The Age Advantage in Youth Football

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Background

Does the ‘cut-off date eligibility rule’ cause relative age effects?

The universal rule which governs youth participation:

‘Players are eligible …

… to play in the competition …

… if they were born on or after …

… 1 January YYYY’

Dataset courtesy KNVB & Gracenote (Infostrada)

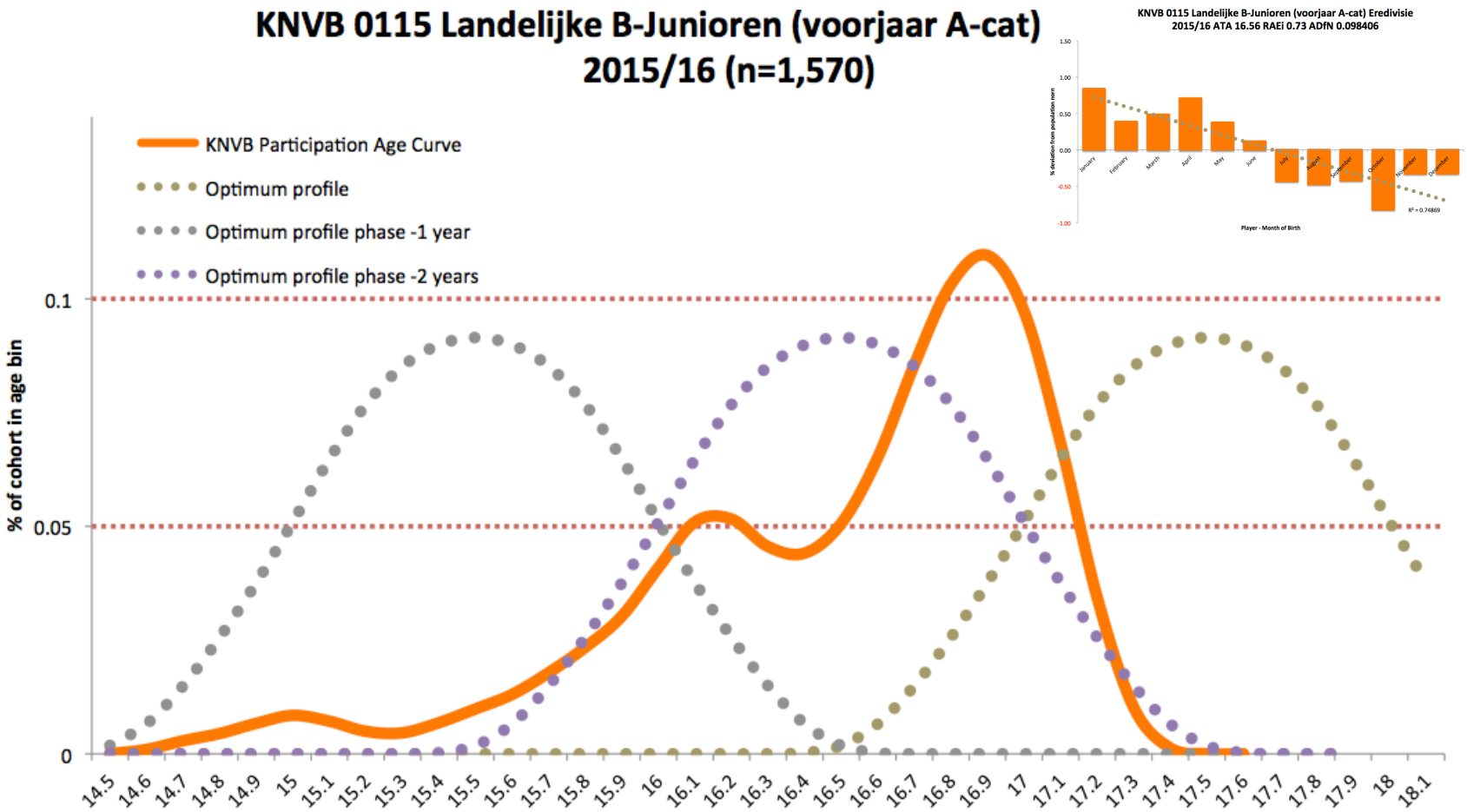
- 15,088 matches, across 64 competitions, in 2010-16, from ages Under 12 to First Team
- Variables:

