Sharma                       | 5*(9) [55.6]   |  |
| DW Steyn                          | 0/29(4) [7.25]        |  | A Mishra                        | 1*(1) [100.0]  |  |
| A Ashish Reddy                    | 1/15(2) [7.50]        |  |                                 |                |  |
| I Sharma                          | 0/33(4) [8.25]        |  | <u>Bowling</u>                  |                |  |
| A Mishra                          | 0/28(3) [9.33]        |  | JH Kallis                       | 3/13(4) [3.25] |  |
| NLTC Perera                       | 0/44(4) [11.0]        |  | SMSM Senanayake                 | 1/18(4) [4.50] |  |
| GH Vihari                         | 0/14(1) [14.0]        |  | L Balaji                        | 0/30(4) [7.50] |  |
|                                   |                       |  | SP Narine                       | 1/31(4) [7.75] |  |
|                                   |                       |  | R Bhatia                        | 2/33(4) [8.25] |  |

# “Expert” Evaluation

## Case Study #1

| Kolkata Knight Riders: 4/180 (20) |                       |              | Sunrisers Hyderabad: 7/132 (20) |                       |               |
|-----------------------------------|-----------------------|--------------|---------------------------------|-----------------------|---------------|
| MS Bisla                          | 28(24) [116.7]        | 0.207        | PA Patel                        | 27(31) [87.1]         | −9.868        |
| <b>G Gambhir</b>                  | <b>53(45) [117.8]</b> | <b>1.315</b> | CL White                        | 34(31) [109.7]        | −2.139        |
| EJG Morgan                        | 47(21) [223.8]        | 21.469       | KC Sangakkara                   | 2(3) [66.7]           | −3.531        |
| <b>JH Kallis</b>                  | <b>41(27) [151.9]</b> | <b>7.130</b> | DB Ravi Teja                    | 10(13) [76.9]         | −6.049        |
| YK Pathan                         | 3*(3) [100.0]         | −1.262       | A Ashish Reddy                  | 4(5) [80.0]           | −2.824        |
|                                   |                       |              | NLTC Perera                     | 36(25) [144.0]        | 6.531         |
| <u>Bowling</u>                    |                       |              | GH Vihari                       | 1(2) [50.0]           | −1.747        |
| KV Sharma                         | 1/13(2) [6.50]        | 3.514        | KV Sharma                       | 5*(9) [55.6]          | −7.276        |
| DW Steyn                          | 0/29(4) [7.25]        | 0.256        | A Mishra                        | 1*(1) [100.0]         | −0.407        |
| A Ashish Reddy                    | 1/15(2) [7.50]        | 1.075        |                                 |                       |               |
| I Sharma                          | 0/33(4) [8.25]        | −2.683       | <u>Bowling</u>                  |                       |               |
| A Mishra                          | 0/28(3) [9.33]        | −6.472       | <b>JH Kallis</b>                | <b>3/13(4) [3.25]</b> | <b>22.664</b> |
| NLTC Perera                       | 0/44(4) [11.0]        | −15.382      | SMSM Senanayake                 | 1/18(4) [4.50]        | 11.205        |
| GH Vihari                         | 0/14(1) [14.0]        | −7.772       | L Balaji                        | 0/30(4) [7.50]        | −3.107        |
|                                   |                       |              | SP Narine                       | 1/31(4) [7.75]        | −1.038        |
|                                   |                       |              | R Bhatia                        | 2/33(4) [8.25]        | −1.458        |

# “Expert” Evaluation

## Case Study #2

| Mumbai Indians: 2/182 (20) |                  |  | Kochi Tuskers Kerala: 2/184 (19) |                       |  |
|----------------------------|------------------|--|----------------------------------|-----------------------|--|
| DJ Jacobs                  | 12(21) [57.1]    |  | DPMD Jayawardene                 | 56(36) [155.6]        |  |
| AT Rayudu                  | 53(33) [160.6]   |  | <b>BB McCullum</b>               | <b>81(60) [135.0]</b> |  |
| SR Tendulkar               | 100*(66) [151.5] |  | RA Jadeja                        | 25*(11) [227.3]       |  |
|                            |                  |  | BJ Hodge                         | 11*(7) [157.1]        |  |
| <u>Bowling</u>             |                  |  |                                  |                       |  |
| RP Singh                   | 0/15(4) [3.75]   |  | <u>Bowling</u>                   |                       |  |
| RA Jadeja                  | 0/29(4) [7.25]   |  | MM Patel                         | 0/15(3) [5.00]        |  |
| NLTC Perera                | 0/38(4) [9.50]   |  | Harbhajan Singh                  | 0/33(4) [8.25]        |  |
| RV Gomez                   | 1/29(3) [9.66]   |  | AG Murtaza                       | 0/37(4) [9.25]        |  |
| R Vinay Kumar              | 0/48(4) [12.0]   |  | SL Malinga                       | 2/42(4) [10.5]        |  |
| RR Powar                   | 0/12(1) [12.0]   |  | R Sathish                        | 0/11(1) [11.0]        |  |
|                            |                  |  | KA Pollard                       | 0/43(3) [14.3]        |  |

# “Expert” Evaluation

## Case Study #2

| Mumbai Indians: 2/182 (20) |                       |               | Kochi Tuskers Kerala: 2/184 (19) |                       |               |
|----------------------------|-----------------------|---------------|----------------------------------|-----------------------|---------------|
| DJ Jacobs                  | 12(21) [57.1]         | −18.675       | DPMD Jayawardene                 | 56(36) [155.6]        | 5.272         |
| AT Rayudu                  | 53(33) [160.6]        | 3.622         | <b>BB McCullum</b>               | <b>81(60) [135.0]</b> | <b>−2.568</b> |
| SR Tendulkar               | 100*(66) [151.5]      | 6.756         | RA Jadeja                        | 25*(11) [227.3]       | 7.620         |
|                            |                       |               | BJ Hodge                         | 11*(7) [157.1]        | −0.635        |
| <u>Bowling</u>             |                       |               |                                  |                       |               |
| <b>RP Singh</b>            | <b>0/15(4) [3.75]</b> | <b>20.536</b> | <u>Bowling</u>                   |                       |               |
| RA Jadeja                  | 0/29(4) [7.25]        | 9.152         | MM Patel                         | 0/15(3) [5.00]        | 11.234        |
| NLTC Perera                | 0/38(4) [9.50]        | −1.511        | Harbhajan Singh                  | 0/33(4) [8.25]        | 3.864         |
| RV Gomez                   | 1/29(3) [9.66]        | −1.101        | AG Murtaza                       | 0/37(4) [9.25]        | −0.531        |
| R Vinay Kumar              | 0/48(4) [12.0]        | −13.062       | SL Malinga                       | 2/42(4) [10.5]        | −6.661        |
| RR Powar                   | 0/12(1) [12.0]        | −2.392        | R Sathish                        | 0/11(1) [11.0]        | −1.945        |
|                            |                       |               | KA Pollard                       | 0/43(3) [14.3]        | −17.204       |

- McCullum’s score high, but (relatively speaking) slow (Tendulkar’s century better except in losing effort)
- Singh’s economy lowest by some way (and his team won narrowly), just took no wickets!

# “Expert” Evaluation

## Case Study #3

| Chennai Super Kings: 8/173 (20) |                       |  | Mumbai Indians: 8/174 (20) |                        |  |
|---------------------------------|-----------------------|--|----------------------------|------------------------|--|
| F du Plessis                    | 9(11) [81.8]          |  | JEC Franklin               | 1(9) [11.1]            |  |
| M Vijay                         | 41(29) [141.4]        |  | SR Tendulkar               | 74(44) [168.2]         |  |
| SK Raina                        | 36(21) [171.4]        |  | KD Karthik                 | 11(5) [220.0]          |  |
| DJ Bravo                        | 40(33) [121.2]        |  | AT Rayudu                  | 0(2) [0.0]             |  |
| MS Dhoni                        | 25(15) [166.7]        |  | RG Sharma                  | 60(46) [130.4]         |  |
| JA Morkel                       | 3(3) [100.0]          |  | RJ Peterson                | 0(2) [0.0]             |  |
| RA Jadeja                       | 9(6) [150.0]          |  | Harbhajan Singh            | 0(1) [0.0]             |  |
| R Ashwin                        | 0(1) [0.0]            |  | SL Malinga                 | 0(1) [0.0]             |  |
| S Badrinath                     | 1*(1) [100.0]         |  | <b>DR Smith</b>            | <b>24*(16) [266.7]</b> |  |
| <u>Bowling</u>                  |                       |  | RP Singh                   | 1*(1) [100.0]          |  |
| Harbhajan Singh                 | 0/14(3) [4.67]        |  | <u>Bowling</u>             |                        |  |
| SL Malinga                      | 3/25(4) [6.25]        |  | RA Jadeja                  | 2/12(2) [6.00]         |  |
| RP Singh                        | 3/28(4) [7.00]        |  | R Ashwin                   | 1/28(4) [7.00]         |  |
| JEC Franklin                    | 1/8(1) [8.00]         |  | BW Hilfenhaus              | 2/34(4) [8.50]         |  |
| RJ Peterson                     | 0/22(2) [11.0]        |  | SB Jakati                  | 0/27(3) [9.00]         |  |
| MM Patel                        | 0/46(4) [11.5]        |  | DJ Bravo                   | 2/39(4) [9.75]         |  |
| <b>DR Smith</b>                 | <b>0/26(2) [13.0]</b> |  | JA Morkel                  | 0/34(3) [11.3]         |  |



