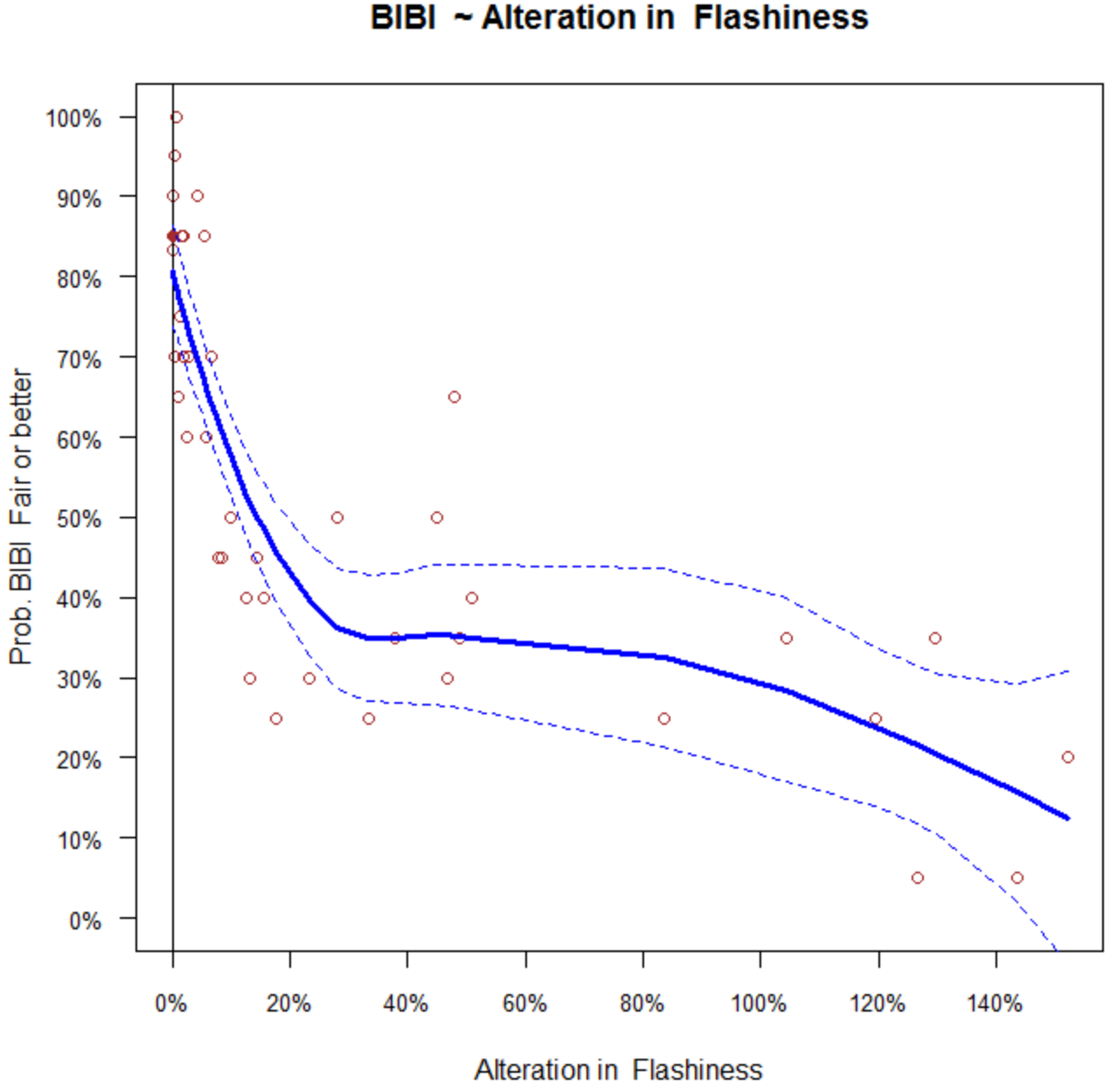
Conditional probability flow alteration – ecology plots
18 Feb 2012

This file contains the conditional probability plots for the final suite of macroinvertebrate and flow metrics used to establish FA-E relationships for the Middle Potomac study area.

Explanation:
1) Y-axis is the probability that a benthic macroinvertebrate sample will have a biometric score of "Fair" or better for a given amount of flow alteration. X-axis is the amount of alteration in the flow metric away from a baseline level.
2) Open circle points represent probability for a bin of 20 samples.
3) Solid red circle at 0% flow alteration represents the probability of "Fair" or better status for just the set of watersheds that meet reference condition criteria.
4) Solid blue line is a LOESS smoothed regression line through the points.
5) Dashed lines bound the 0.05 confidence interval around the regression line (not the points).
6) Metric codes are as follows:

Macroinvertebrate metrics	Flow metrics
Pct_EPT – Percent EPT	x3DMax – 3-day maximum
HFBI – Hilsenhoff family-level biotic index	MH21 – High flow index MH21
Pct_Chiron – Percent Chironomidae	DH17 – High flow duration DH17
Pct_Scraper – Percent Scraper	LPDur – Low pulse duration
Pct_Clinger – Percent Clinger	HPCnt – High pulse count
SW – Shannon-Wiener diversity index	Flashiness – Flashiness
BIBI – Chessie BIBI, or Chesapeake Basin-wide Index of Biotic Integrity	

Definitions are provided in Supplemental Tables A and B at the back of the report.


BIBI ~ Alteration in Flashiness
Prob. BIBI Fair or better
100%
90%
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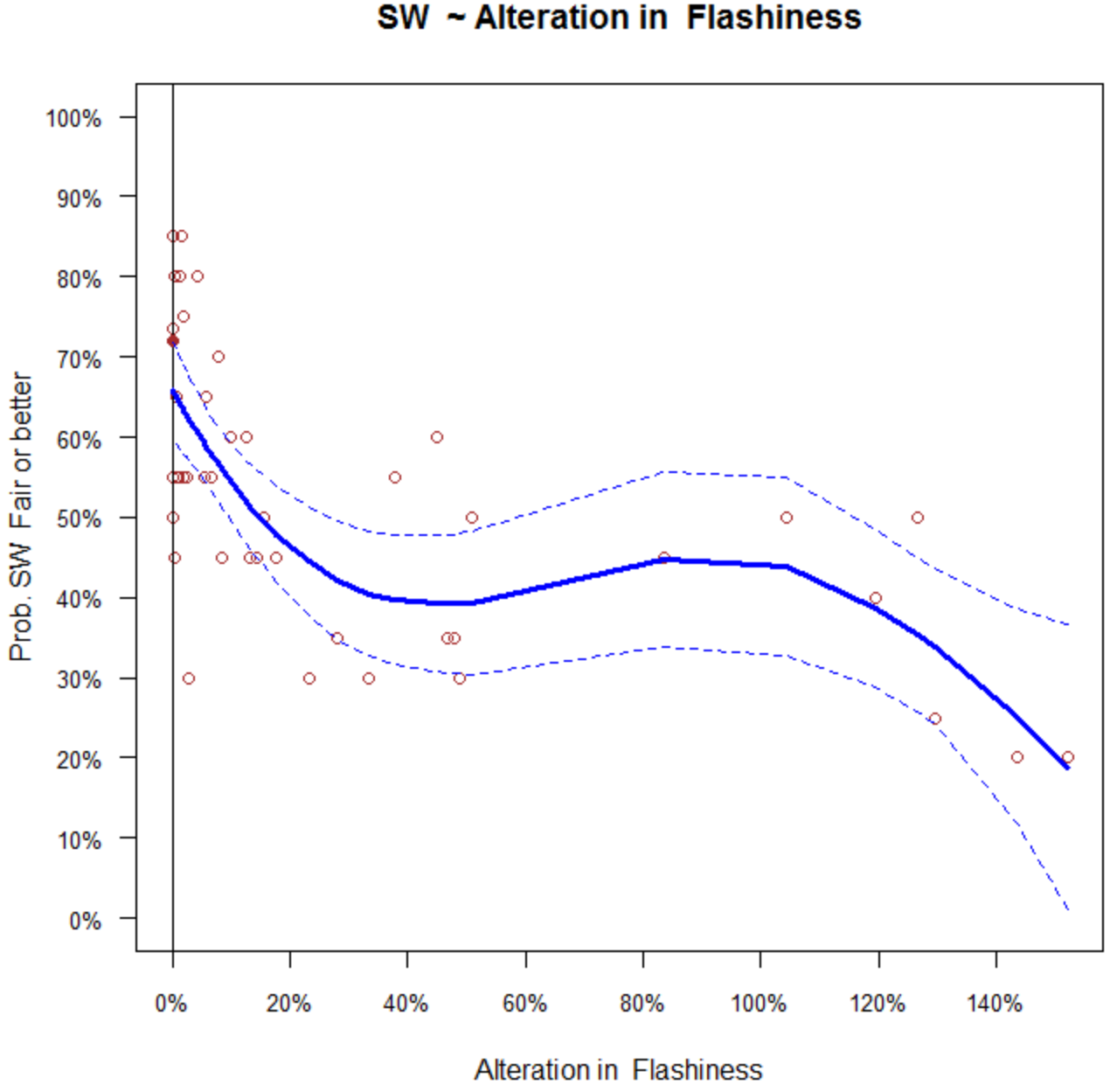
Alteration in Flashiness


SW ~ Alteration in Flashiness
Prob. SW Fair or better
100%
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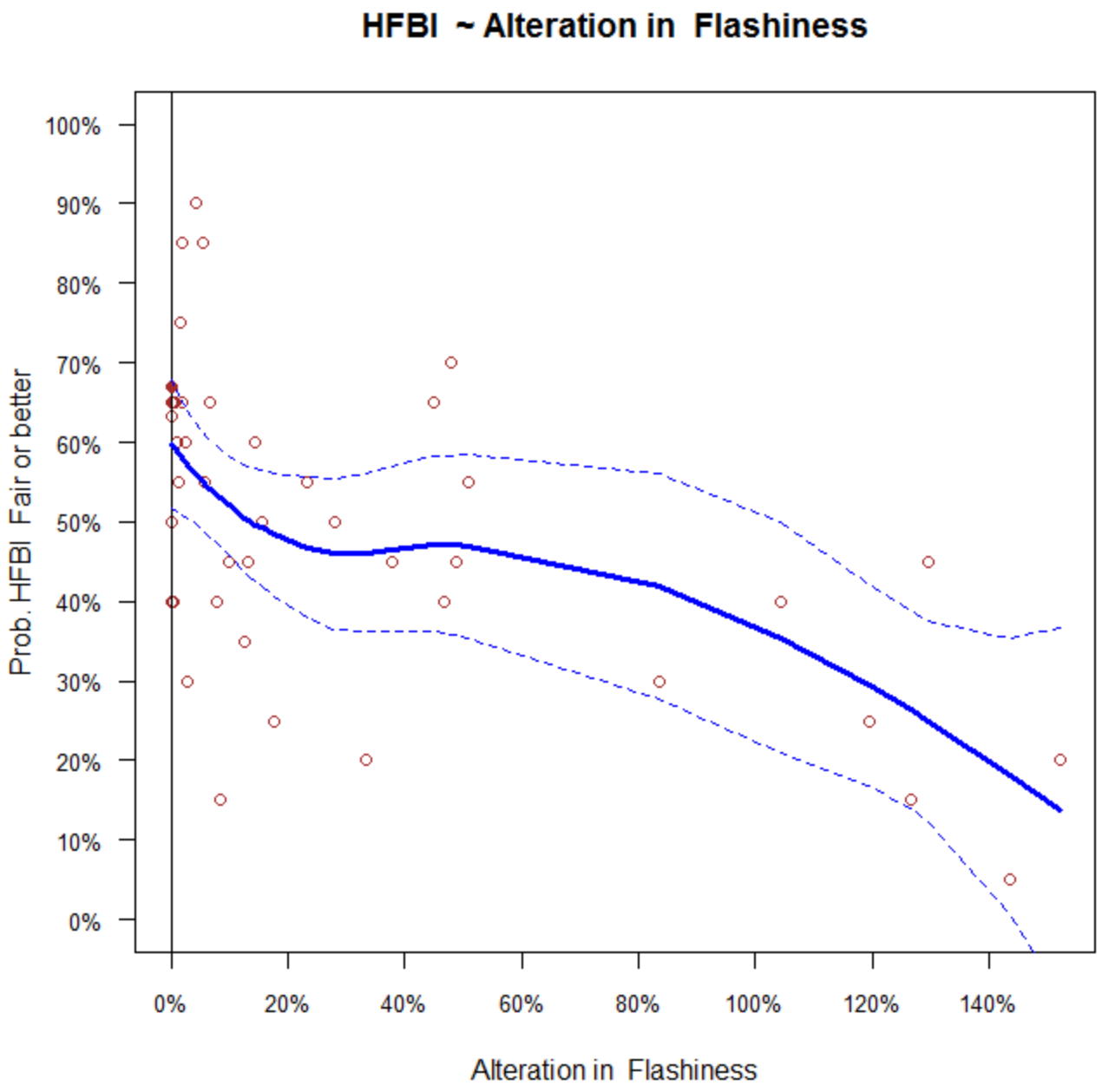
Alteration in Flashiness