1. Average Team Age: ATA (mean cohort age)
2. Relative Age index: RAEi (% of players born in 1st half-year)
3. Home/Away

Measured against win/draw/lose converted to PPG

Average Team Age (ATA) Profile

RAEi 0.73 ATA 16.56

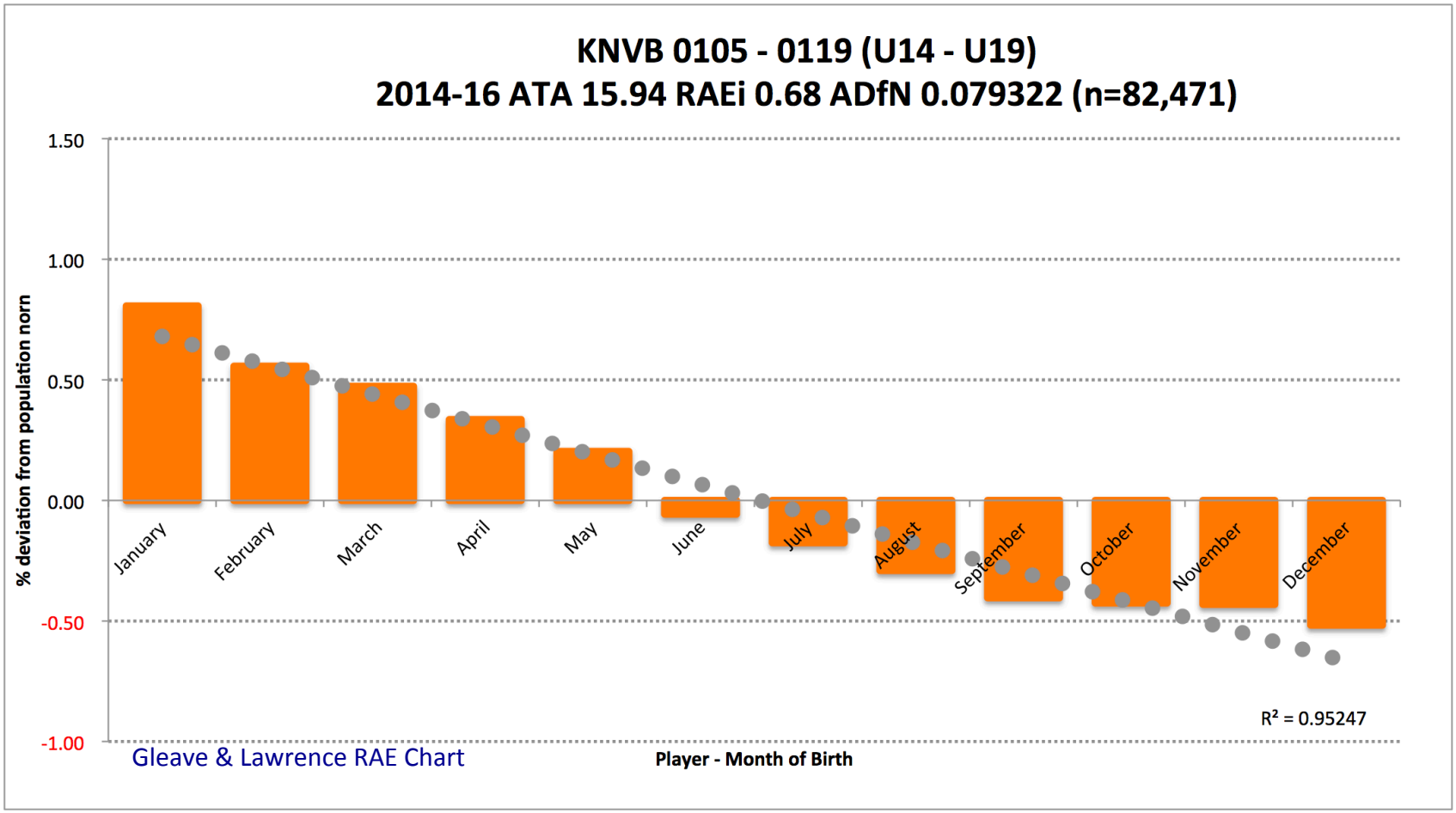


Gleave & Lawrence Age Curve

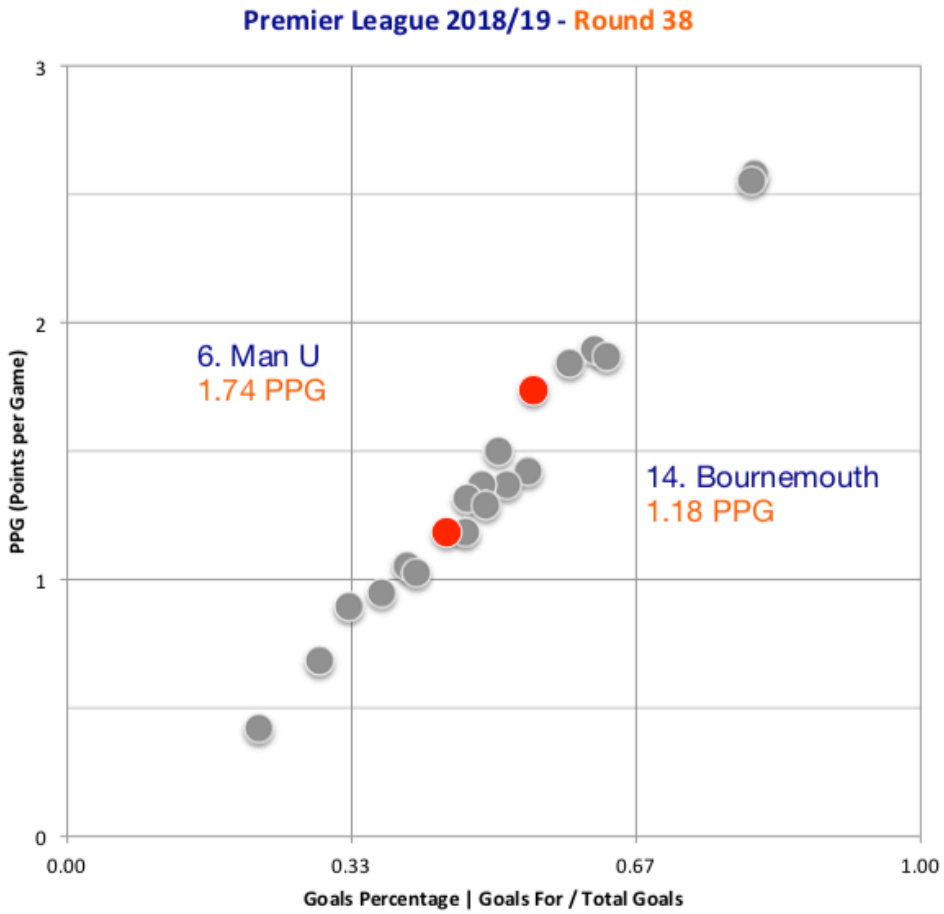
Relative Age Bias KNVB O14 – O19

based on match participation 2014-16 n=82,471