# “Expert” Evaluation

## Case Study #3

| Chennai Super Kings: 8/173 (20) |                       |                | Mumbai Indians: 8/174 (20) |                        |               |
|---------------------------------|-----------------------|----------------|----------------------------|------------------------|---------------|
| F du Plessis                    | 9(11) [81.8]          | −6.173         | JEC Franklin               | 1(9) [11.1]            | −14.861       |
| M Vijay                         | 41(29) [141.4]        | 1.099          | <b>SR Tendulkar</b>        | <b>74(44) [168.2]</b>  | <b>19.942</b> |
| SK Raina                        | 36(21) [171.4]        | 8.273          | KD Karthik                 | 11(5) [220.0]          | 3.041         |
| DJ Bravo                        | 40(33) [121.2]        | −4.777         | AT Rayudu                  | 0(2) [0.0]             | −3.454        |
| MS Dhoni                        | 25(15) [166.7]        | 2.965          | RG Sharma                  | 60(46) [130.4]         | −1.350        |
| JA Morkel                       | 3(3) [100.0]          | −1.873         | RJ Peterson                | 0(2) [0.0]             | −3.260        |
| RA Jadeja                       | 9(6) [150.0]          | −0.596         | Harbhajan Singh            | 0(1) [0.0]             | −1.823        |
| R Ashwin                        | 0(1) [0.0]            | −1.697         | SL Malinga                 | 0(1) [0.0]             | −1.816        |
| S Badrinath                     | 1*(1) [100.0]         | −0.646         | <b>DR Smith</b>            | <b>24*(16) [266.7]</b> | <b>10.420</b> |
| <u>Bowling</u>                  |                       |                | RP Singh                   | 1*(1) [100.0]          | −0.453        |
| Harbhajan Singh                 | 0/14(3) [4.67]        | 9.569          | <u>Bowling</u>             |                        |               |
| SL Malinga                      | 3/25(4) [6.25]        | 10.719         | RA Jadeja                  | 2/12(2) [6.00]         | 7.497         |
| RP Singh                        | 3/28(4) [7.00]        | 8.667          | R Ashwin                   | 1/28(4) [7.00]         | 5.905         |
| JEC Franklin                    | 1/8(1) [8.00]         | 1.860          | BW Hilfenhaus              | 2/34(4) [8.50]         | 1.860         |
| RJ Peterson                     | 0/22(2) [11.0]        | −6.473         | SB Jakati                  | 0/27(3) [9.00]         | −1.102        |
| MM Patel                        | 0/46(4) [11.5]        | −14.759        | DJ Bravo                   | 2/39(4) [9.75]         | −4.663        |
| <b>DR Smith</b>                 | <b>0/26(2) [13.0]</b> | <b>−10.223</b> | JA Morkel                  | 0/34(3) [11.3]         | −12.440       |

- Smith scored 6, 4, 4 from last 3 balls to grab victory!

# “Expert” Evaluation

## Case Study #4

| Mumbai Indians: 5/139 (20) |                 |  | Chennai Super Kings: 10/79 (15.2) |                       |  |
|----------------------------|-----------------|--|-----------------------------------|-----------------------|--|
| SR Tendulkar               | 15(18) [83.3]   |  | M Vijay                           | 2(4) [50.0]           |  |
| DR Smith                   | 22(24) [91.7]   |  | SK Raina                          | 0(1) [0.0]            |  |
| KA Pollard                 | 1(3) [33.3]     |  | S Badrinath                       | 0(3) [0.0]            |  |
| KD Karthik                 | 23(23) [100.0]  |  | DJ Bravo                          | 9(7) [128.6]          |  |
| AT Rayudu                  | 10(11) [90.9]   |  | R Ashwin                          | 2(8) [25.0]           |  |
| RG Sharma                  | 39*(30) [130.0] |  | MEK Hussey                        | 22(26) [84.6]         |  |
| Harbhajan Singh            | 25*(11) [227.3] |  | MS Dhoni                          | 10(12) [83.3]         |  |
|                            |                 |  | CH Morris                         | 1(4) [25.0]           |  |
| <u>Bowling</u>             |                 |  | MM Sharma                         | 0(3) [0.0]            |  |
| CH Morris                  | 0/14(3) [4.67]  |  | RA Jadeja                         | 20(16) [125.0]        |  |
| MM Sharma                  | 0/20(4) [5.00]  |  | B Laughlin                        | 4(8) [50.0]           |  |
| R Ashwin                   | 1/11(2) [5.50]  |  | <u>Bowling</u>                    |                       |  |
| DJ Bravo                   | 1/19(3) [6.33]  |  | SL Malinga                        | 2/6(3) [2.00]         |  |
| RA Jadeja                  | 3/29(4) [7.25]  |  | Harbhajan Singh                   | 1/13(4) [3.25]        |  |
| B Laughlin                 | 0/46(4) [11.5]  |  | PP Ojha                           | 3/11(2.2) [4.71]      |  |
|                            |                 |  | P Suyal                           | 1/21(3) [7.00]        |  |
|                            |                 |  | <b>MG Johnson</b>                 | <b>3/27(3) [9.00]</b> |  |