HFBI ~ Alteration in Flashiness
Prob. HFBI Fair or better
100%
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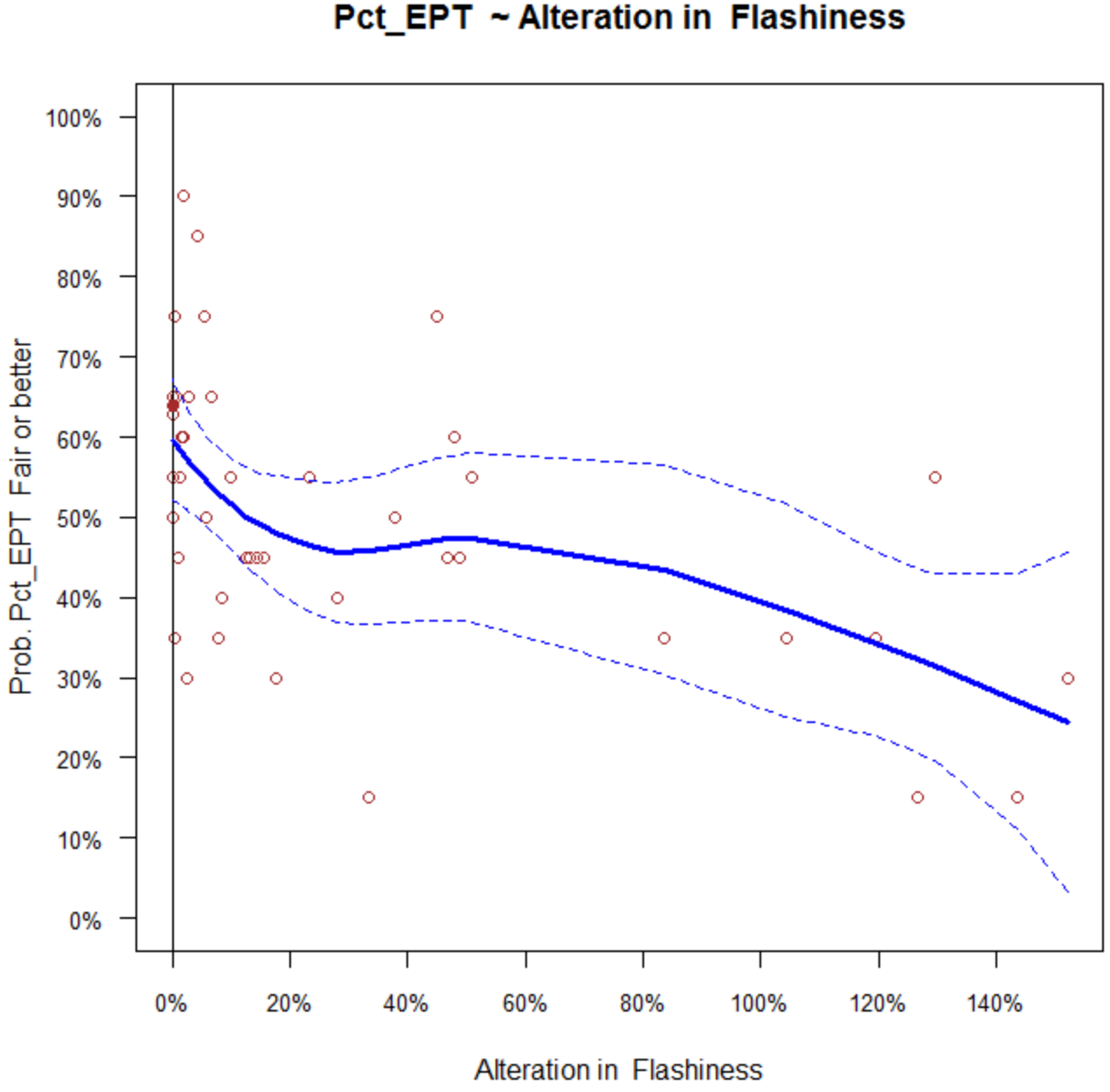
Alteration in Flashiness


Pct_EPT ~ Alteration in Flashiness
Prob. Pct_EPT Fair or better
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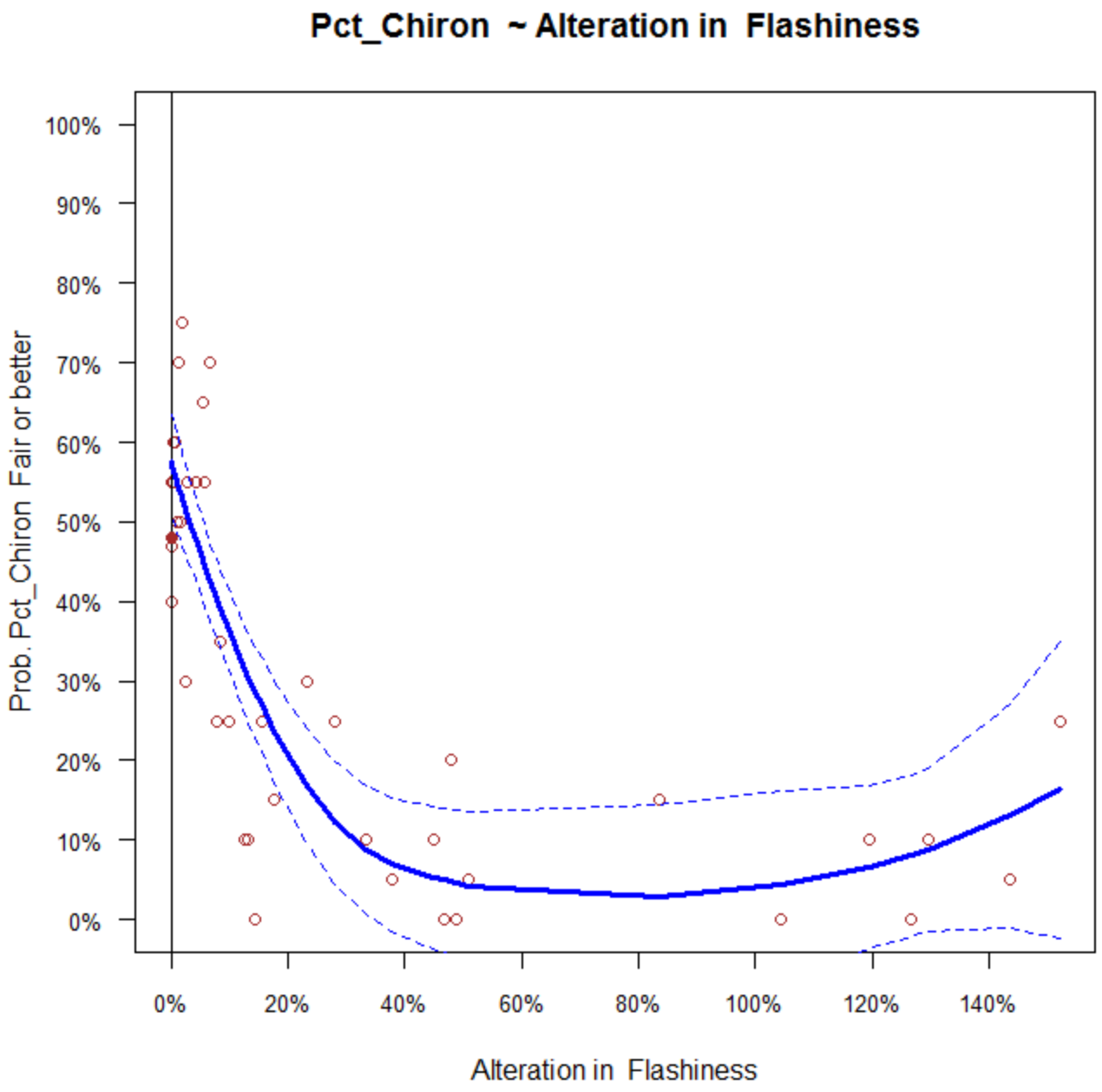
Alteration in Flashiness


Pct_Chiron ~ Alteration in Flashiness
Prob. Pct_Chiron Fair or better
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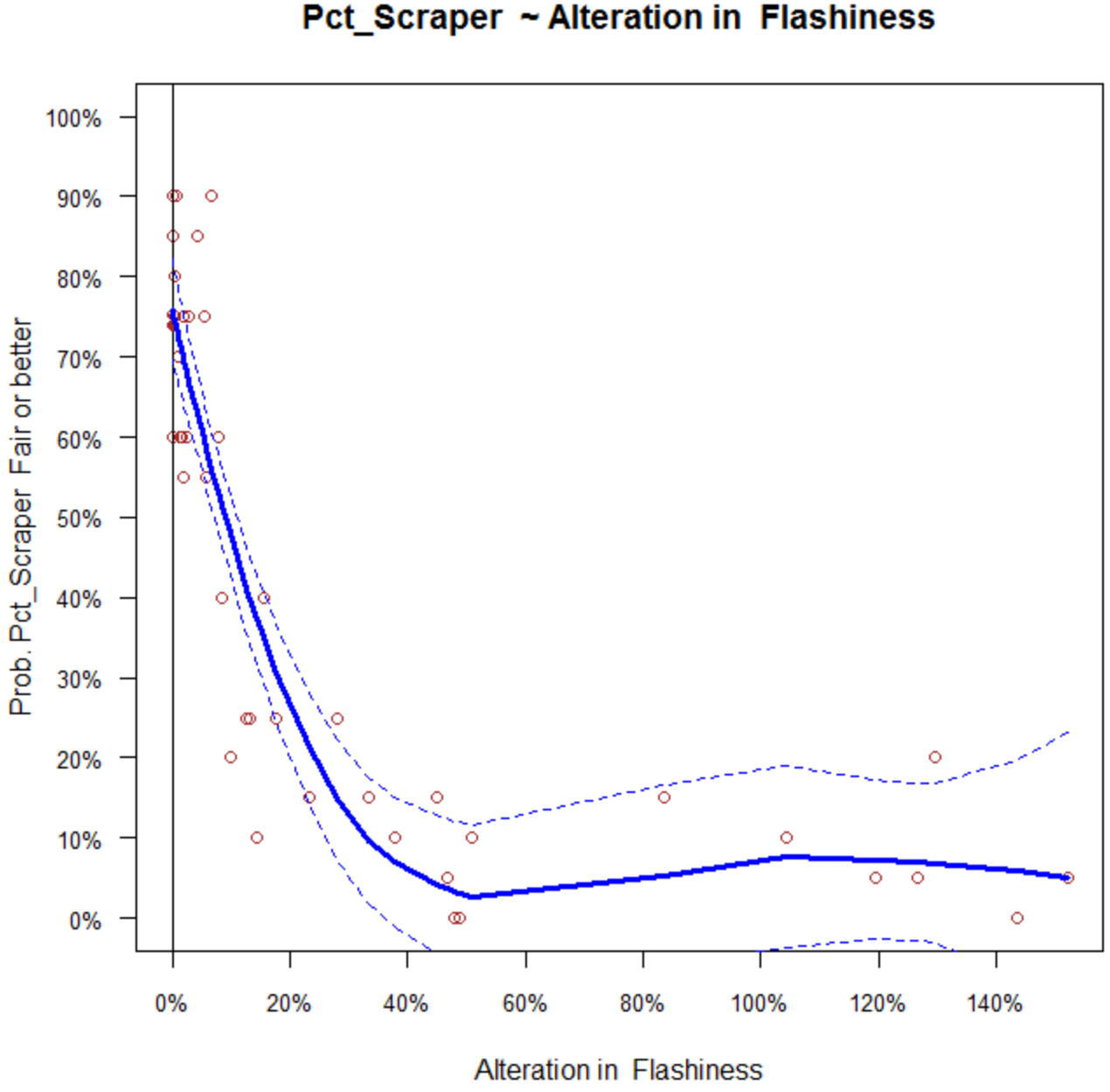
Alteration in Flashiness