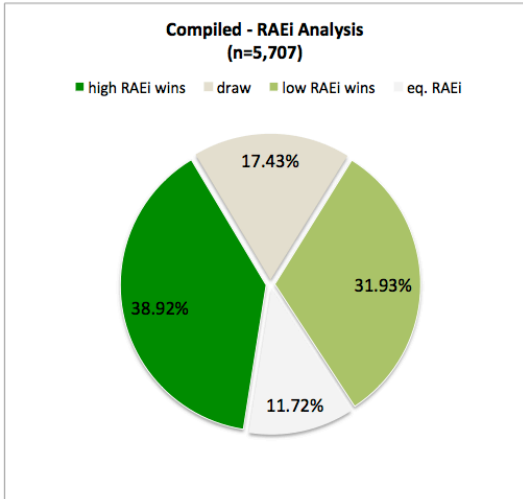
RAEi = 0.68

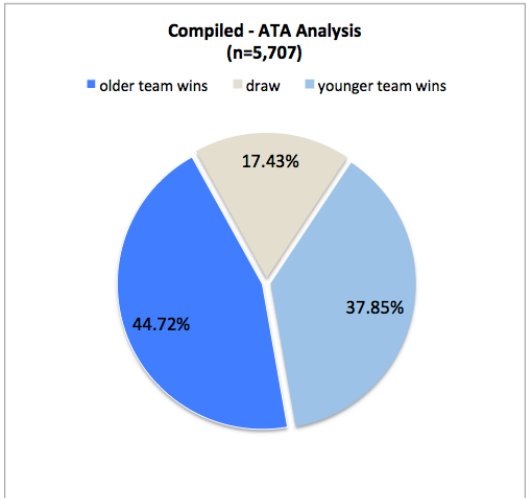


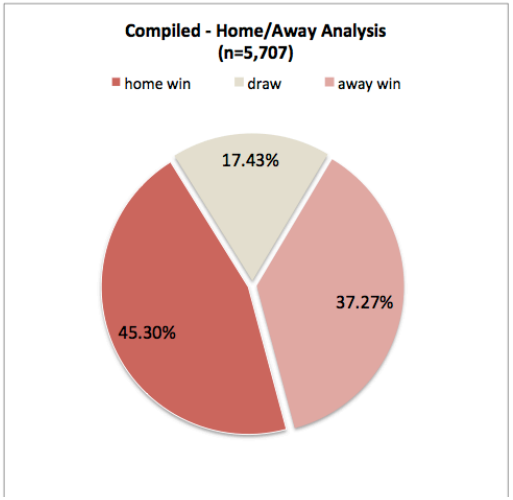
PPG in perspective - Premier League 2018/19
Home teams 1.62 PPG - Away teams 1.14 PPG

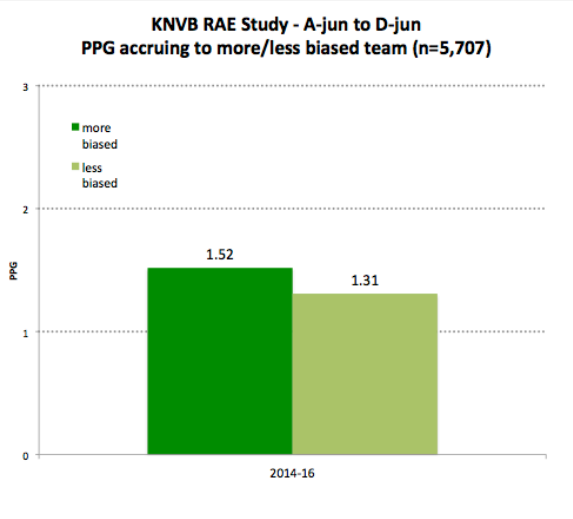


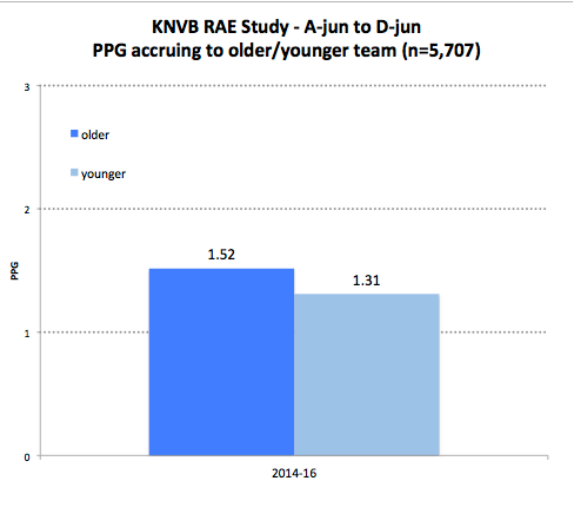
Win/draw/lose pie chart & PPG bar chart
Youth ages (n=5,707)
1.52 v 1.31 PPG