# “Expert” Evaluation

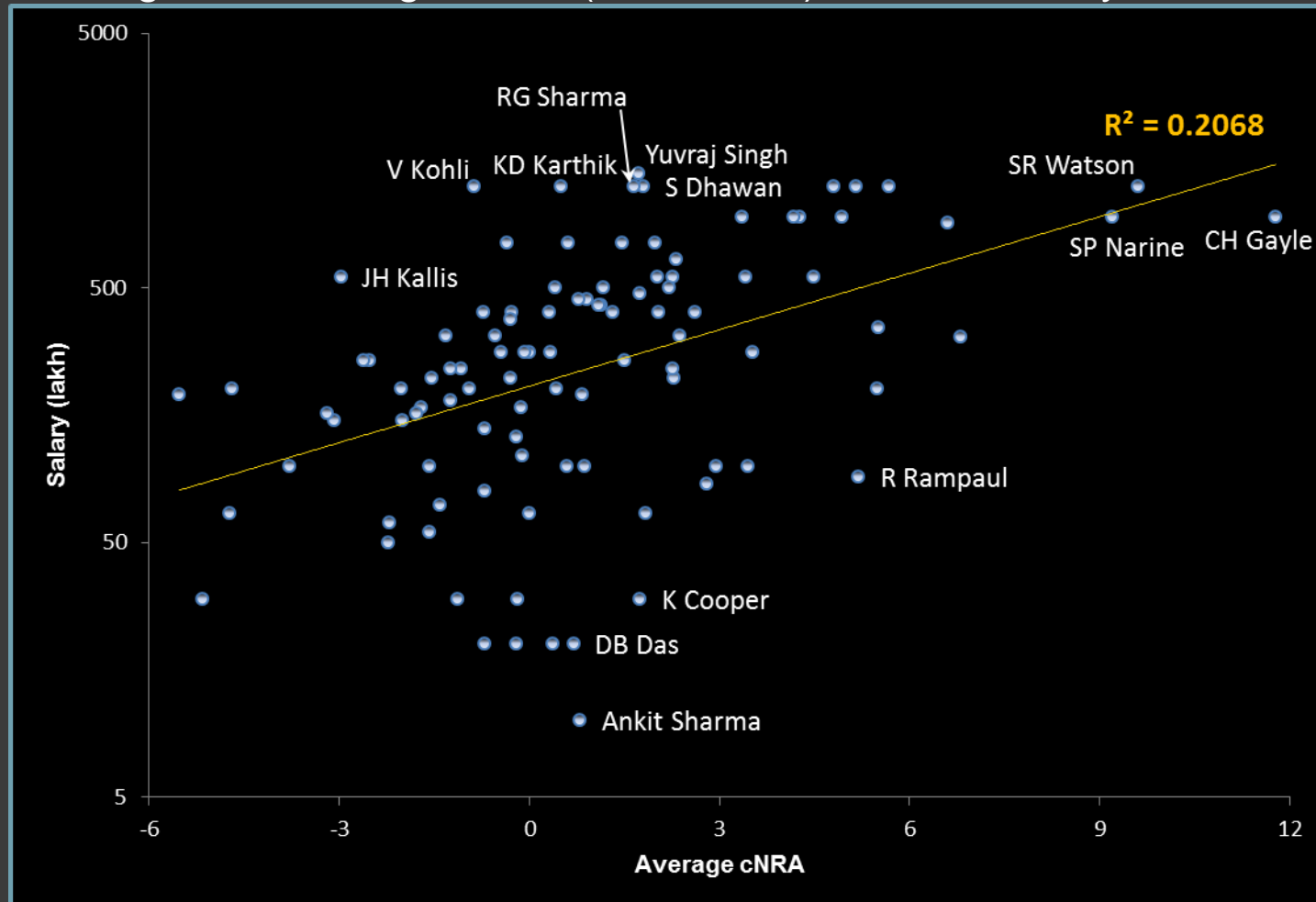
## Case Study #4

| Mumbai Indians: 5/139 (20) |                 |         | Chennai Super Kings: 10/79 (15.2) |                       |               |
|----------------------------|-----------------|---------|-----------------------------------|-----------------------|---------------|
| SR Tendulkar               | 15(18) [83.3]   | 0.721   | M Vijay                           | 2(4) [50.0]           | -4.291        |
| DR Smith                   | 22(24) [91.7]   | 3.622   | SK Raina                          | 0(1) [0.0]            | -5.236        |
| KA Pollard                 | 1(3) [33.3]     | -3.919  | S Badrinath                       | 0(3) [0.0]            | -7.457        |
| KD Karthik                 | 23(23) [100.0]  | 4.912   | DJ Bravo                          | 9(7) [128.6]          | -0.949        |
| AT Rayudu                  | 10(11) [90.9]   | 0.375   | R Ashwin                          | 2(8) [25.0]           | -8.661        |
| RG Sharma                  | 39*(30) [130.0] | 14.396  | MEK Hussey                        | 22(26) [84.6]         | 2.602         |
| Harbhajan Singh            | 25*(11) [227.3] | 15.434  | MS Dhoni                          | 10(12) [83.3]         | -2.098        |
|                            |                 |         | CH Morris                         | 1(4) [25.0]           | -10.215       |
| <u>Bowling</u>             |                 |         | MM Sharma                         | 0(3) [0.0]            | -11.556       |
| CH Morris                  | 0/14(3) [4.67]  | -1.085  | RA Jadeja                         | 20(16) [125.0]        | 10.252        |
| MM Sharma                  | 0/20(4) [5.00]  | -2.203  | B Laughlin                        | 4(8) [50.0]           | 3.942         |
| R Ashwin                   | 1/11(2) [5.50]  | 0.395   | <u>Bowling</u>                    |                       |               |
| DJ Bravo                   | 1/19(3) [6.33]  | 0.265   | <b>SL Malinga</b>                 | <b>2/6(3) [2.00]</b>  | <b>21.061</b> |
| RA Jadeja                  | 3/29(4) [7.25]  | -4.424  | Harbhajan Singh                   | 1/13(4) [3.25]        | 4.765         |
| B Laughlin                 | 0/46(4) [11.5]  | -26.528 | PP Ojha                           | 3/11(2.2) [4.71]      | 19.104        |
|                            |                 |         | P Suyal                           | 1/21(3) [7.00]        | -4.656        |
|                            |                 |         | <b>MG Johnson</b>                 | <b>3/27(3) [9.00]</b> | <b>-5.805</b> |

- Johnson's 3rd cost 20 (game essentially over) and 3 catches dropped!

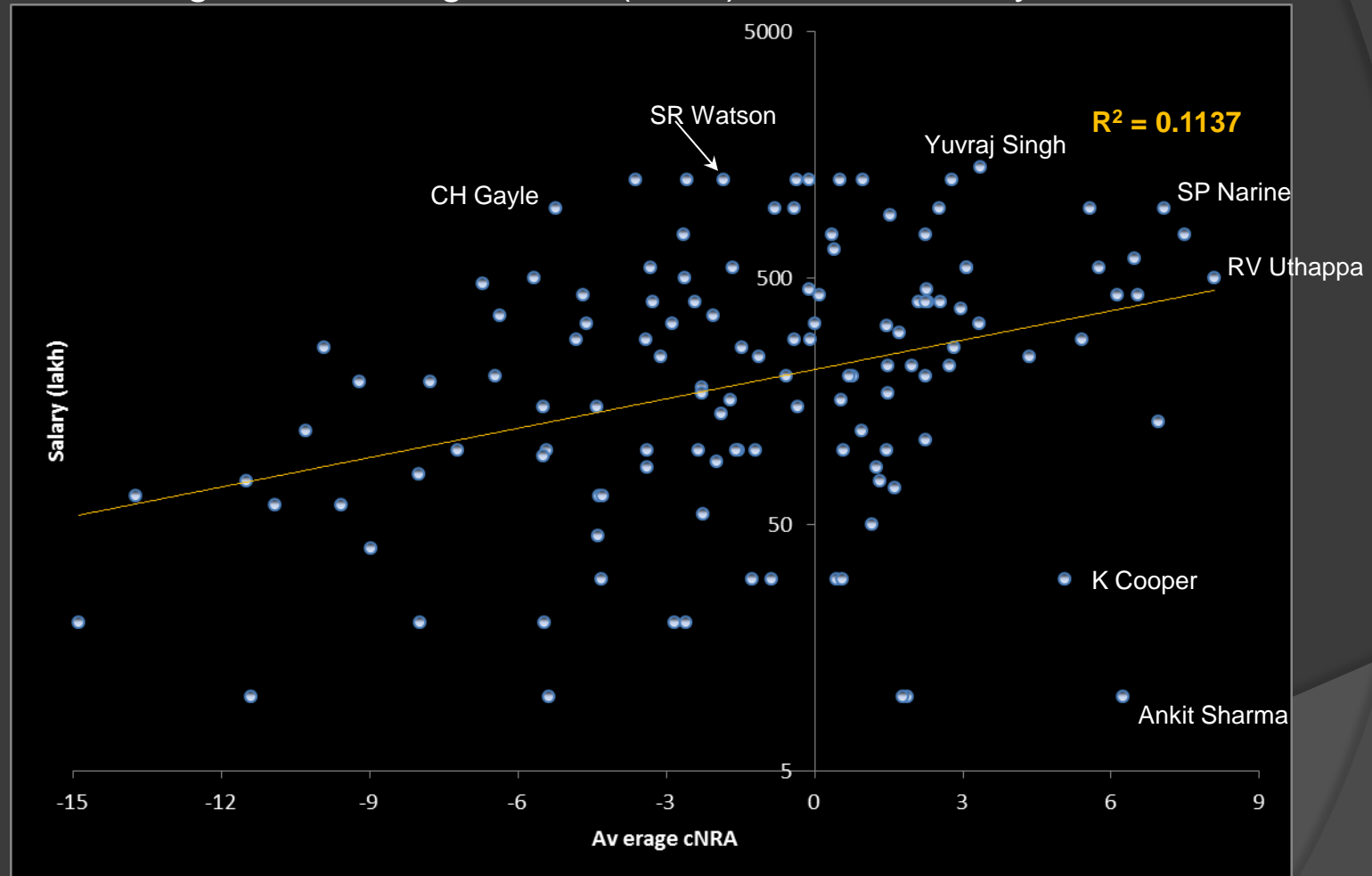
# The “Market”