Pct_Scraper ~ Alteration in Flashiness
Prob. Pct_Scraper Fair or better
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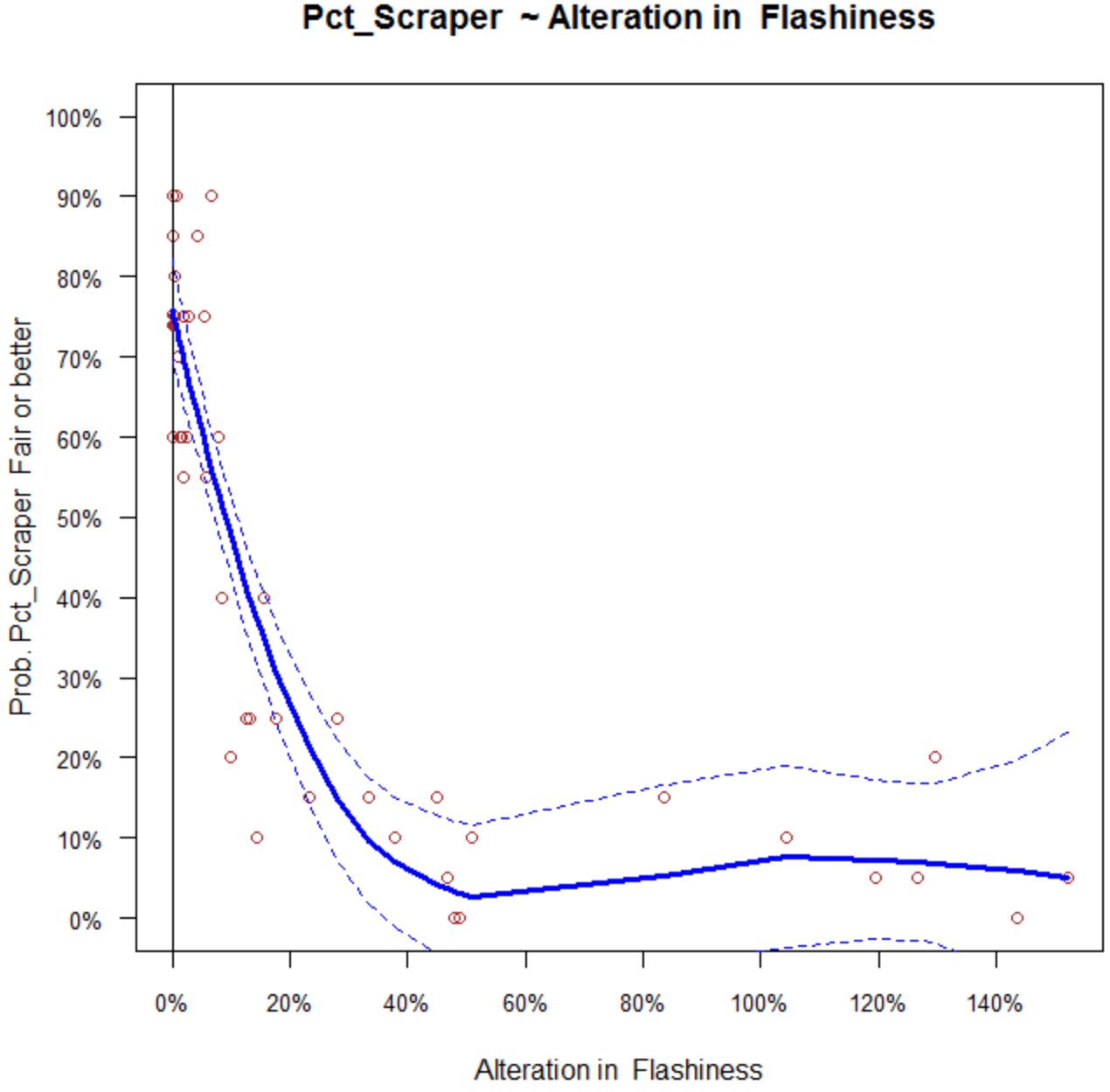
Alteration in Flashiness


Pct_Scraper ~ Alteration in Flashiness
Prob. Pct_Scraper Fair or better
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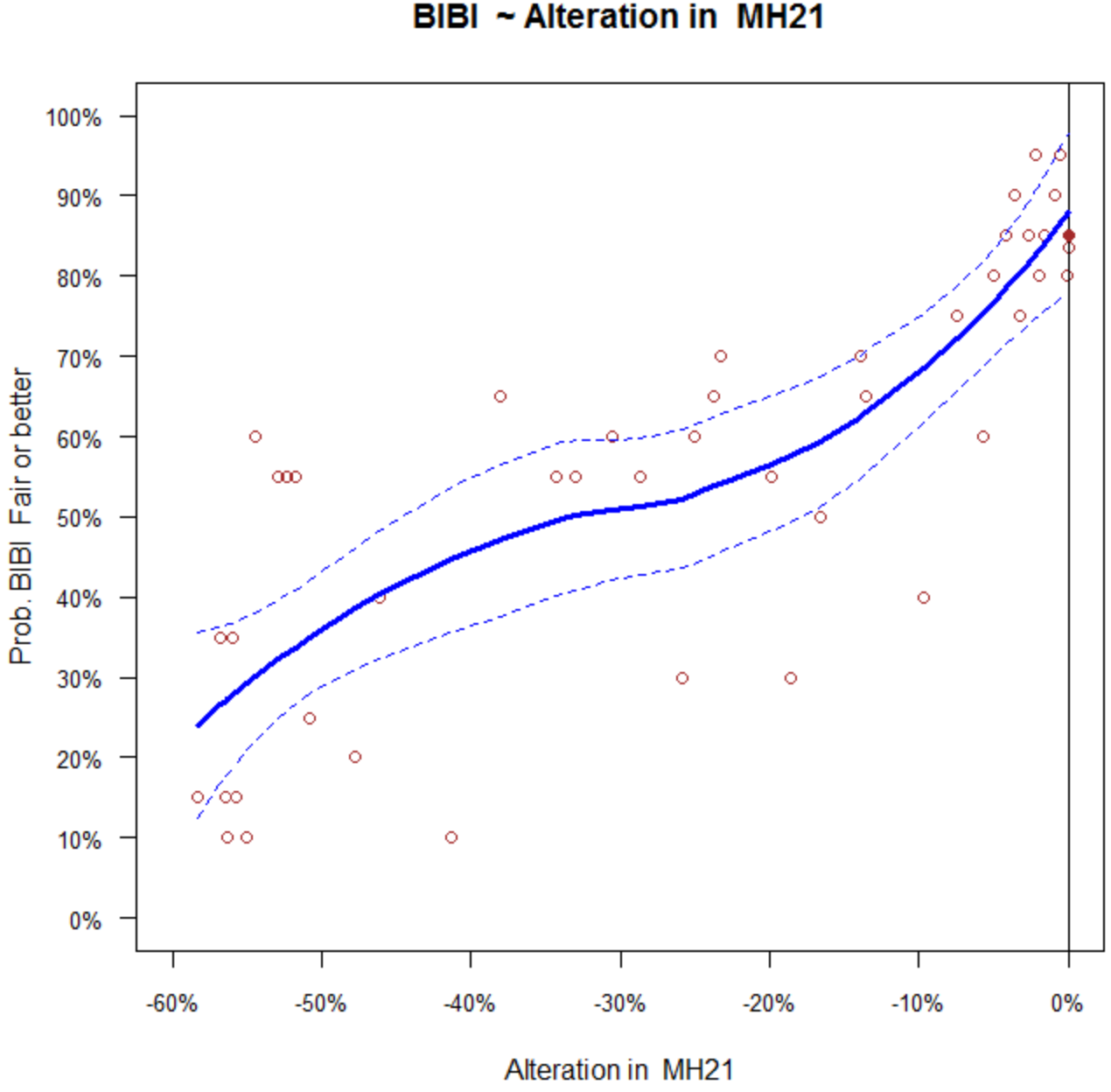
Alteration in Flashiness


BIBI ~ Alteration in MH21
Prob. BIBI Fair or better
100%
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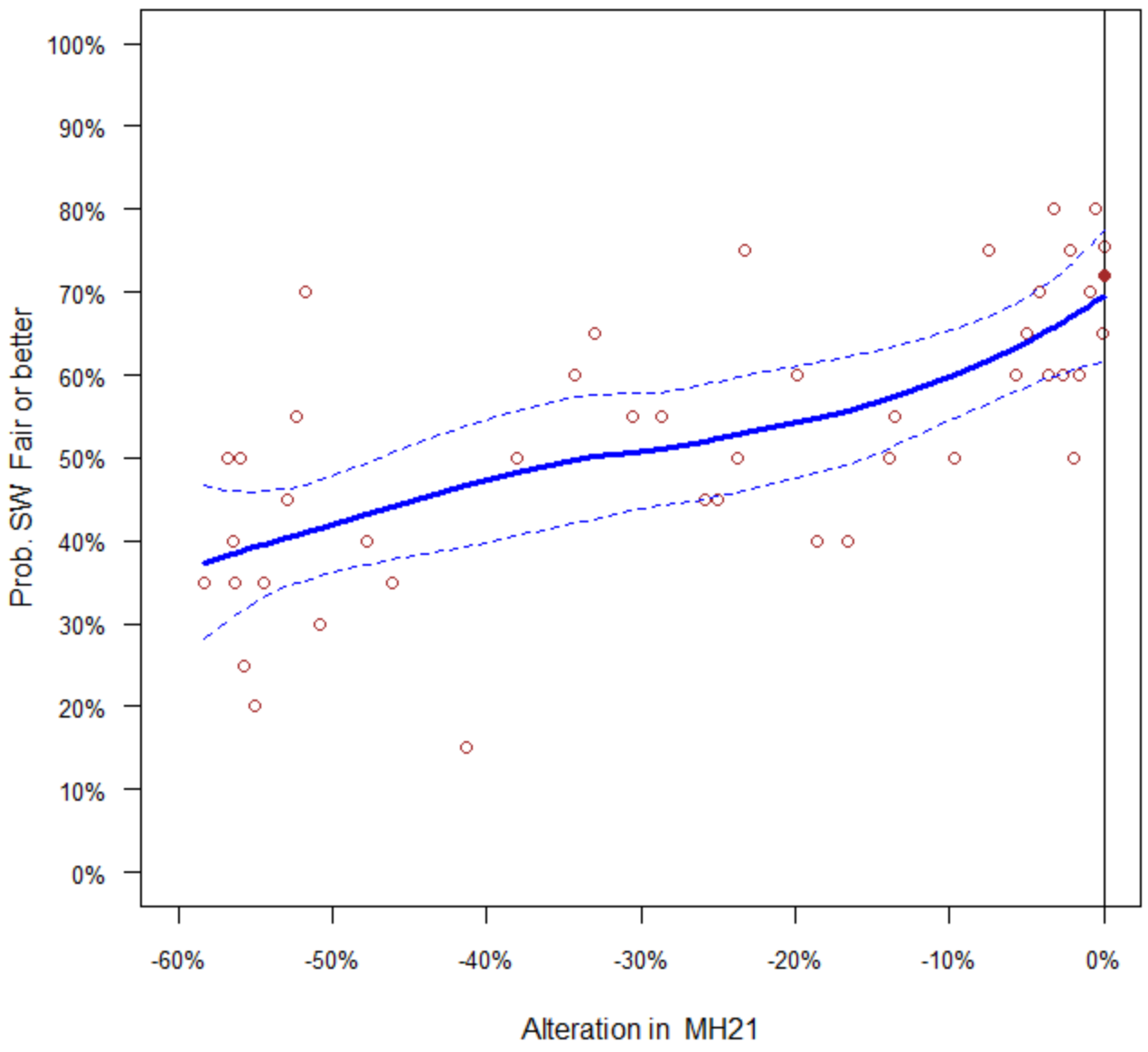
Alteration in MH21