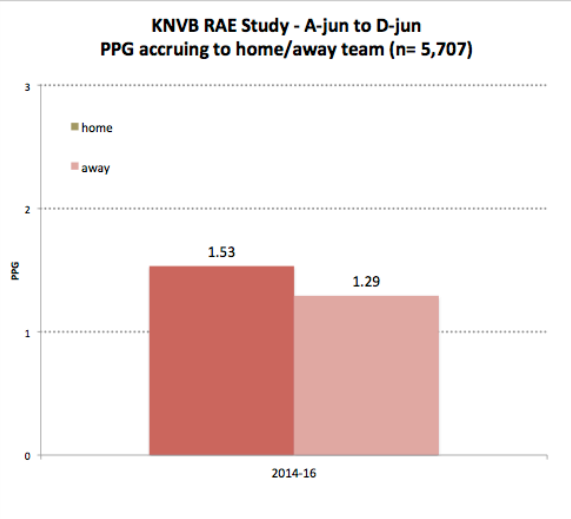






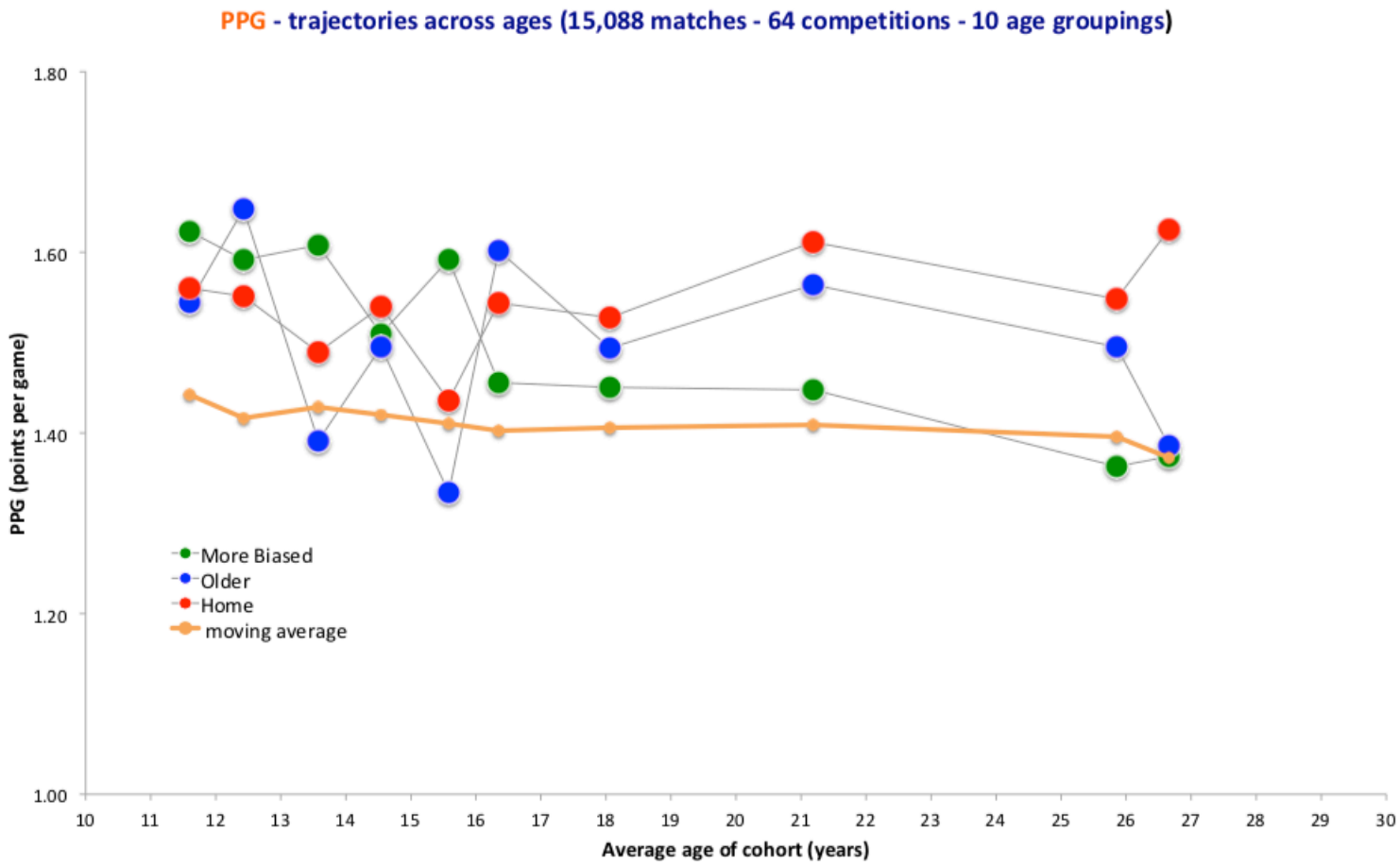






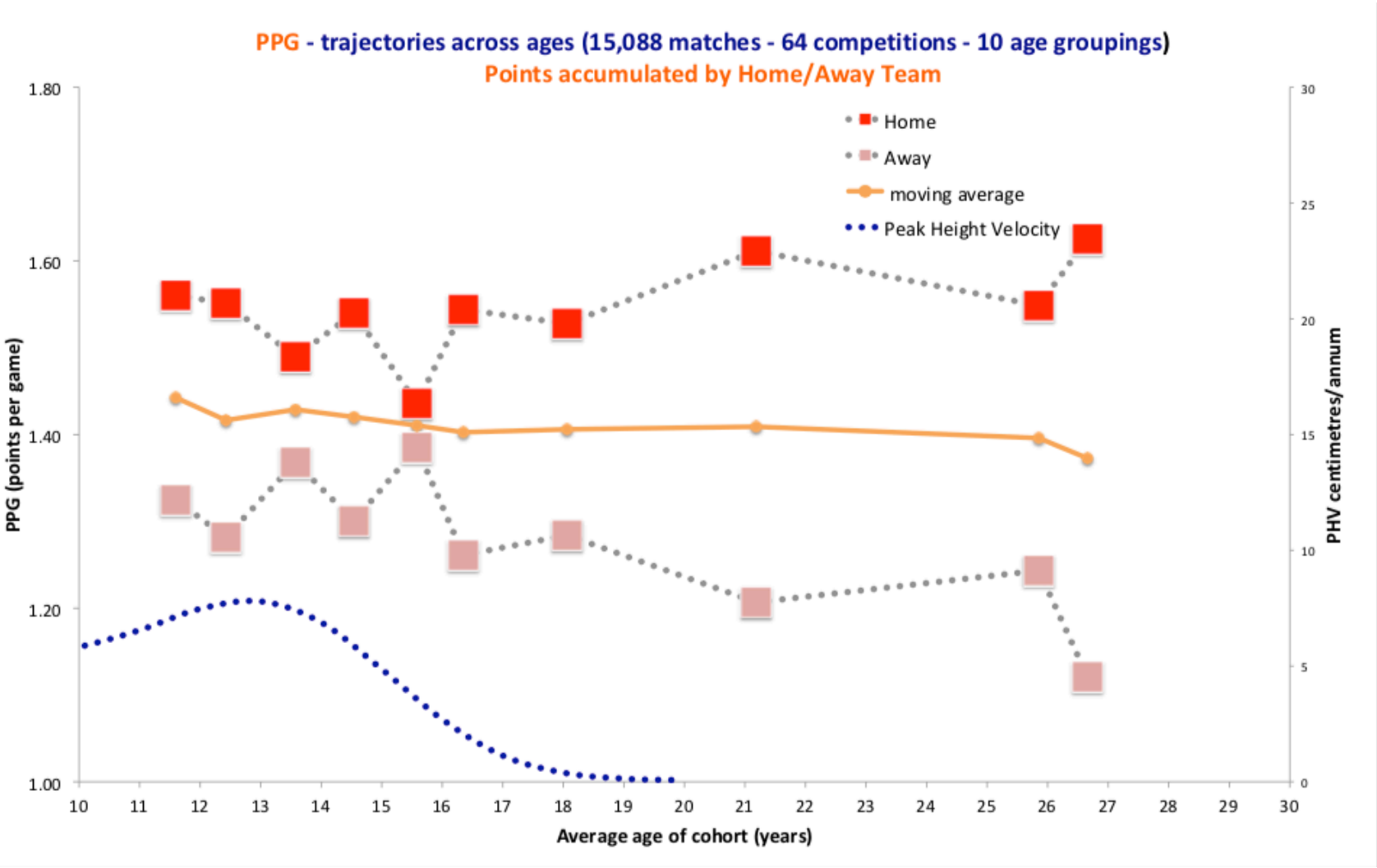
PPG Charts with increasing Age – 10 age cohorts

Comparative PPG trajectories for home, older & more RAEi biased teams