Figure 5: Average *cNRA* (2010-2013) vs 2014 Salary



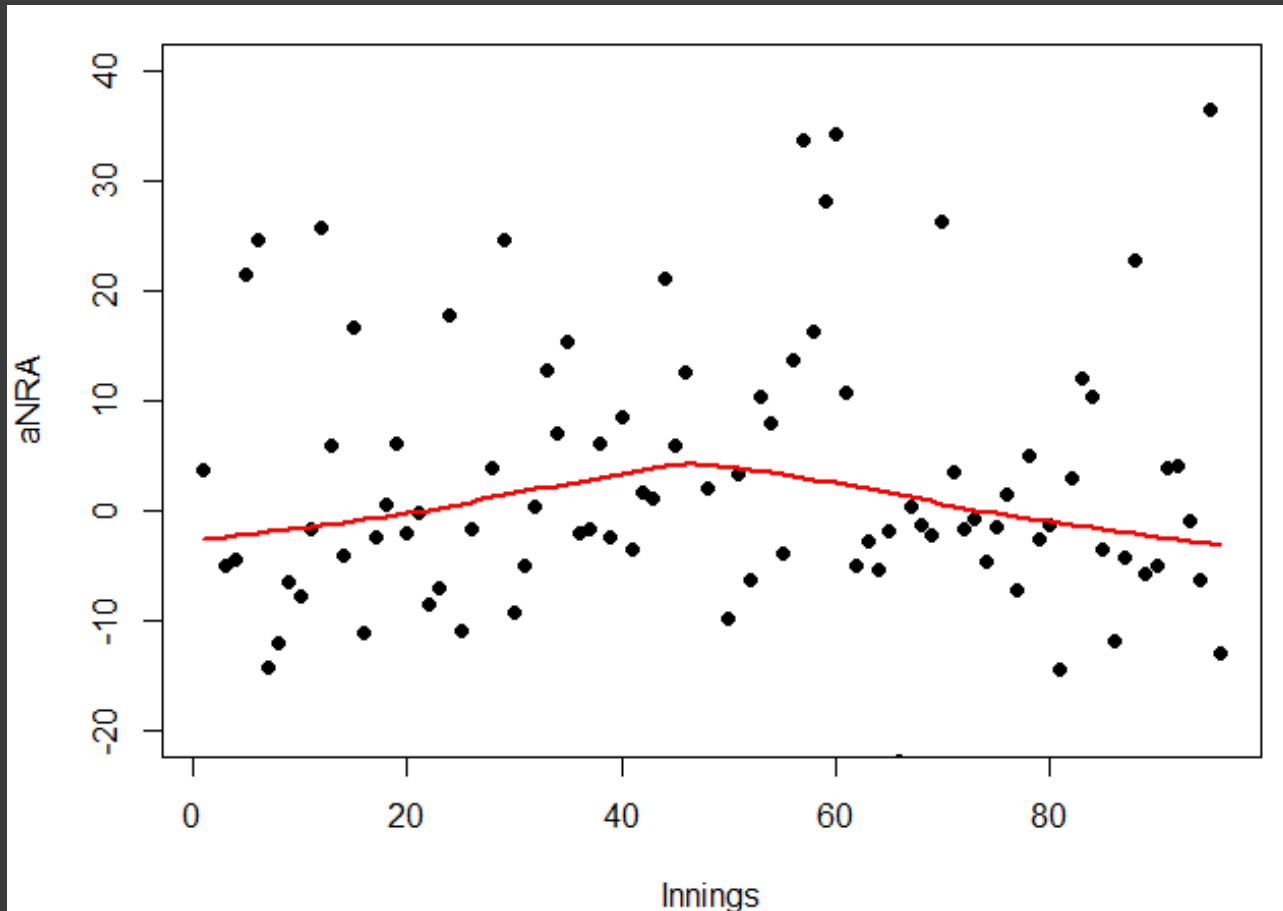
# The “Market”

Figure 6: Average *cNRA* (2014) vs 2014 Salary



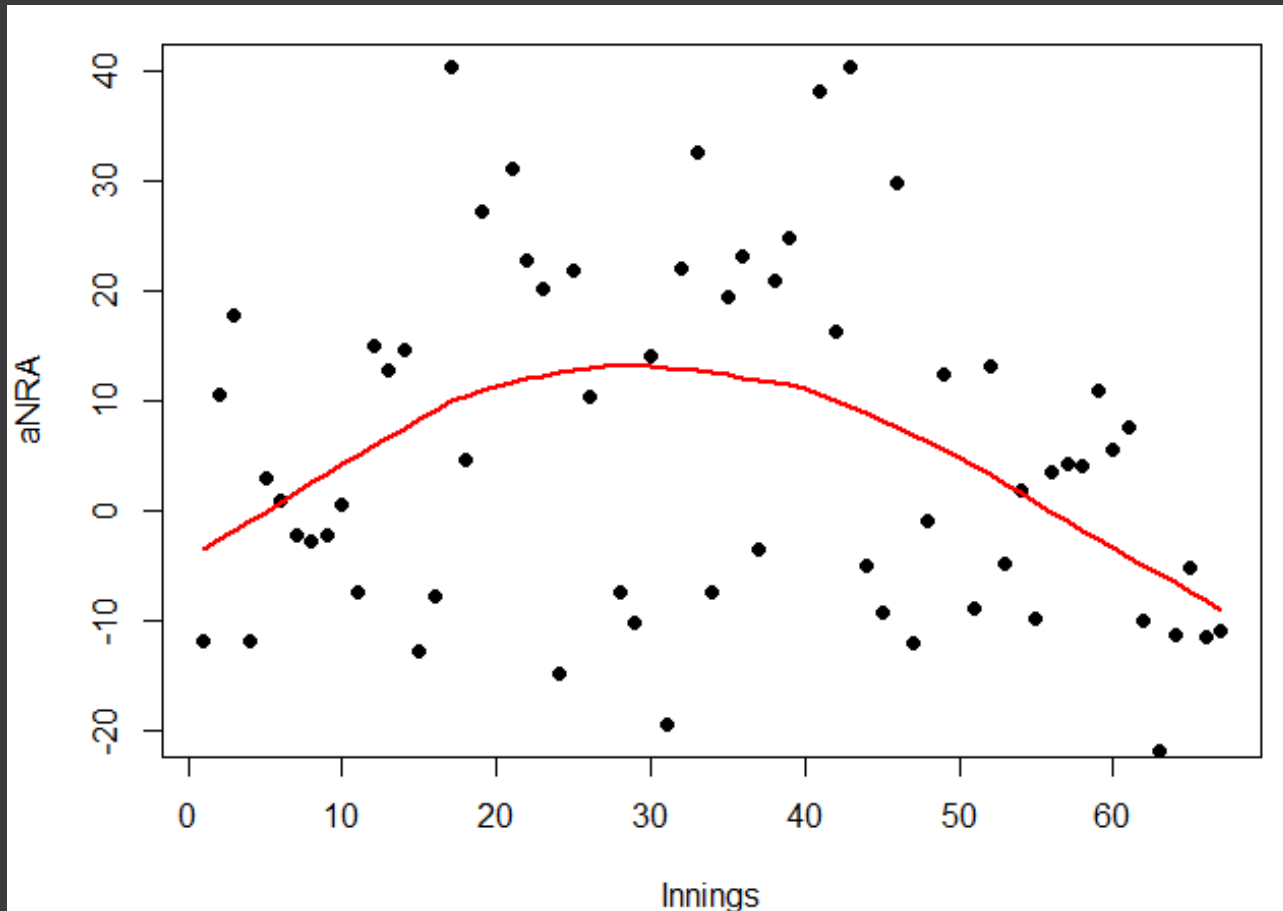
# Career Arcs

Figure 7: V Sehwag (2008-2014)