SW ~ Alteration in MH21
Prob. SW Fair or better
100%
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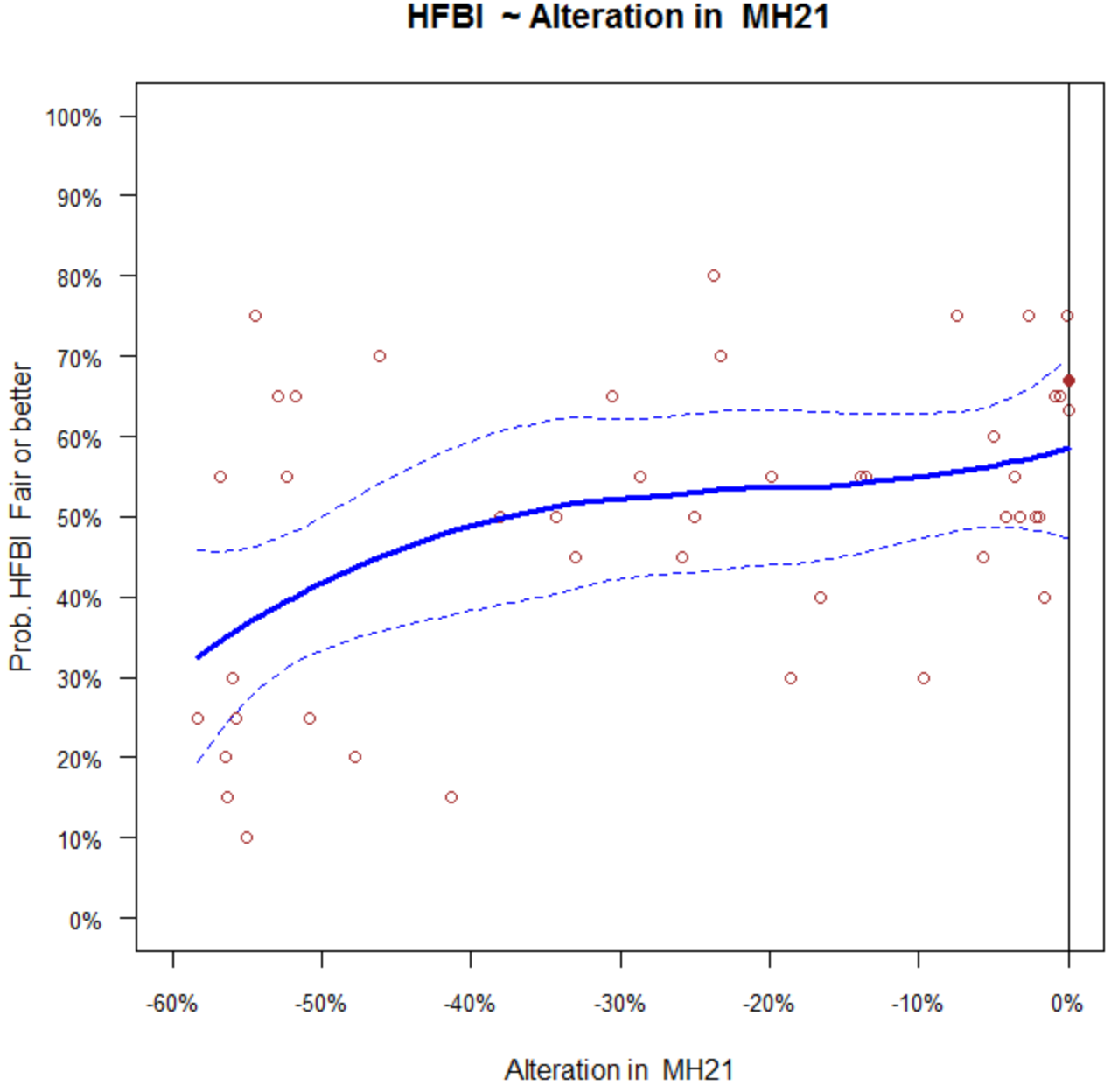
Alteration in MH21


HFBI ~ Alteration in MH21
Prob. HFBI Fair or better
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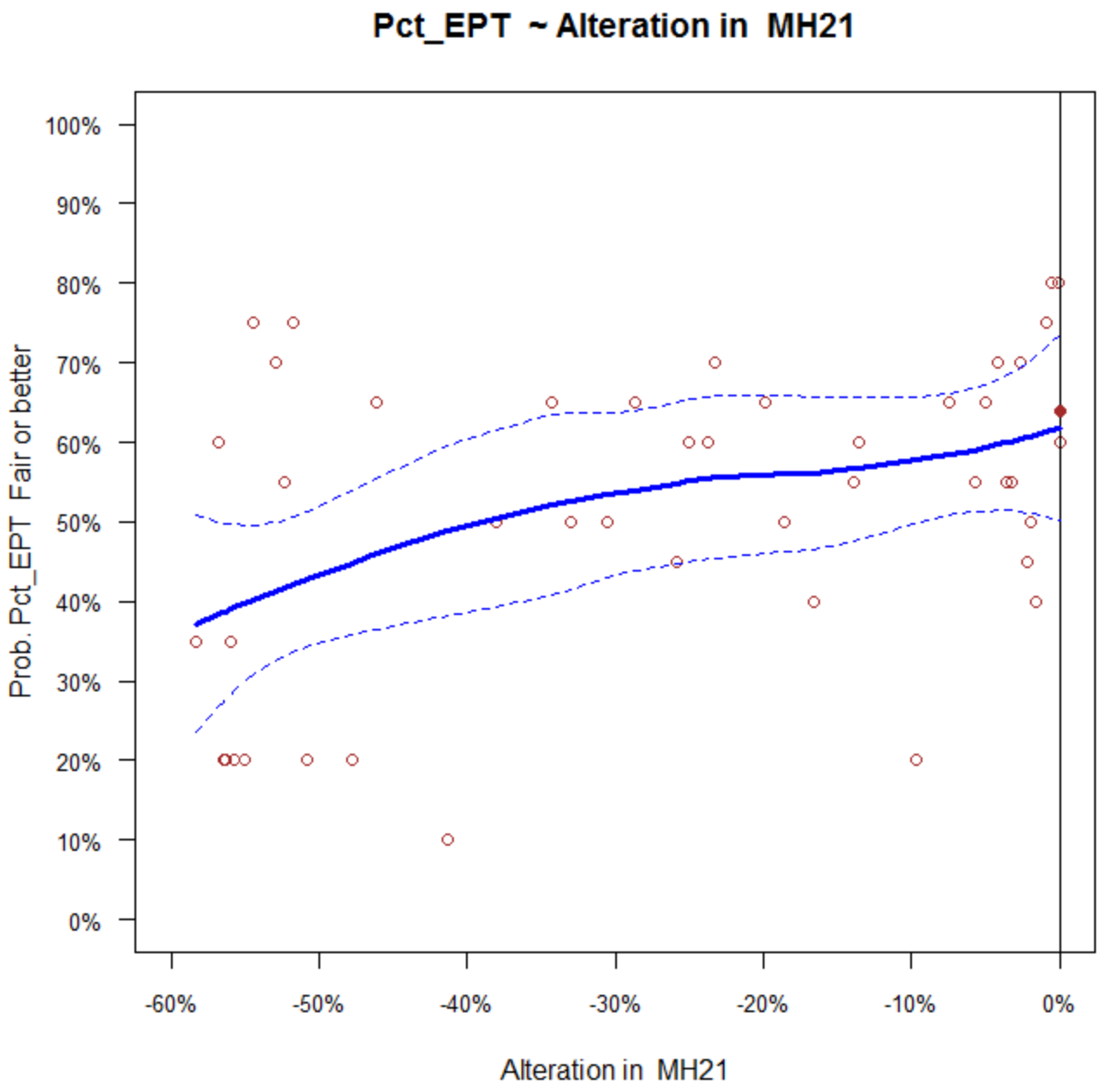
Alteration in MH21


Pct_EPT ~ Alteration in MH21
Prob. Pct_EPT Fair or better
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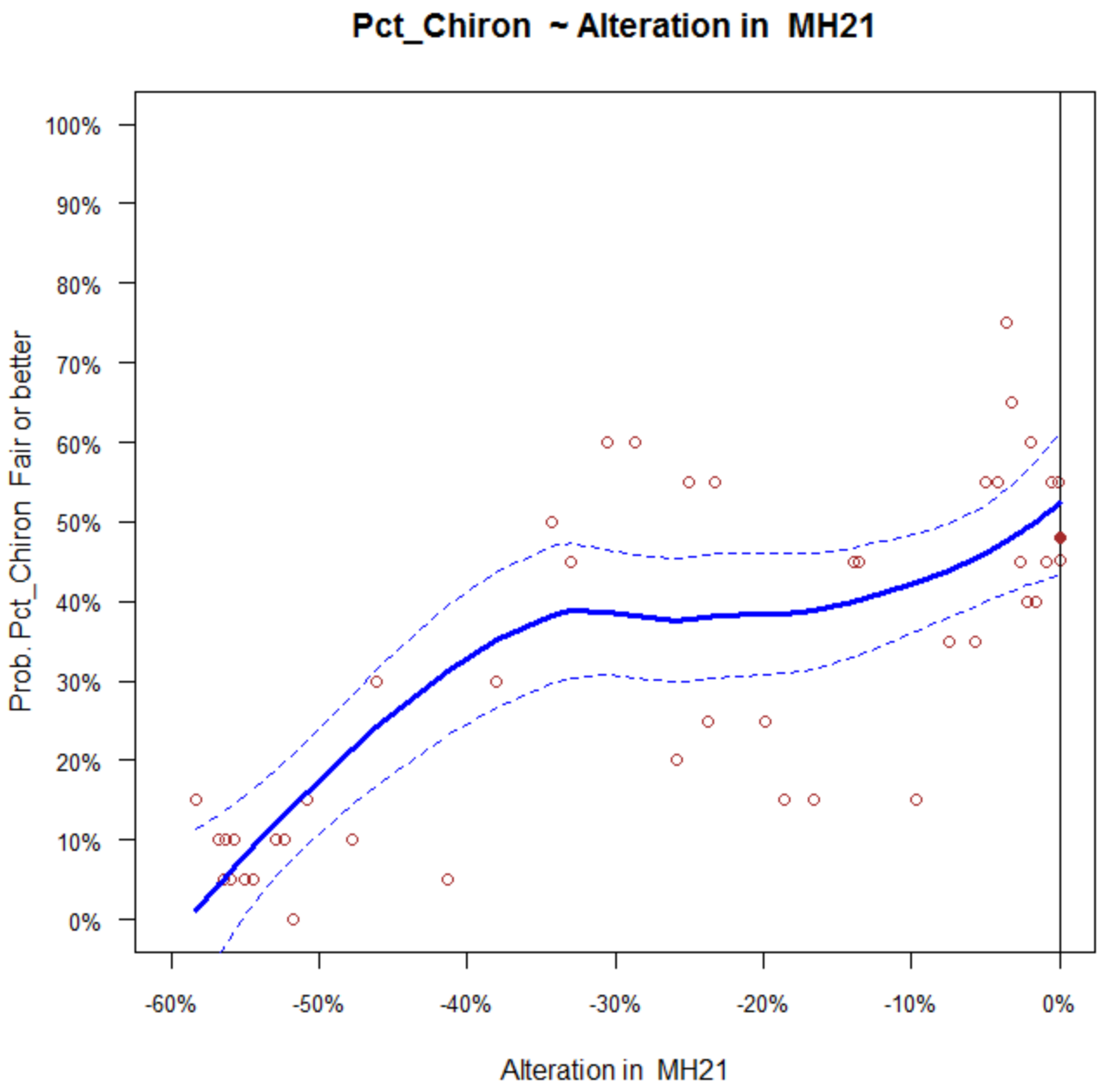
Alteration in MH21