At U12 home teams accrue 1.56 PPG (away teams 1.32 PPG) at Premier League level it is 1.62 PPG (1.12 PPG)

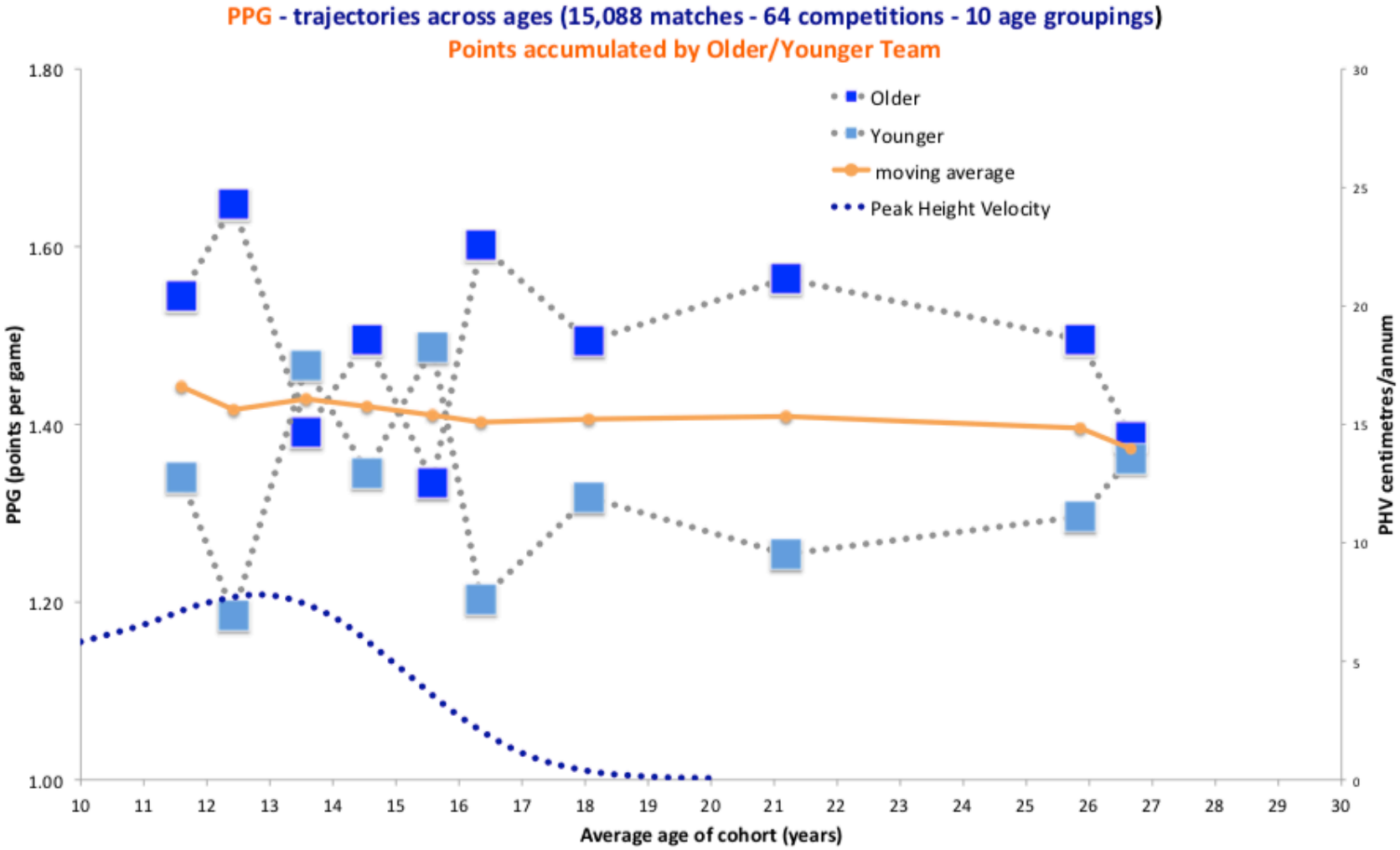
(we organise Home & Away fixtures to compensate)