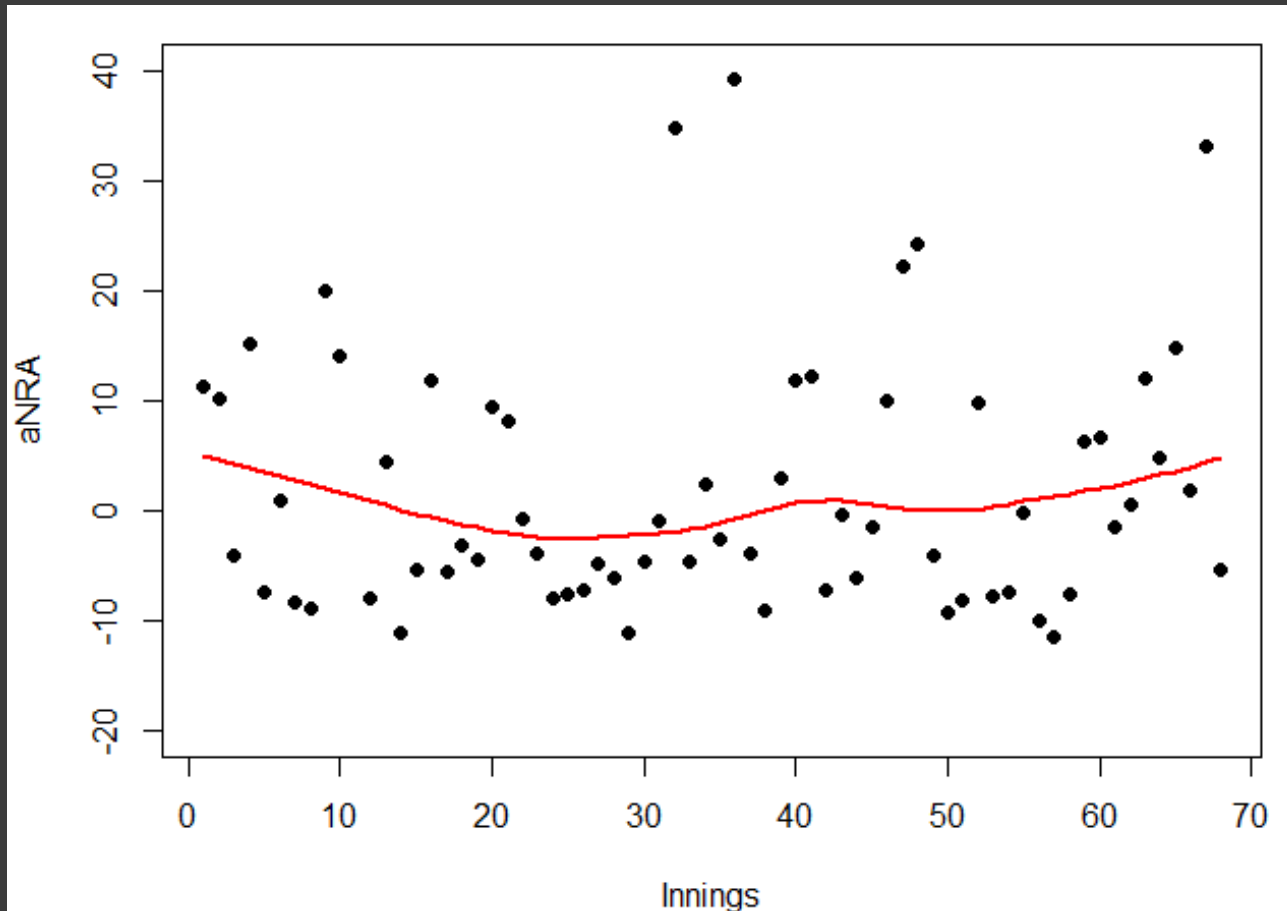
# Career Arcs

Figure 8: CH Gayle (2009-2014)



# Career Arcs

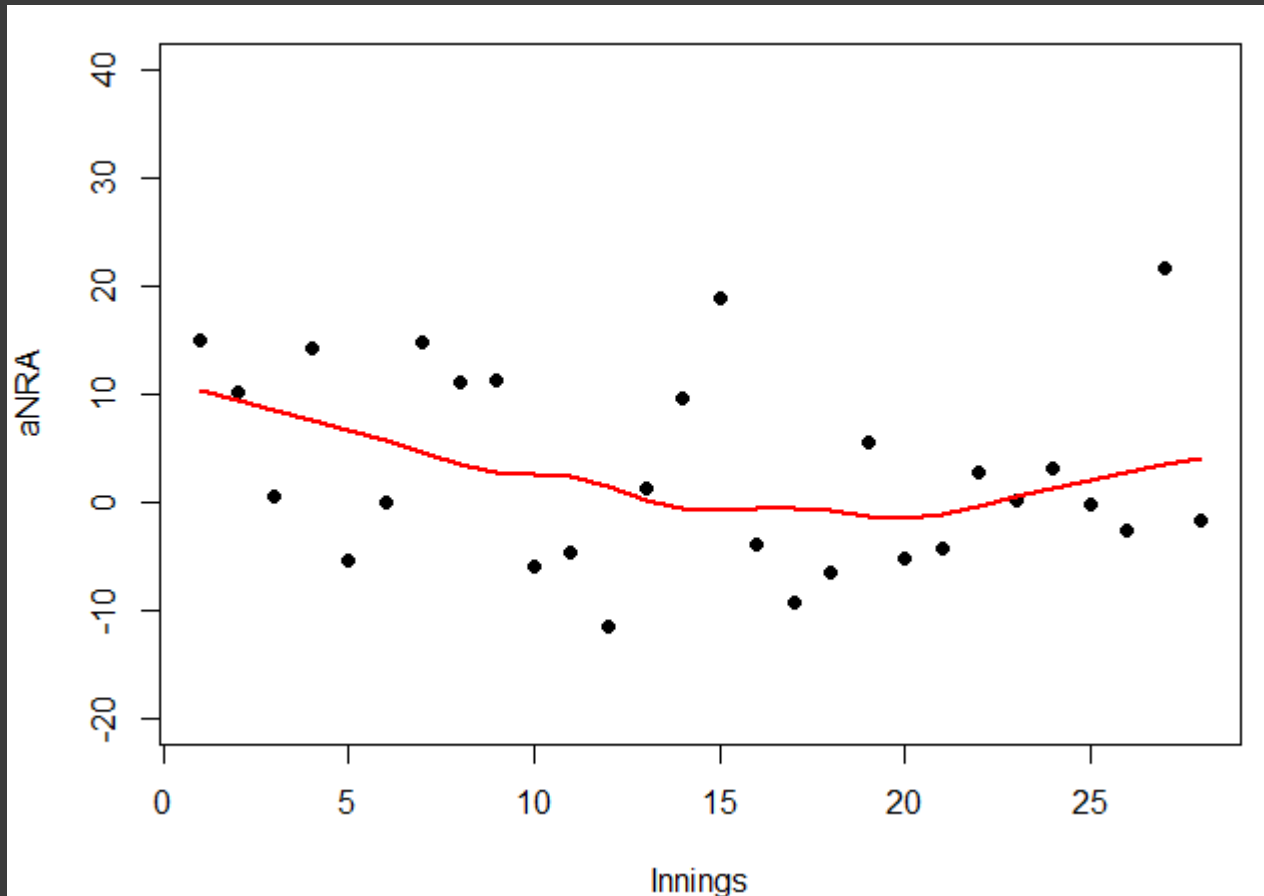
Figure 10: DA Warner (2009-2014)





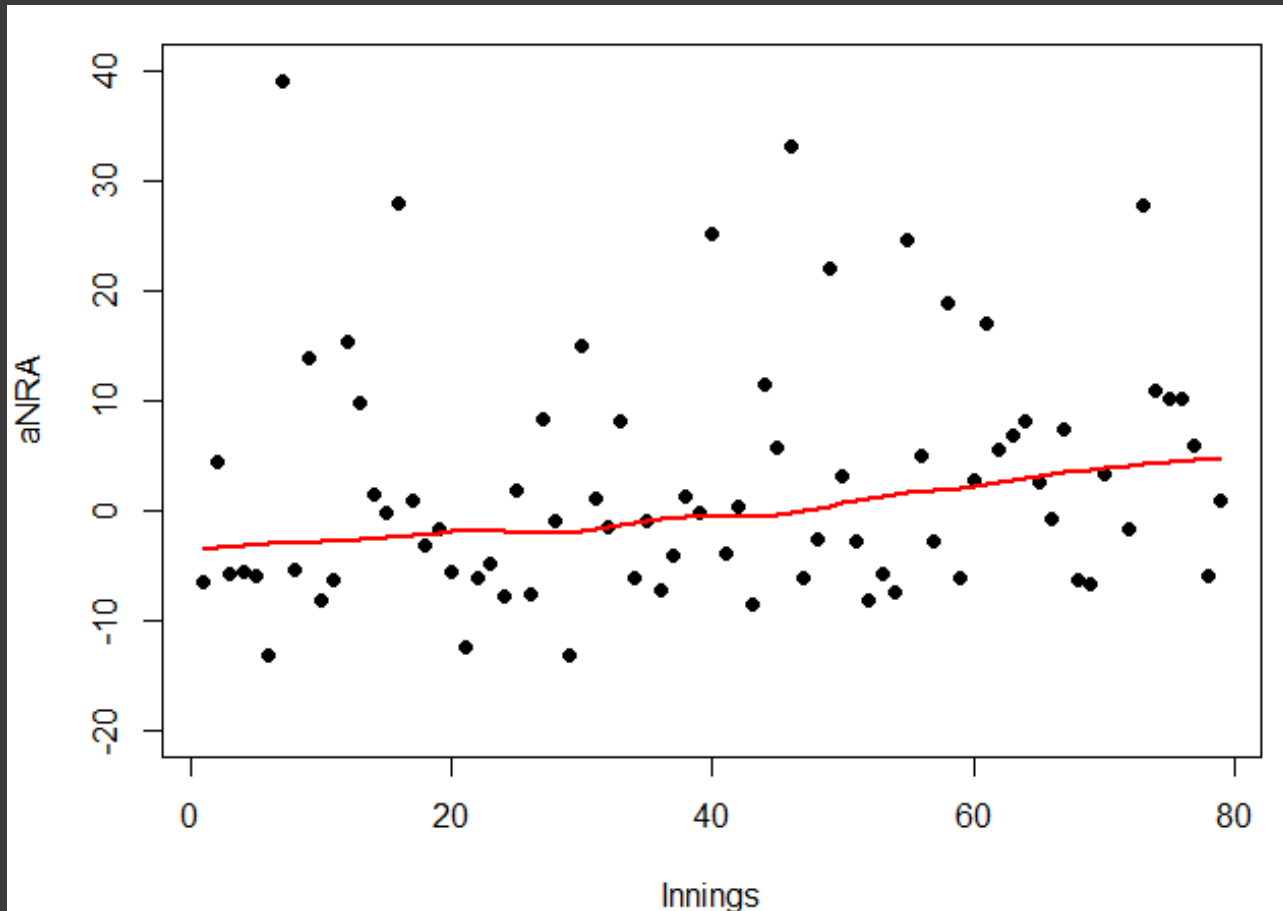
# Career Arcs

Figure 11: Steve Smith (2012-2014)