Pct_Chiron ~ Alteration in MH21
Prob. Pct_Chiron Fair or better
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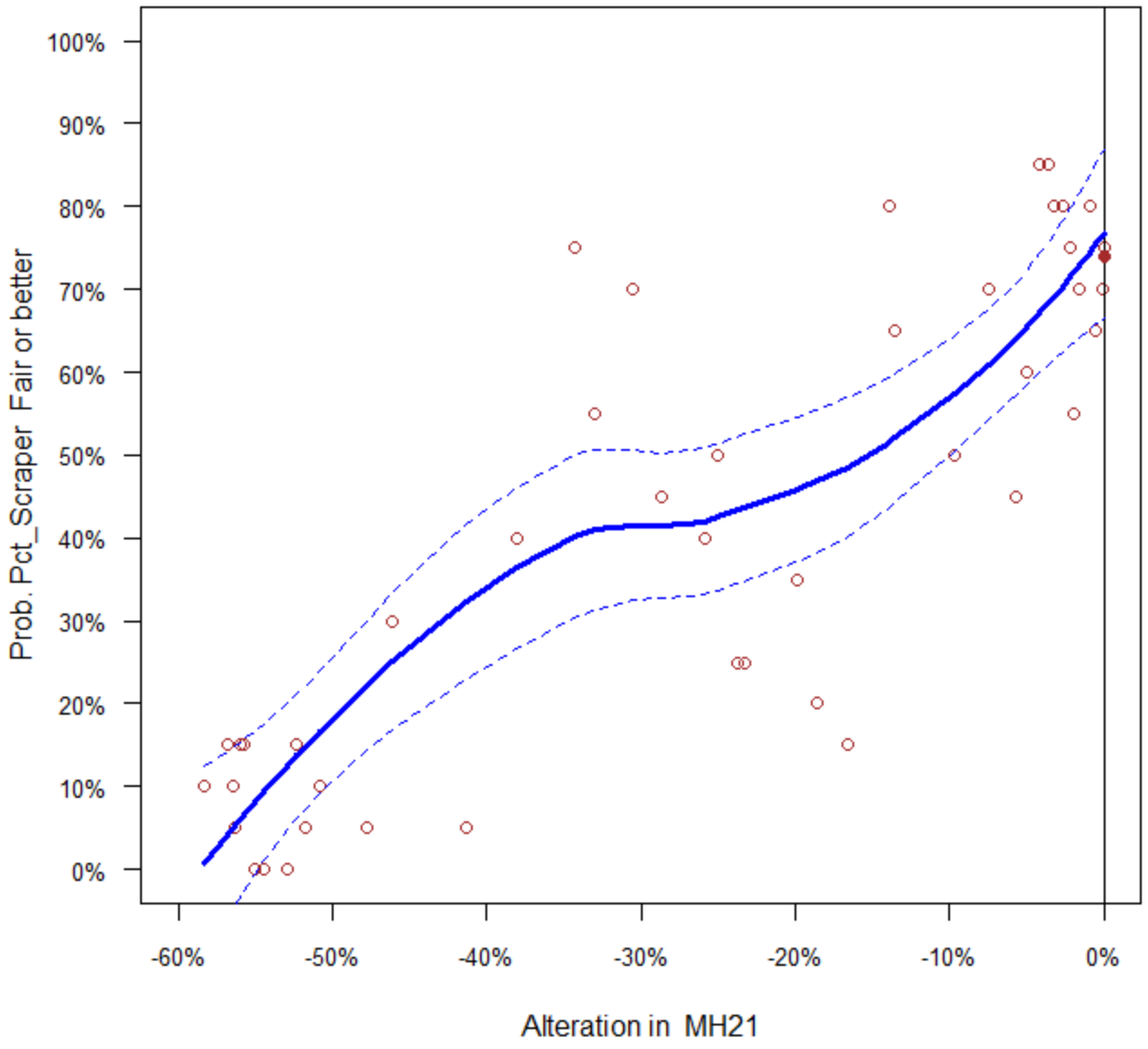
Alteration in MH21


Pct_Scraper ~ Alteration in MH21
Prob. Pct_Scraper Fair or better
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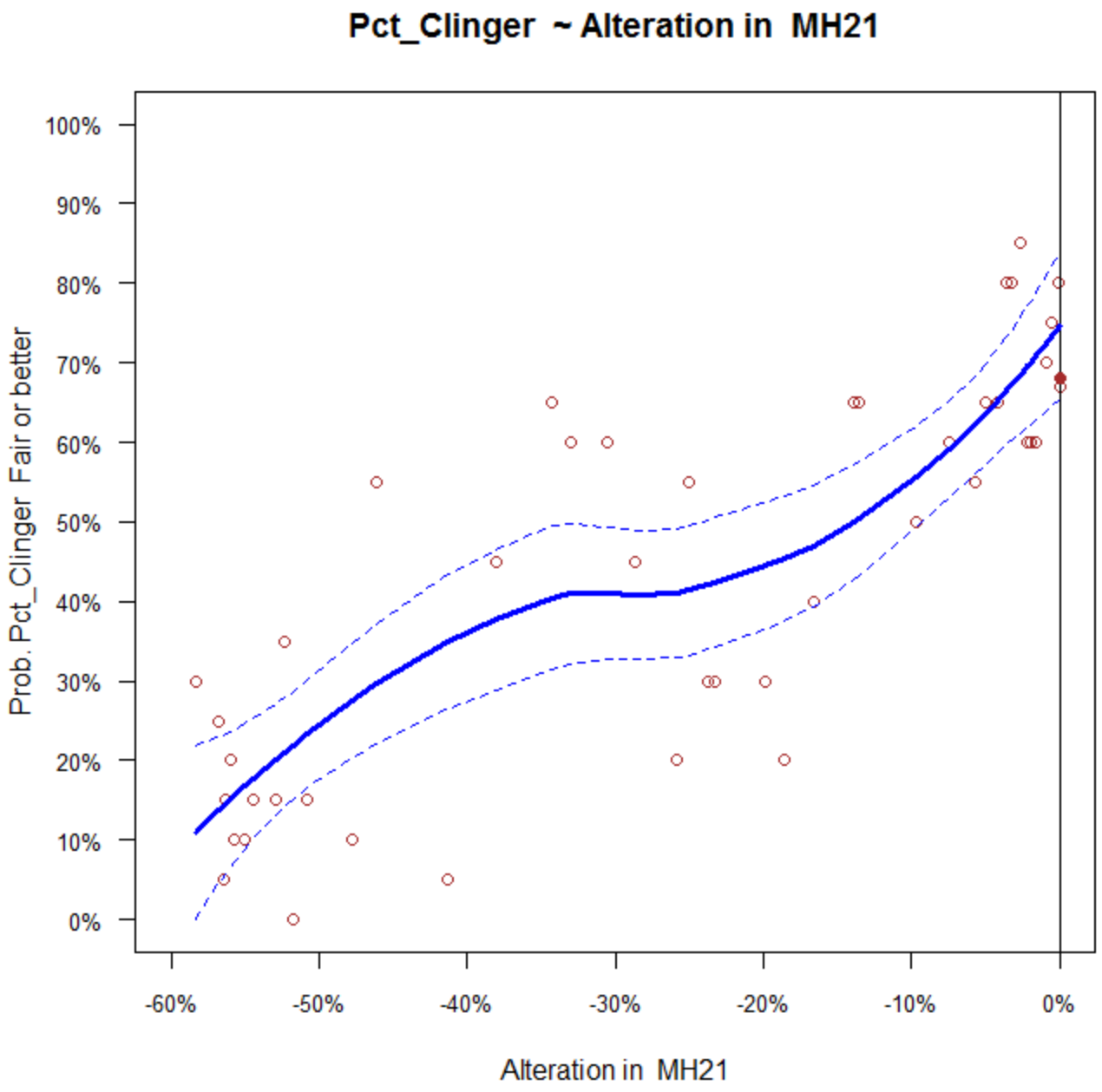
Alteration in MH21


Pct_Clinger ~ Alteration in MH21
Prob. Pct_Clinger Fair or better
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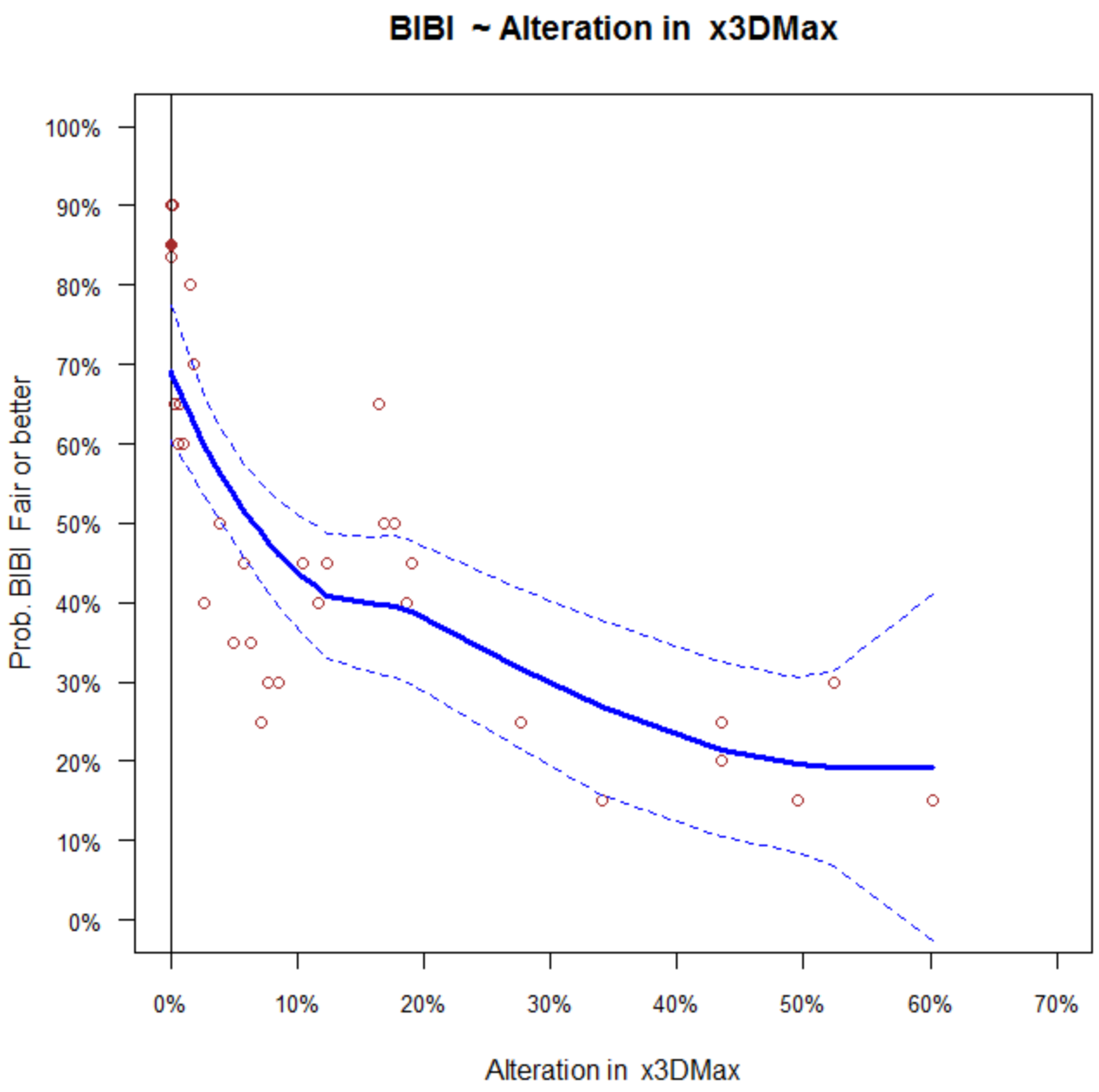
Alteration in MH21