Across youth age groups, the older team accrued 1.52 PPG & the younger team 1.31 PPG

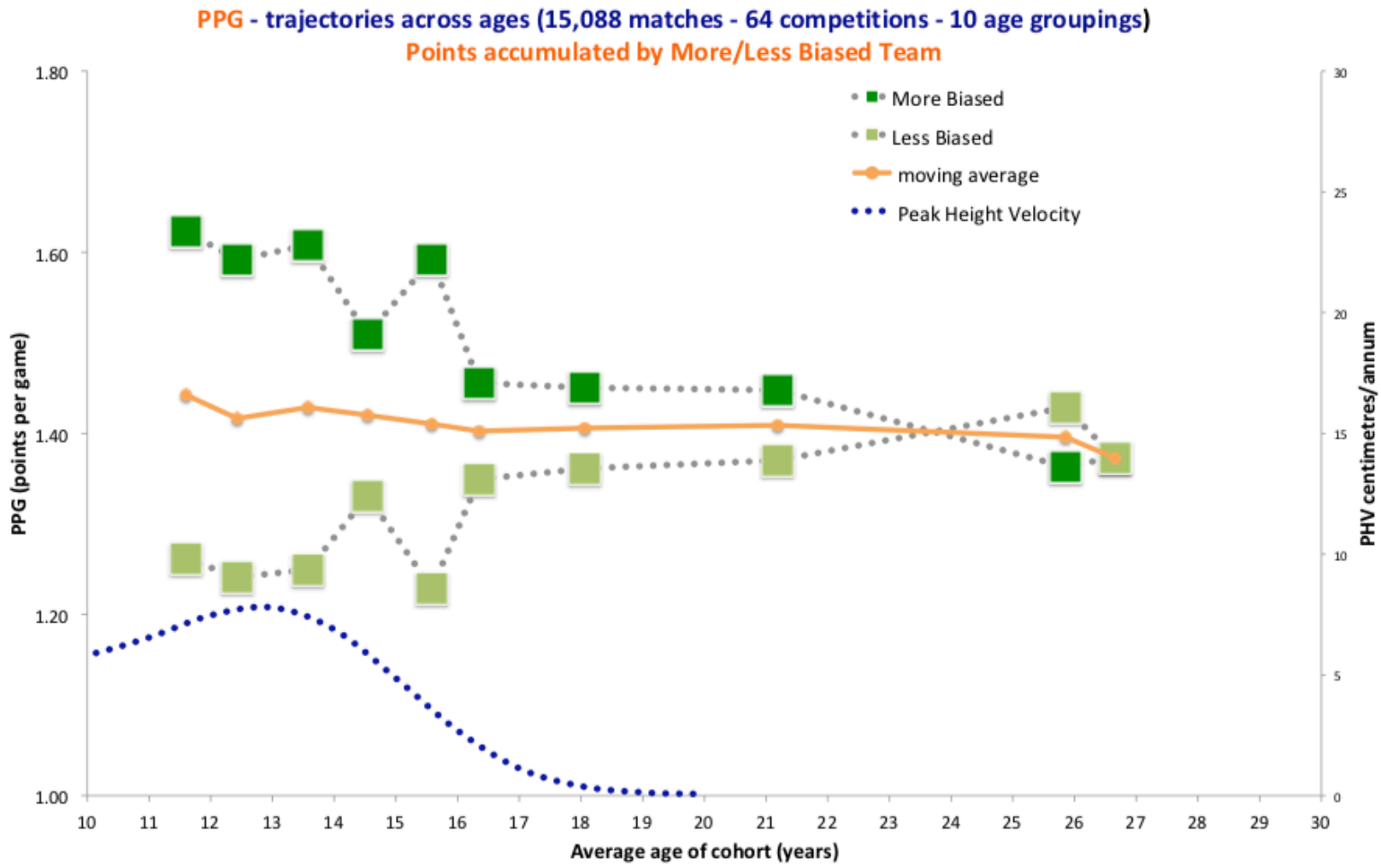
An Age Advantage is still evident at U23

n.b. volatility at U14, U15 & U16 where minimal age difference between teams occurs



Within a cut-off date eligibility system an older team must necessarily consist of players with birthdates biased towards the cut-off date.