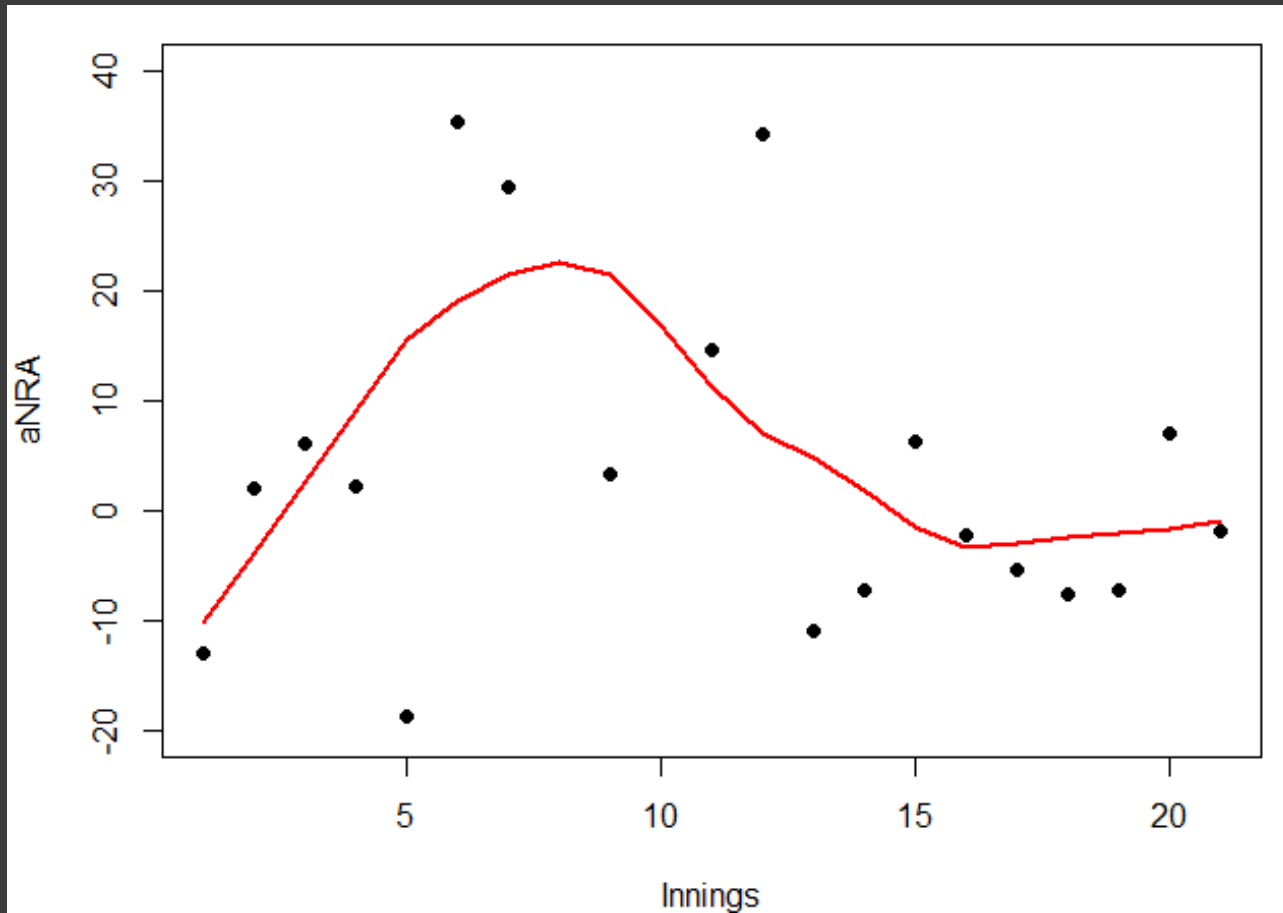
# Career Arcs

Figure 12: AB de Villiers (2008-2014)



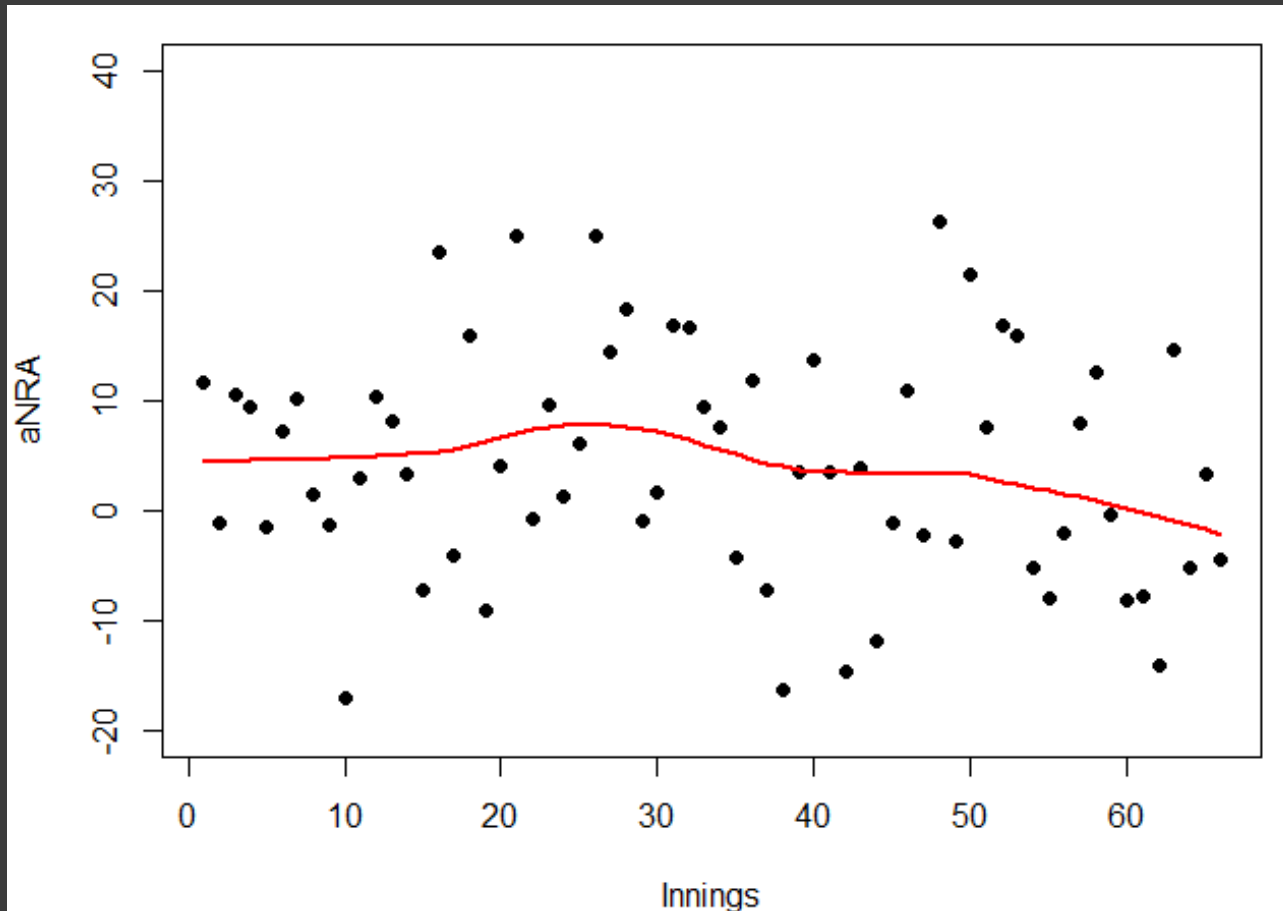
# Career Arcs

Figure 13: Glen Maxwell (2012-2014)