BIBI ~ Alteration in x3DMax
Prob. BIBI Fair or better
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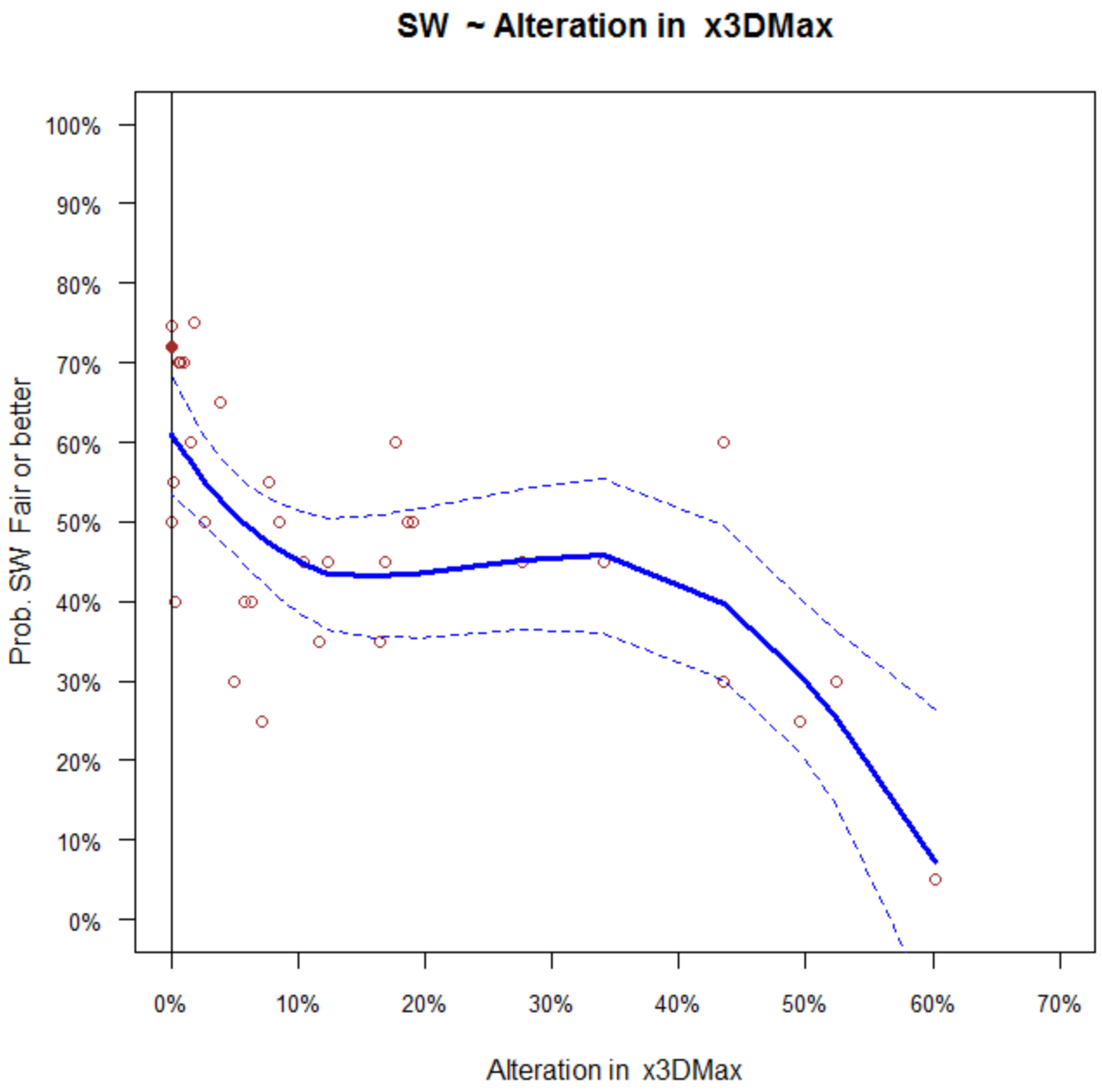
Alteration in x3DMax


SW ~ Alteration in x3DMax
Prob. SW Fair or better
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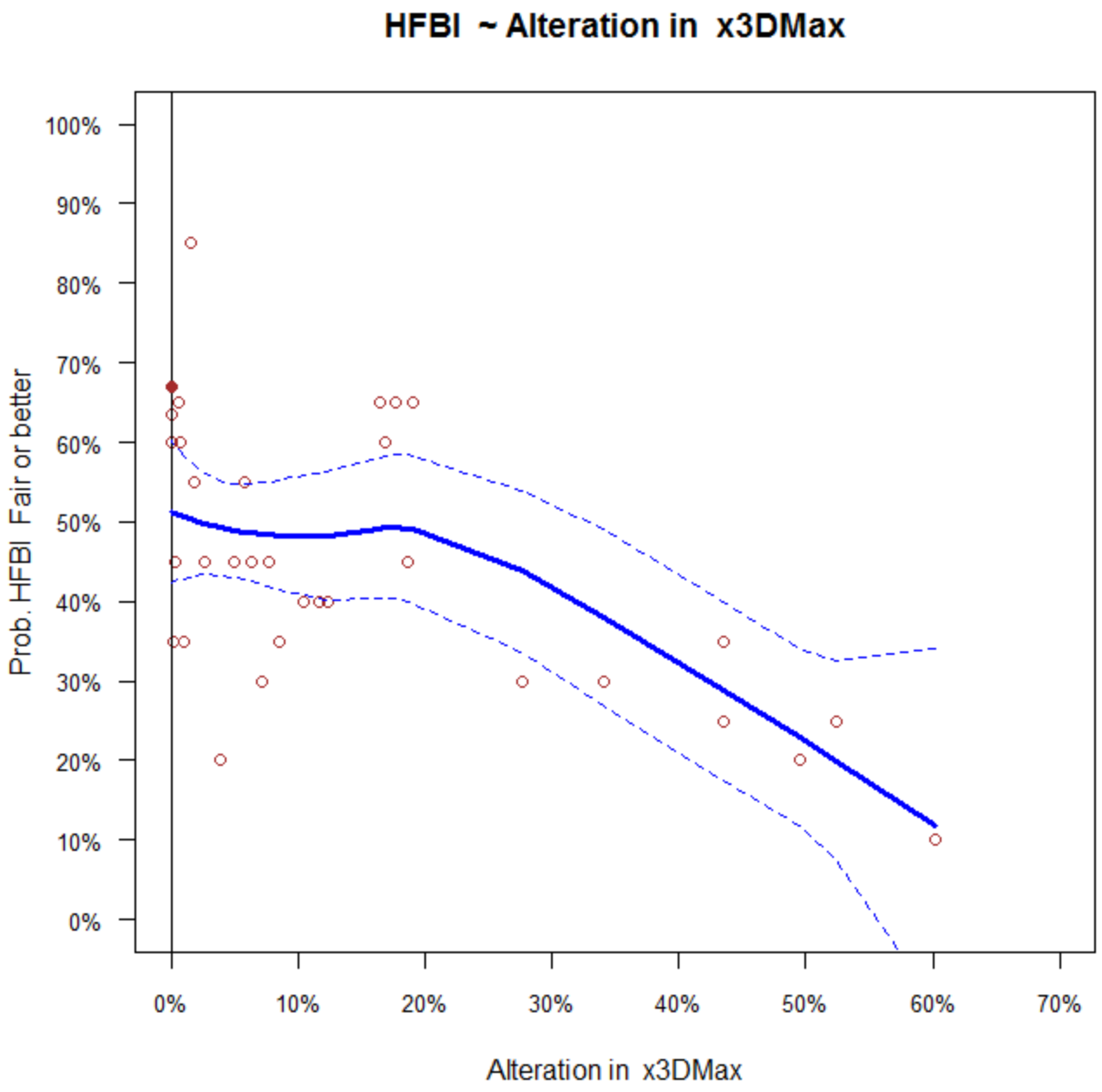
Alteration in x3DMax


HFBI ~ Alteration in x3DMax
Prob. HFBI Fair or better
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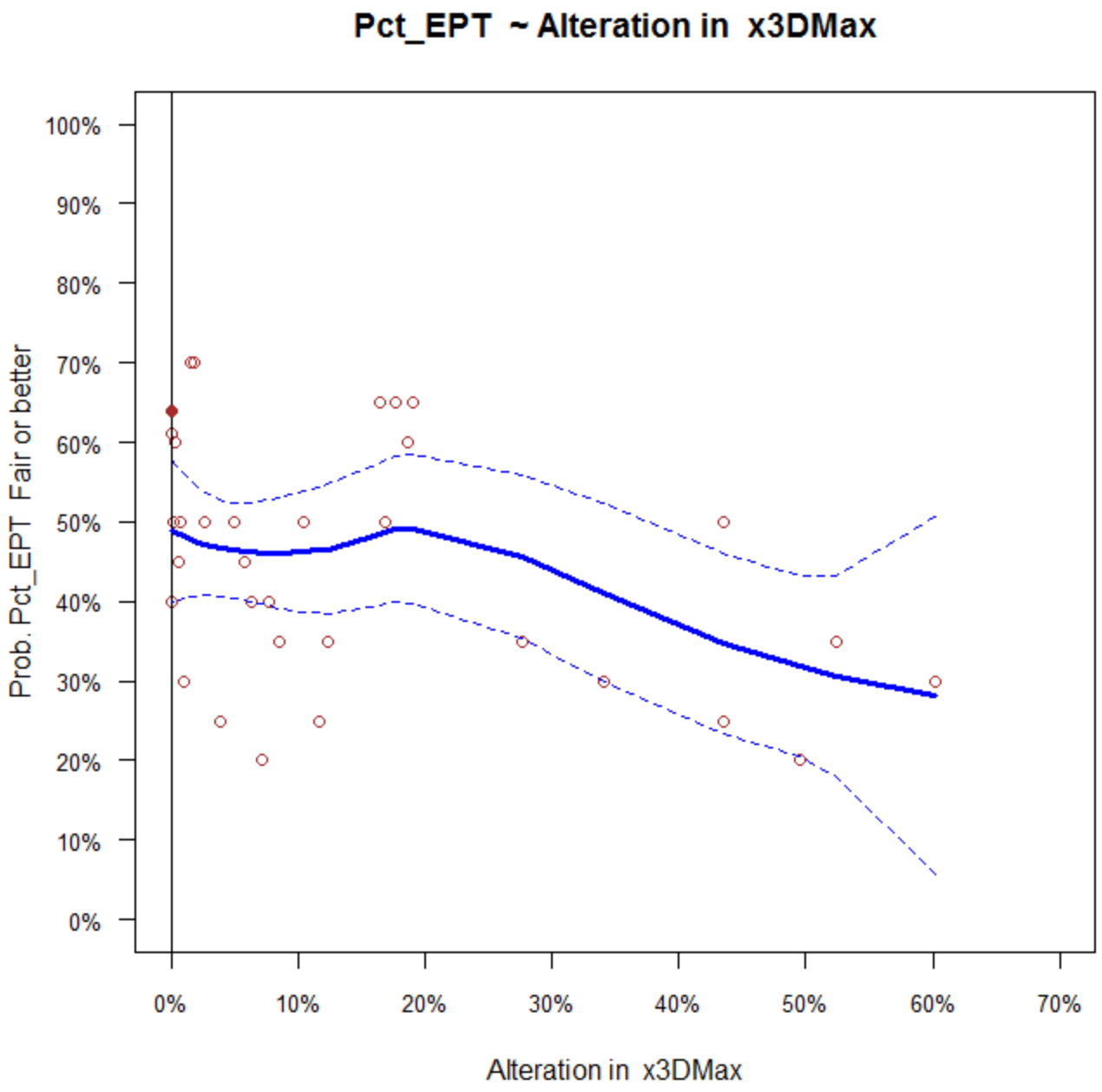
Alteration in x3DMax