We should therefore expect to see a relative age advantage.



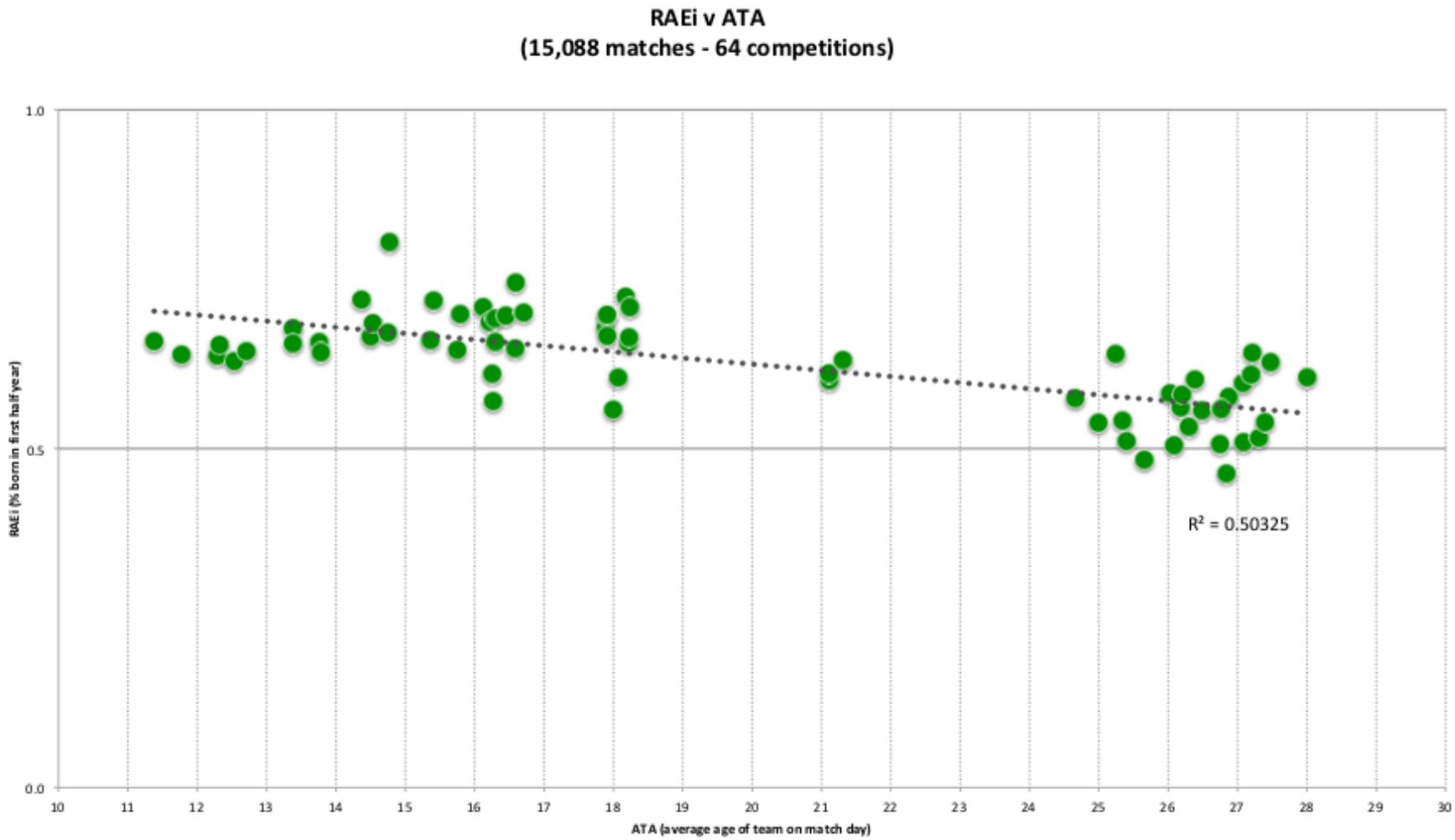
Observations

- At youth ages older teams tend to win more matches, so we see an ‘Age Advantage’ …
- … & within a cut-off date eligibility system …
- … an older team necessarily means a more biased team, so we see a ‘Relative Age Advantage’.