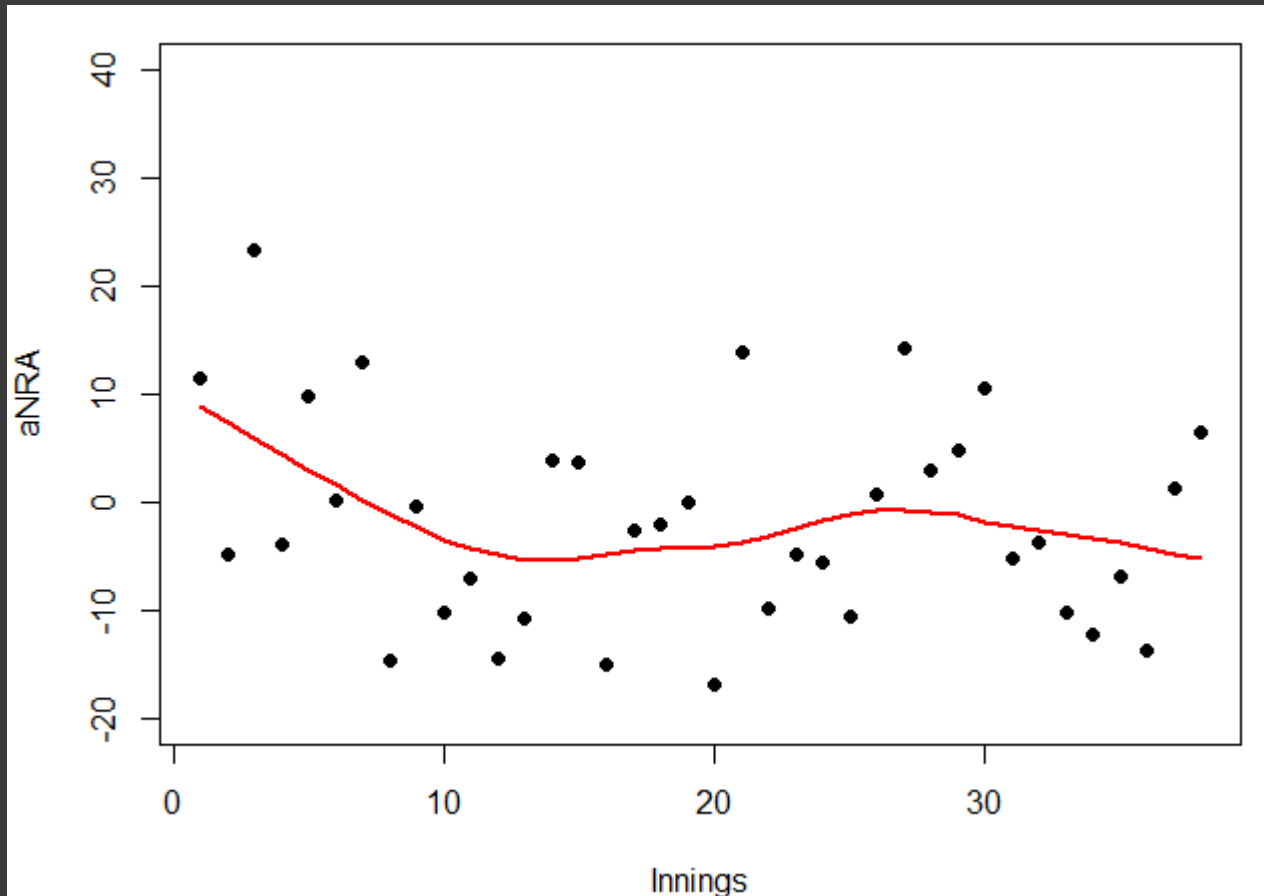
# Career Arcs

Figure 14: Murali (2008-2014)



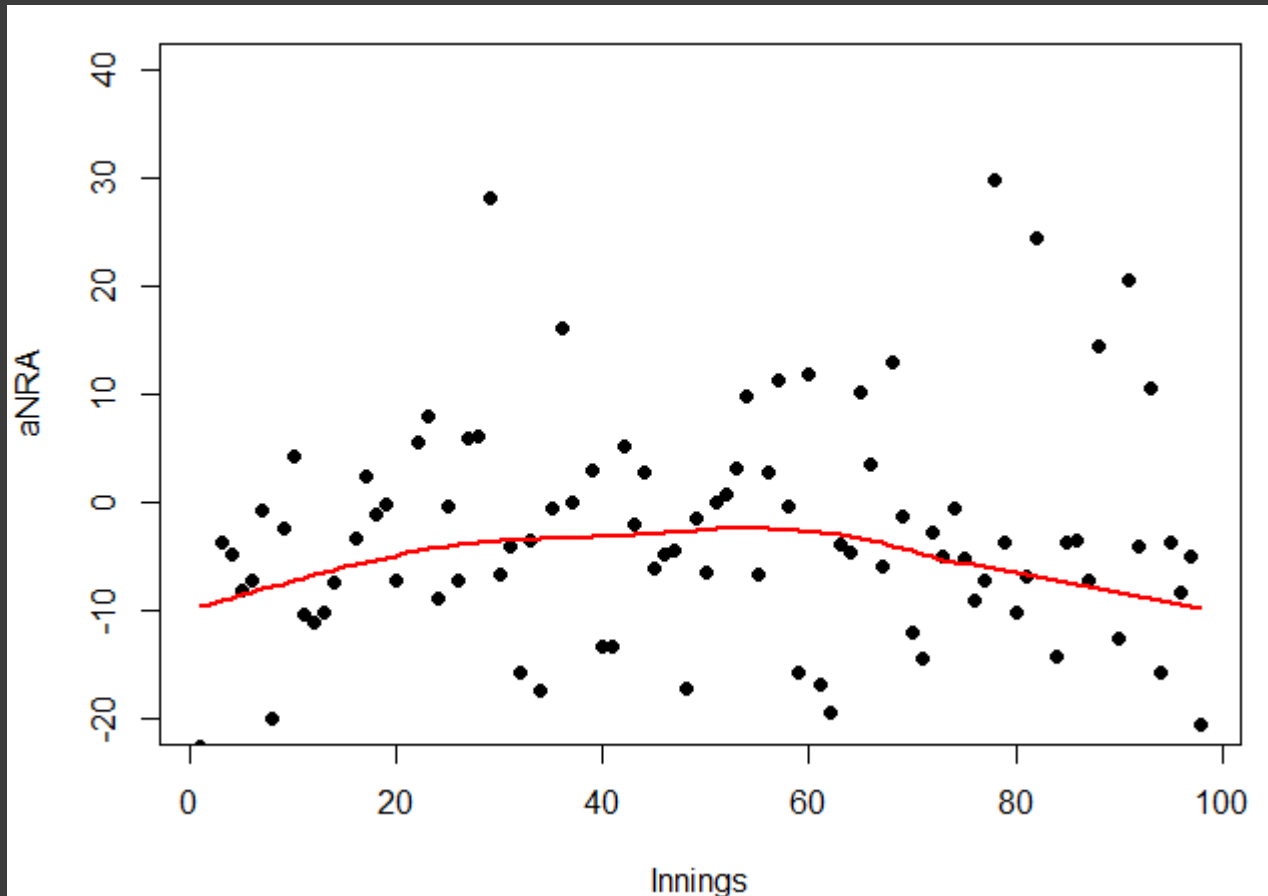
# Career Arcs

Figure 15: Brett Lee (2008-2013)