Pct_EPT ~ Alteration in x3DMax
Prob. Pct_EPT Fair or better
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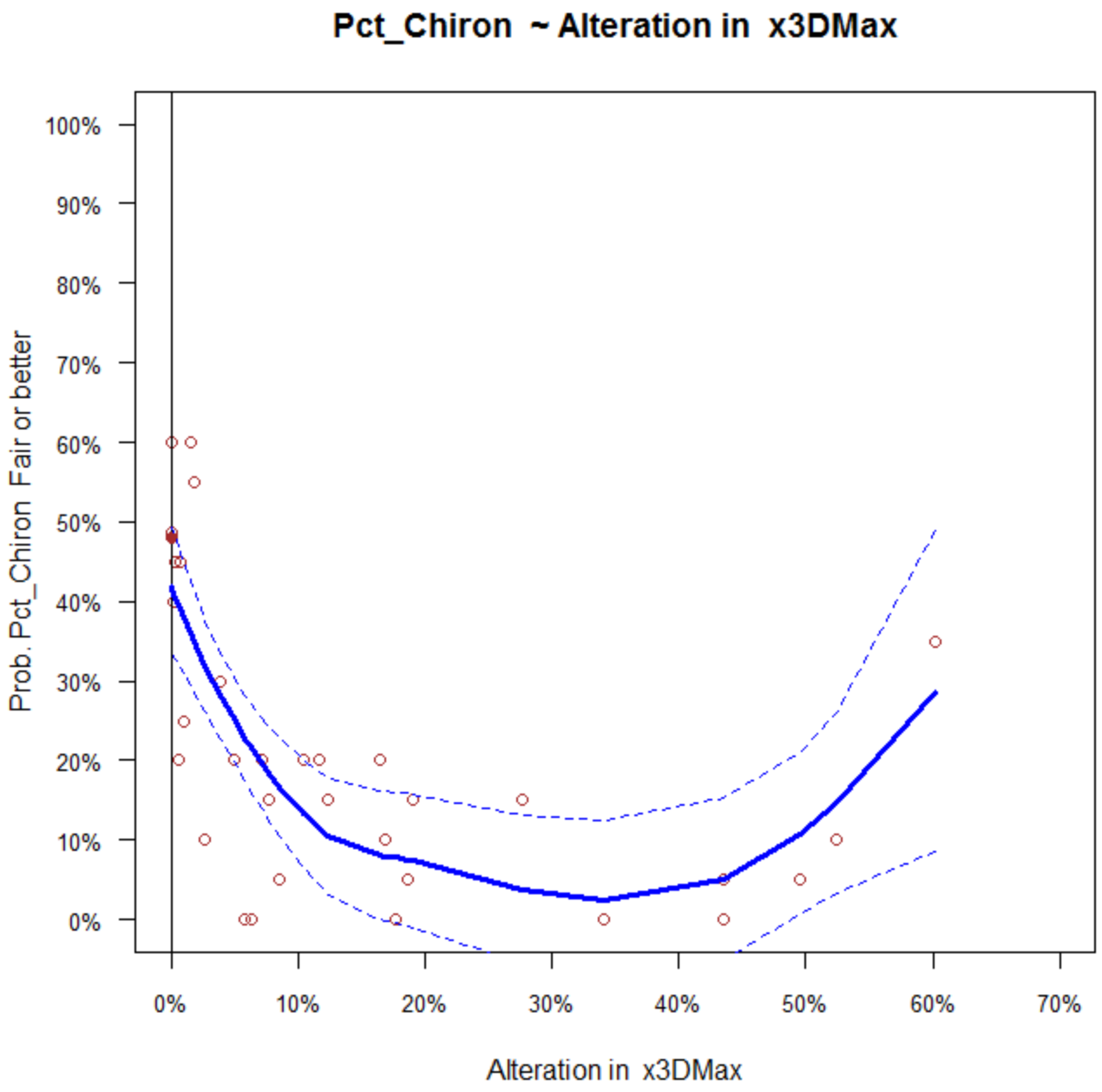
Alteration in x3DMax


Pct_Chiron ~ Alteration in x3DMax
Prob. Pct_Chiron Fair or better
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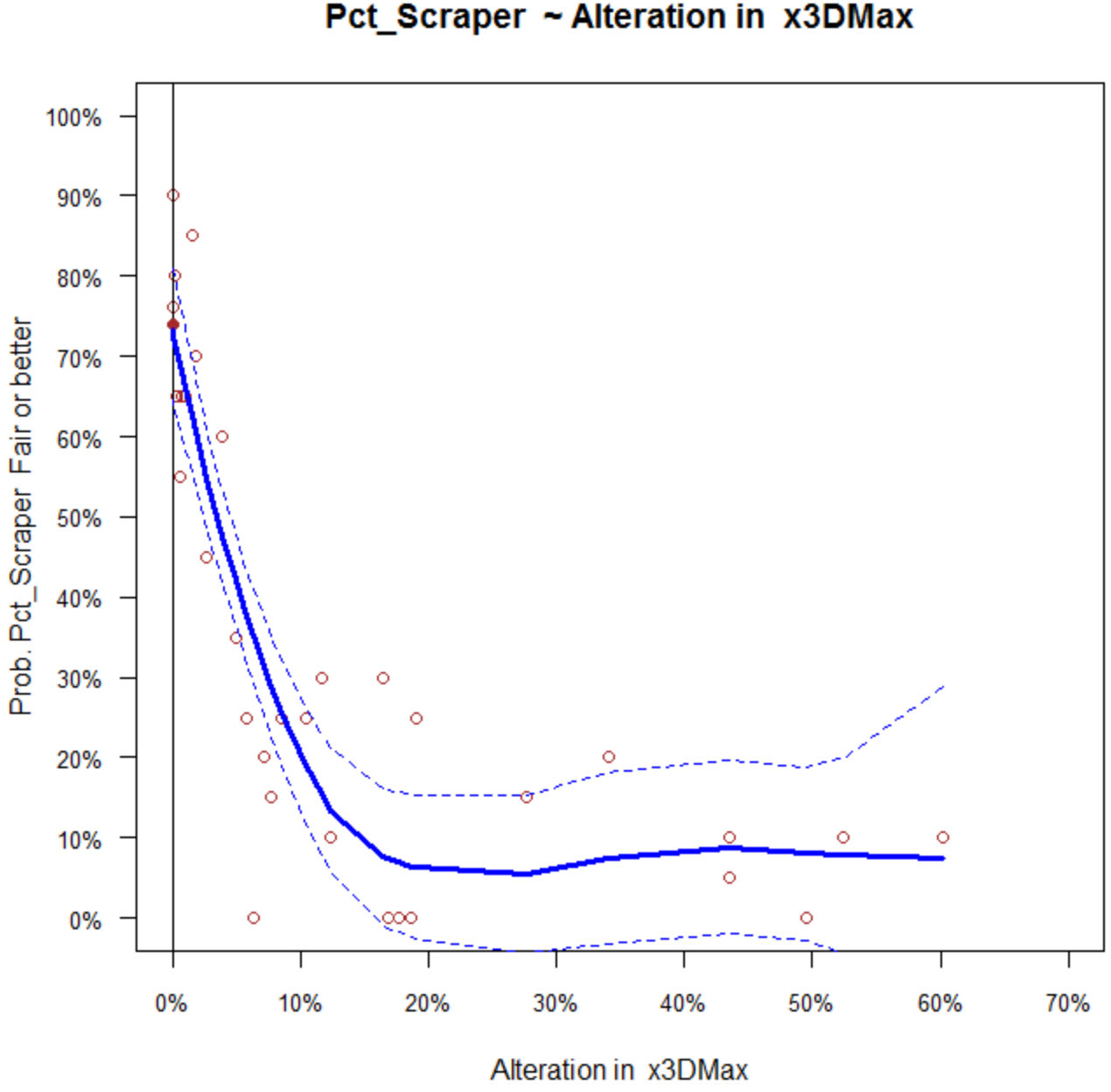
Alteration in x3DMax


Pct_Scraper ~ Alteration in x3DMax
Prob. Pct_Scraper Fair or better
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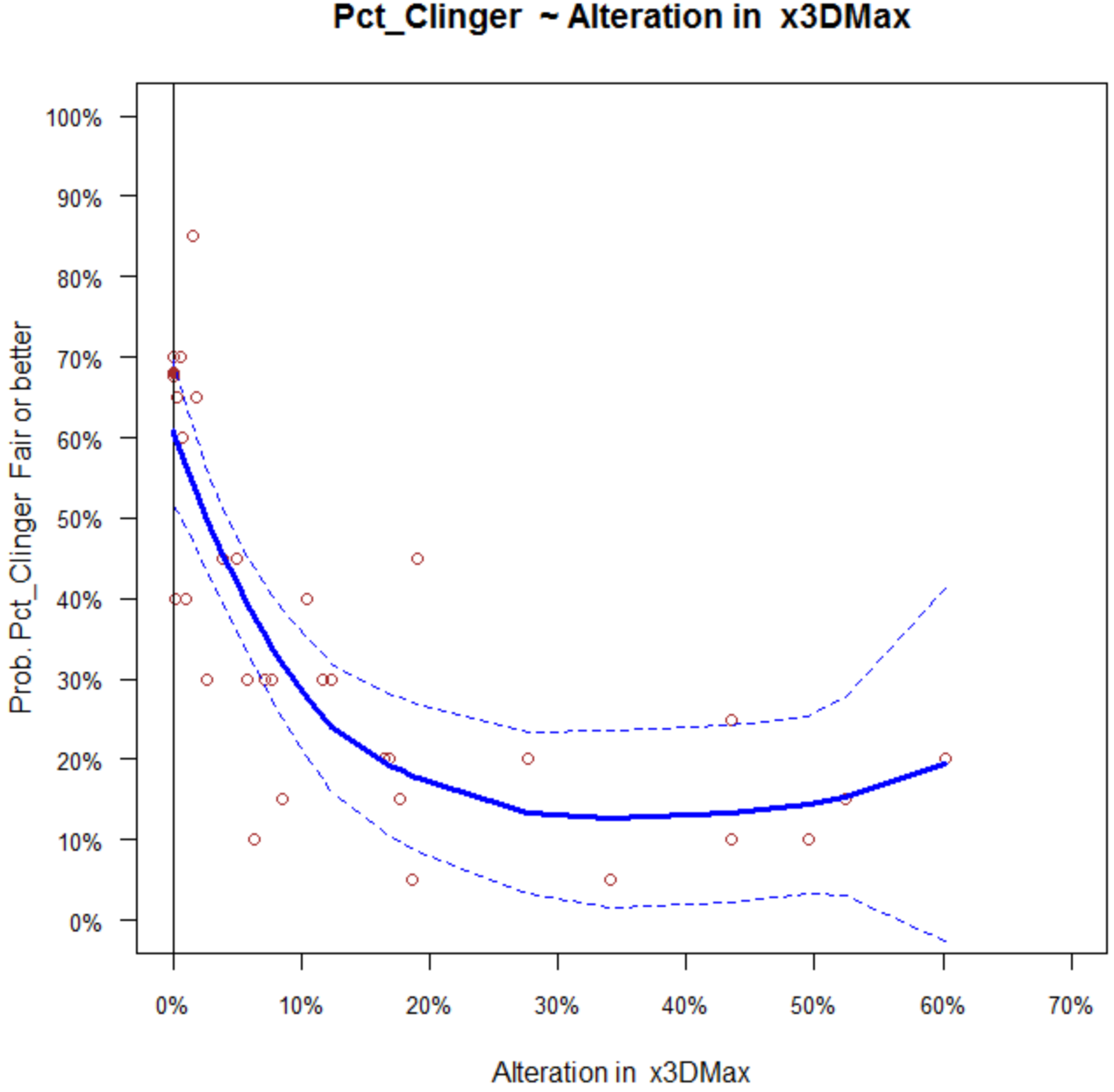
Alteration in x3DMax