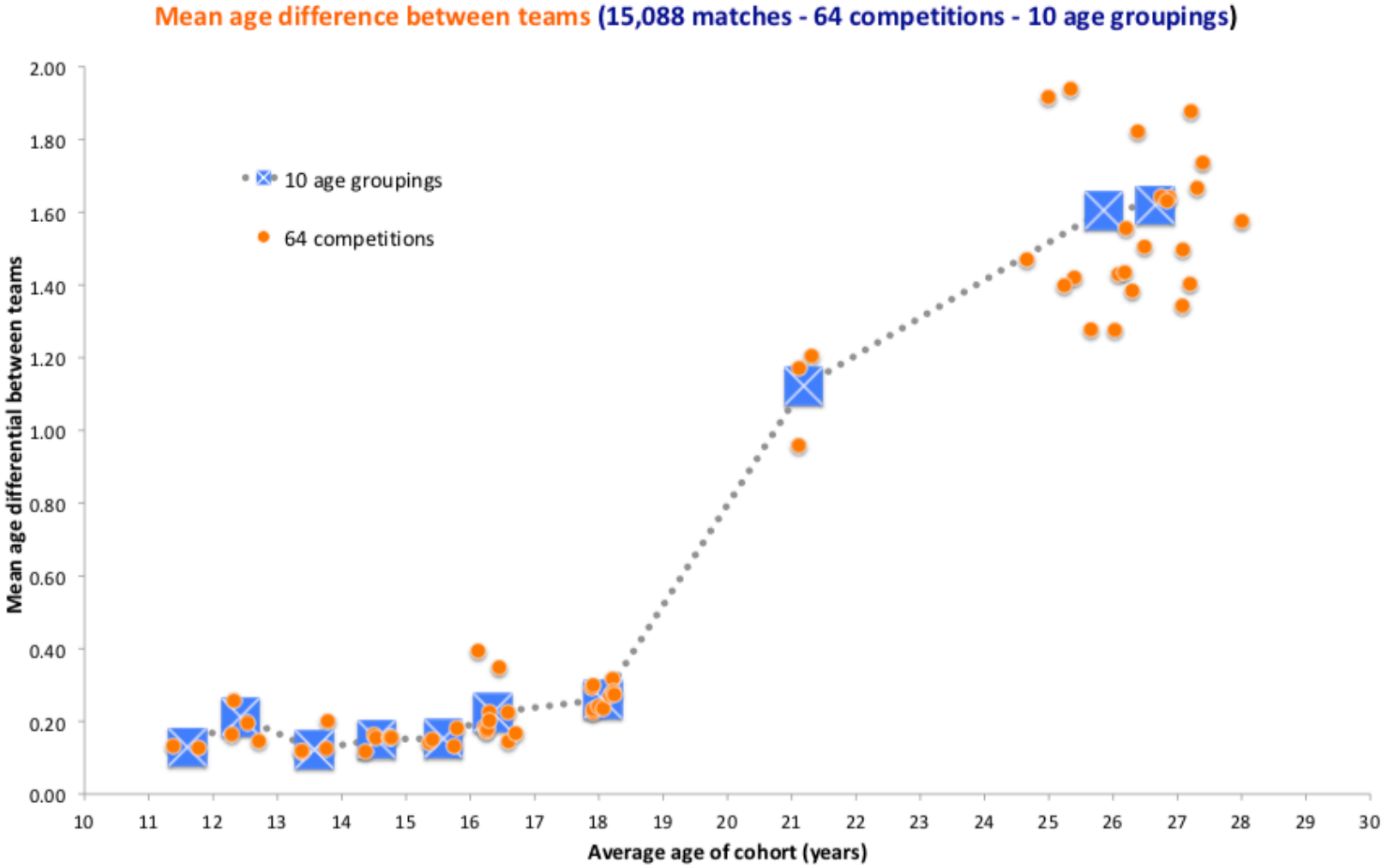
p-values and chi-square values for 8 youth groupings & the semi-pro age grouping.

Age Group	ATA	RAEi	n	**Home/Away** p-value	**Home/Away** chi-sq	**ATA** p-value	**ATA** chi-sq	**RAEi** p-value	**RAEi** chi-sq
Under 12	11.598	0.648	191	0.2485632482	1.331	0.3173105079	1.000	0.0646885438	3.413
Under 13	12.427	0.643	1,335	0.0003199830	12.950	0.0000000007	38.162	0.0000016930	22.915
Under 14	13.575	0.659	519	0.3194953451	0.991	0.5377235267	0.380	0.0013462033	10.278
Under 15	14.542	0.691	739	0.0179044401	5.605	0.1376077149	2.205	0.0559740195	3.653
Under 16	15.581	0.683	413	0.7038060054	0.145	0.2540516395	1.301	0.0024318454	9.191
Under 17	16.350	0.646	1,241	0.0002141461	13.703	0.0000001786	27.252	0.1248633764	2.355
Under 19	18.060	0.638	1,243	0.0014746617	10.110	0.0215535829	5.281	0.2003912073	1.640
U23 (2010-2013)	21.187	0.615	890	0.0000086877	19.780	0.0006502320	11.626	0.3424621581	0.901
Netherlands semi-pro	25.853	0.526	3,107	0.0000000002	40.592	0.0000327627	17.250	0.1331310074	2.256
Total			9,678						

Relative age advantage
diminishes with increasing cohort age



At U12, U14 & U16 where the mean age difference between teams is tightest (<0.16 years with RAEi at 0.65) match results are more volatile.



Conclusion

- ‘The pursuit of competitive advantage, in youth football, drives up the average team age, which in turn, within eligibility cut-off date silos, causes relative age bias.’

Is there a logical alternative?

- The data indicates that where mean age differences between teams tend towards zero, match results become more random …
- … & it is self-evident that if neither team is older then the older team can't win …
- … & it being impossible to pursue an age advantage a relative age advantage cannot arise.
- Is there a logical alternative to the cut-off date eligibility rule which would encourage teams of a similar average age to compete?

The ‘Average Team Age’ (ATA) Rule

- Your squad may consist of 18 players, whose combined average age (ATA) is not older than 14.0 years on 1 September 2017 (the first day of the competition) and …

- … the age difference between the oldest player and the youngest player of your squad may not be more than 2.0 years

The rule sets the mean age (ATA) & the range