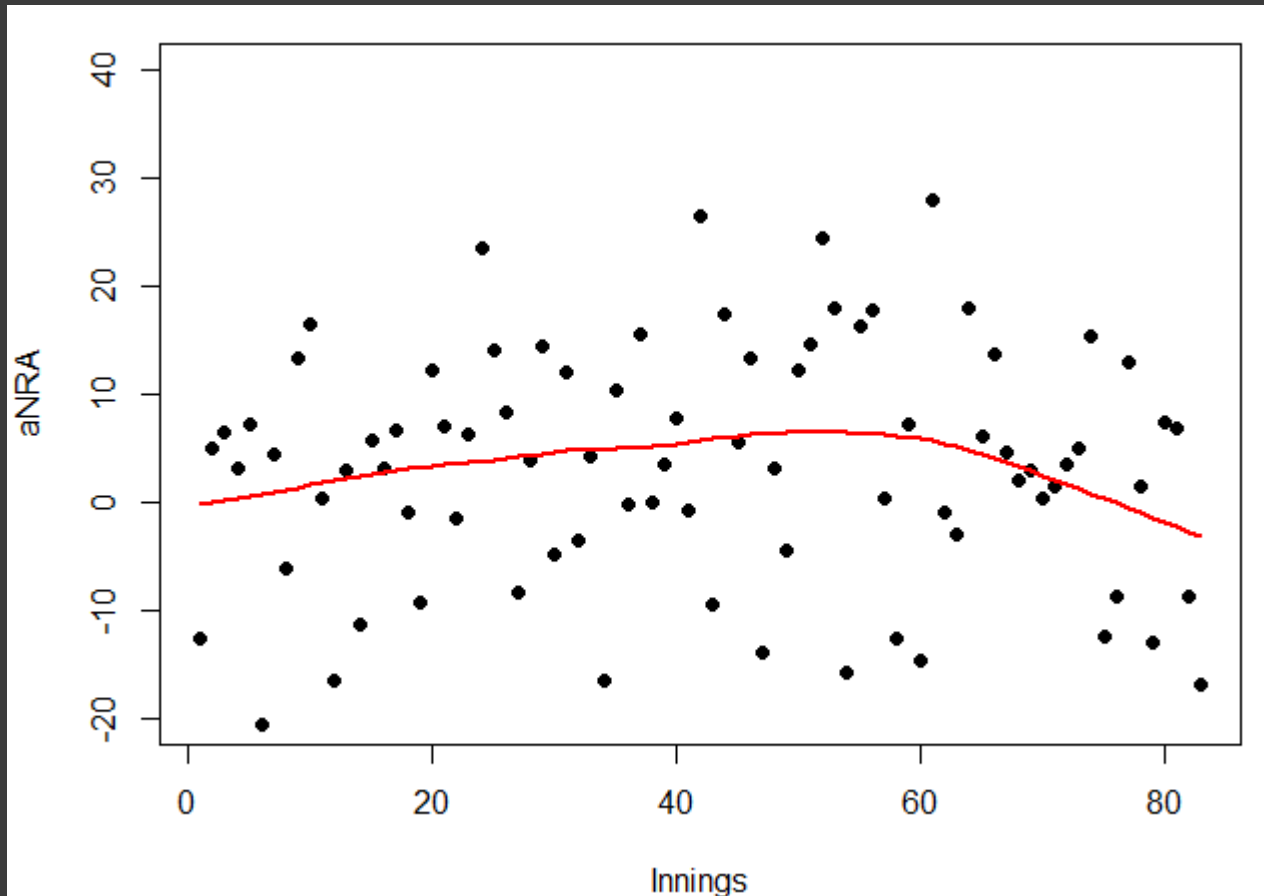
# Career Arcs

Figure 16: Jacques Kallis (2008-2014)



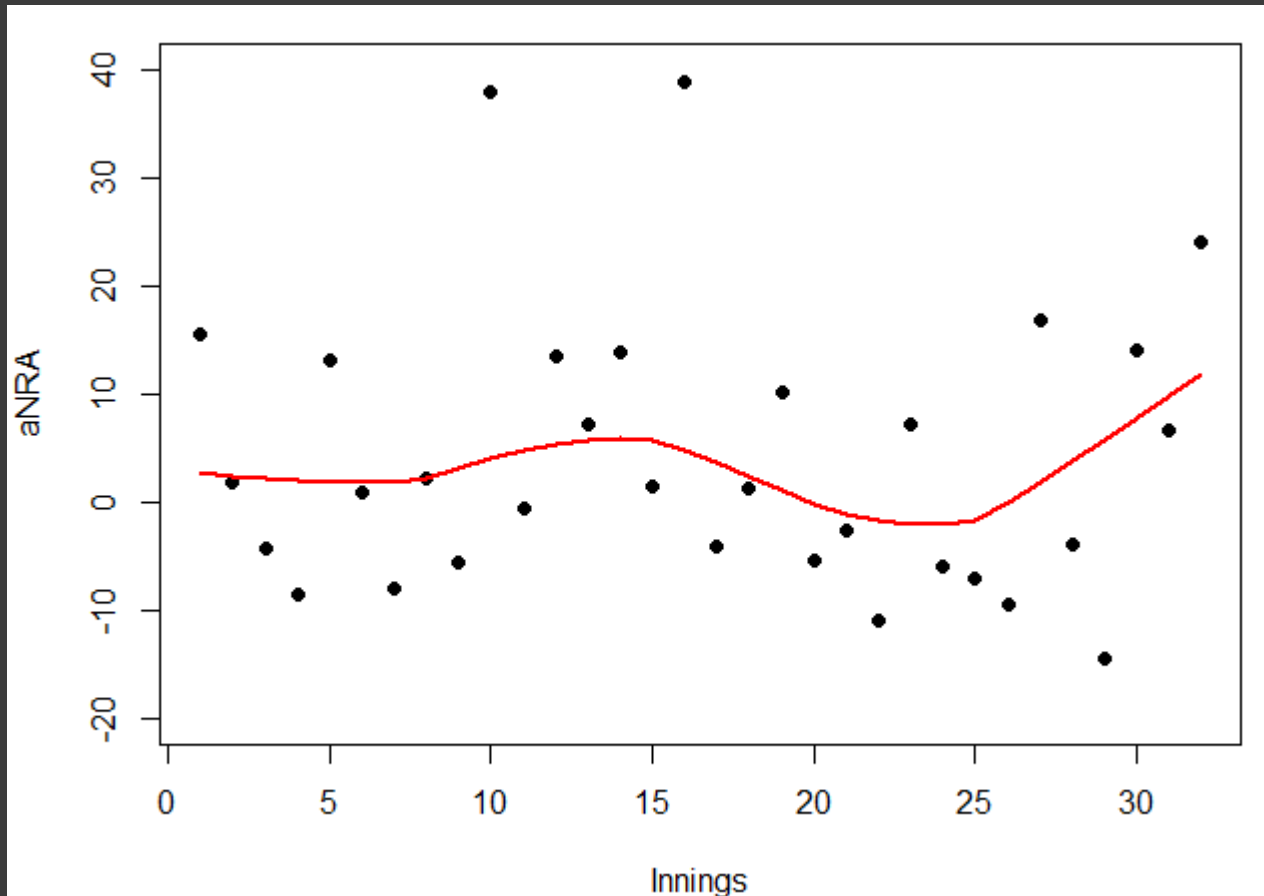
# Career Arcs

Figure 17: Dale Steyn (2009-2014)



# Career Arcs

Figure 18: Kevin Pietersen (2009-2014)





# Conclusions:

- *aNRA* avoids inflated averages of runs scored in “low pressure” situations (and also the issue of multiple “not out” innings)
- *aNRA* gives reasonable trade-off between quantity and “quality” of runs (i.e., runs at good utilisation rate)
- *aNRA* misses “symbiotic” relationships (e.g., “sheet anchor” role and the importance of partnerships) and fielding

# Conclusions:

- ⦿ *aNRA* may be useful in assessing player “value”, but other factors are also relevant
- ⦿ *aNRA* may be useful in tracking “career arcs” to project future performance

# Extensions:

## ◎ BBL Ratings

- Average vs Aggregate?
  - CHOICE: Aggregate but with downweighting
- All-rounder Ratings, total vs “balance”
  - CHOICE: Balance – Use harmonic mean of batting and bowling aggregates

# Extensions:

## ● BBL Ratings

- End of 2014/2015 Season:

| Batsmen |                  |        | Bowlers |                      |        | All-Rounders |                |        |
|---------|------------------|--------|---------|----------------------|--------|--------------|----------------|--------|
| Rank    | Player           | Rating | Rank    | Player               | Rating | Rank         | Player         | Rating |
| 1       | Nic Maddinson    | 52.71  | 1       | Brad Hogg            | 56.62  | 1            | John Hastings  | 21.37  |
| 2       | Ben Stokes       | 49.67  | 2       | Brett Lee            | 52.40  | 2            | Cameron Boyce  | 15.37  |
| 3       | Chris Lynn       | 48.60  | 3       | Jason Behrendorff    | 45.85  | 3            | Ashton Turner  | 9.29   |
| 4       | Tim Ludeman      | 45.60  | 4       | Gurinder Sandu       | 42.89  | 4            | Jacques Kallis | 8.81   |
| 5       | Michael Carberry | 42.70  | 5       | John Hastings        | 42.22  | 5            | Ben Laughlin   | 8.79   |
| 6       | Ben Cutting      | 42.64  | 6       | Michael Beer         | 41.60  | 6            | Xavier Doherty | 5.18   |
| 7       | Jordan Silk      | 41.59  | 7       | Lasith Malinga       | 32.42  | 7            | Andre Russell  | 4.82   |
| 8       | Aiden Blizzard   | 41.07  | 8       | Muttiah Muralitharan | 32.36  | 8            | Darren Sammy   | 4.48   |
| 9       | Shaun Marsh      | 39.64  | 9       | Shakib Al Hasan      | 31.83  | 9            | Yasir Arafat   | 4.14   |
| 10      | Travis Head      | 37.06  | 10      | James Hopes          | 31.51  | 10           | Adam Voges     | 3.23   |

Thank You