Pct_Clinger ~ Alteration in x3DMax
Prob. Pct_Clinger Fair or better
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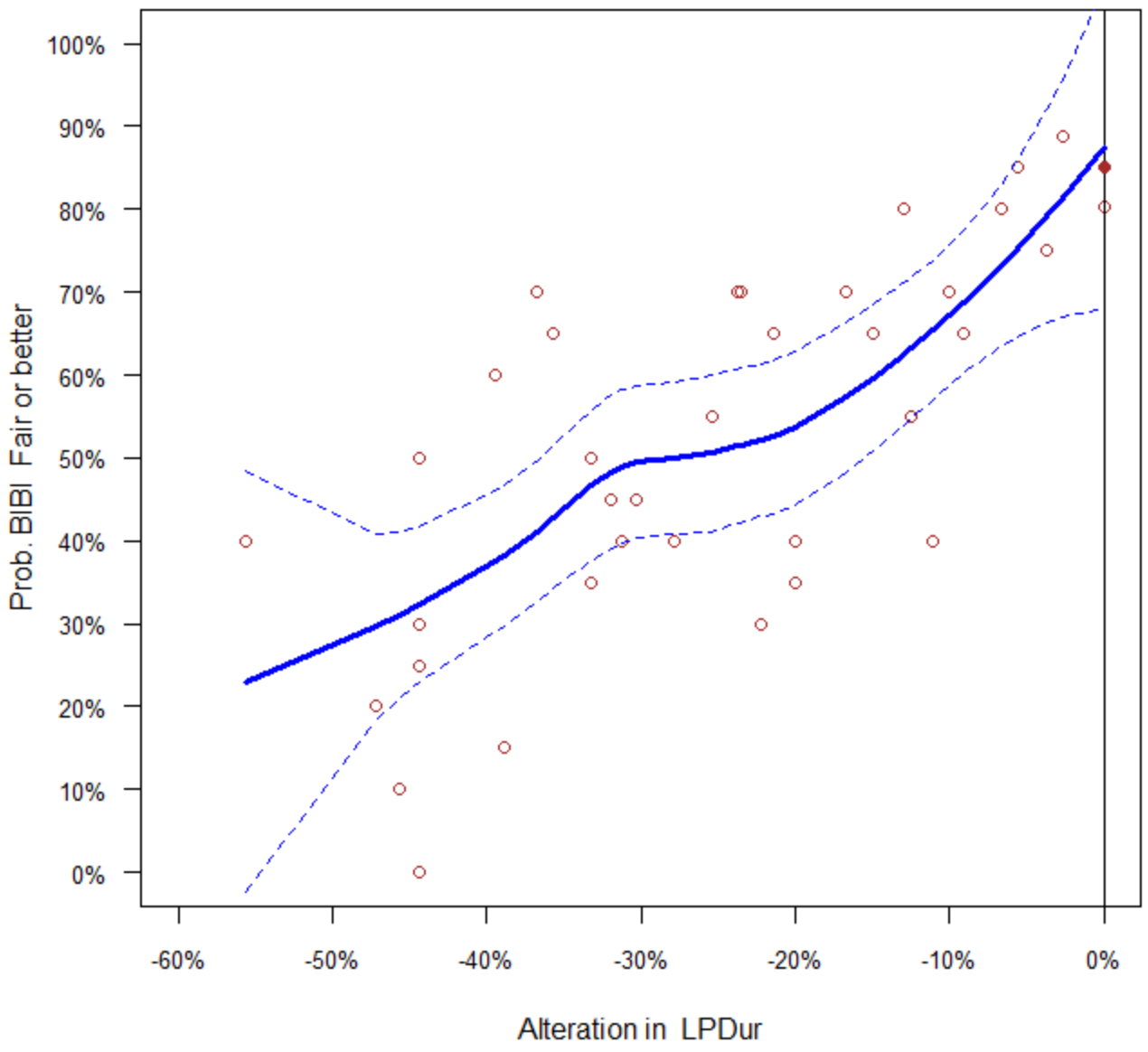
Alteration in x3DMax


BIBI ~ Alteration in LPDur
Prob. BIBI Fair or better
100%
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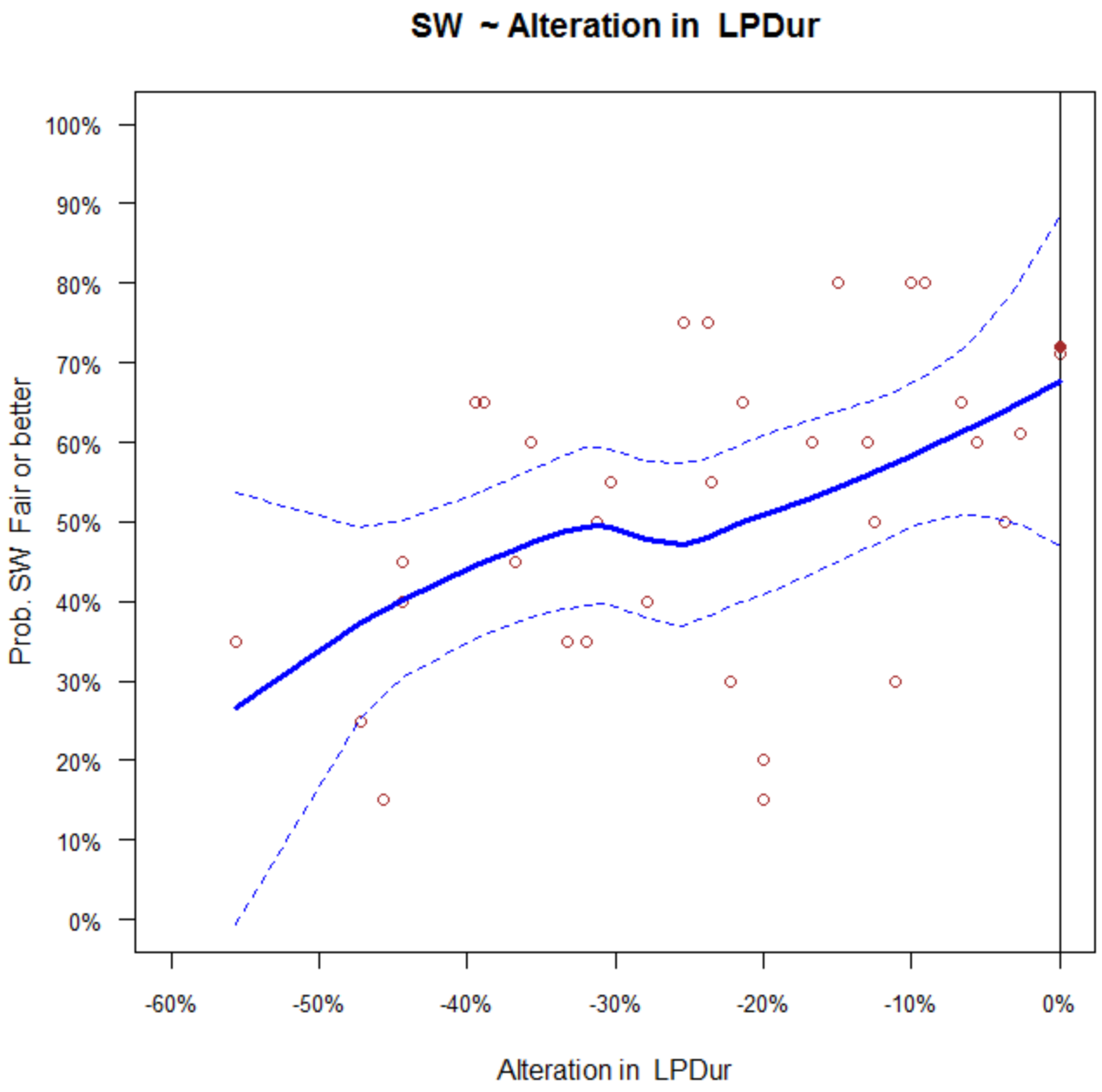
Alteration in LPDur


SW ~ Alteration in LPDur
Prob. SW Fair or better
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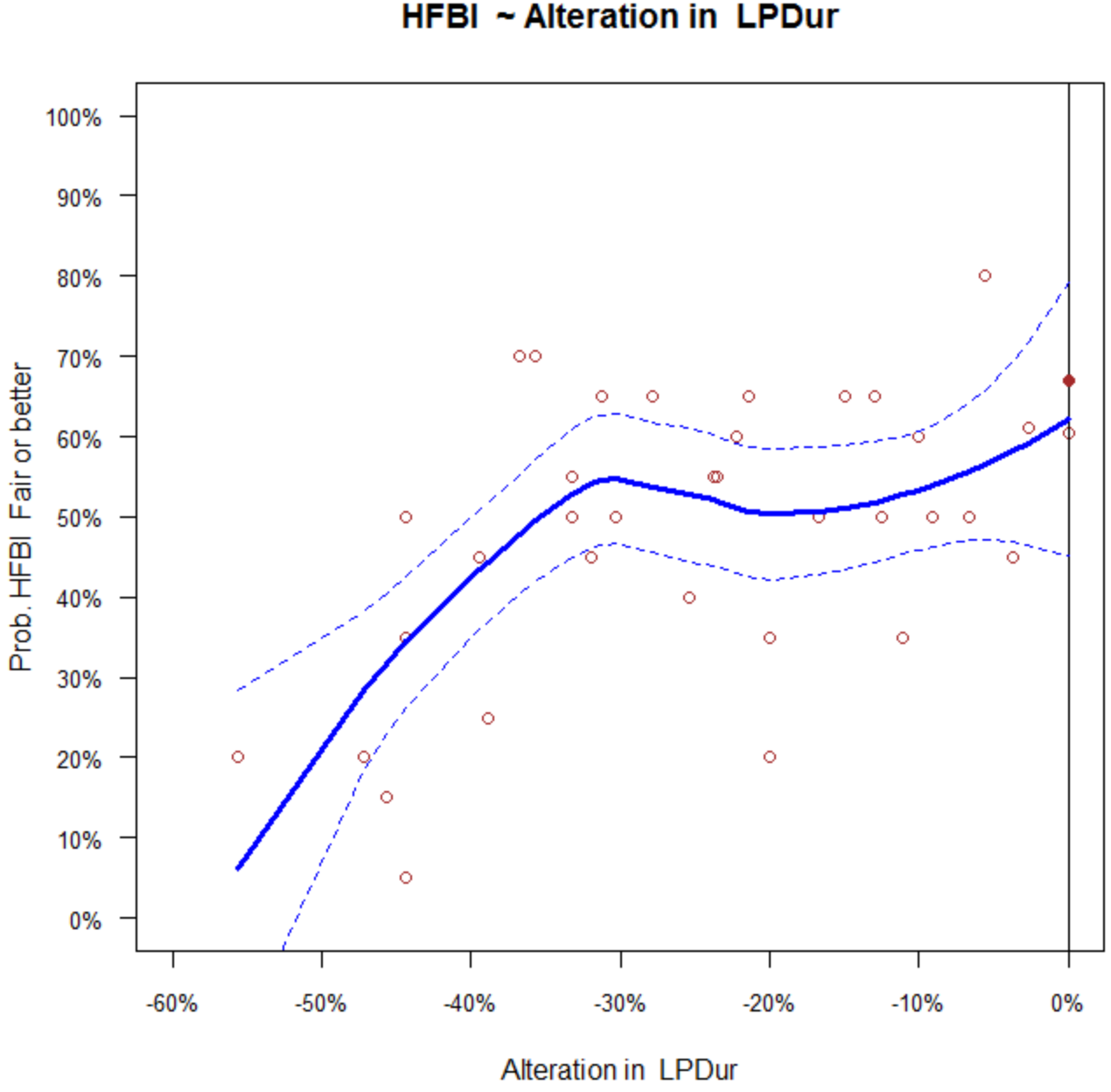
Alteration in LPDur


HFBI ~ Alteration in LPDur
Prob. HFBI Fair or better
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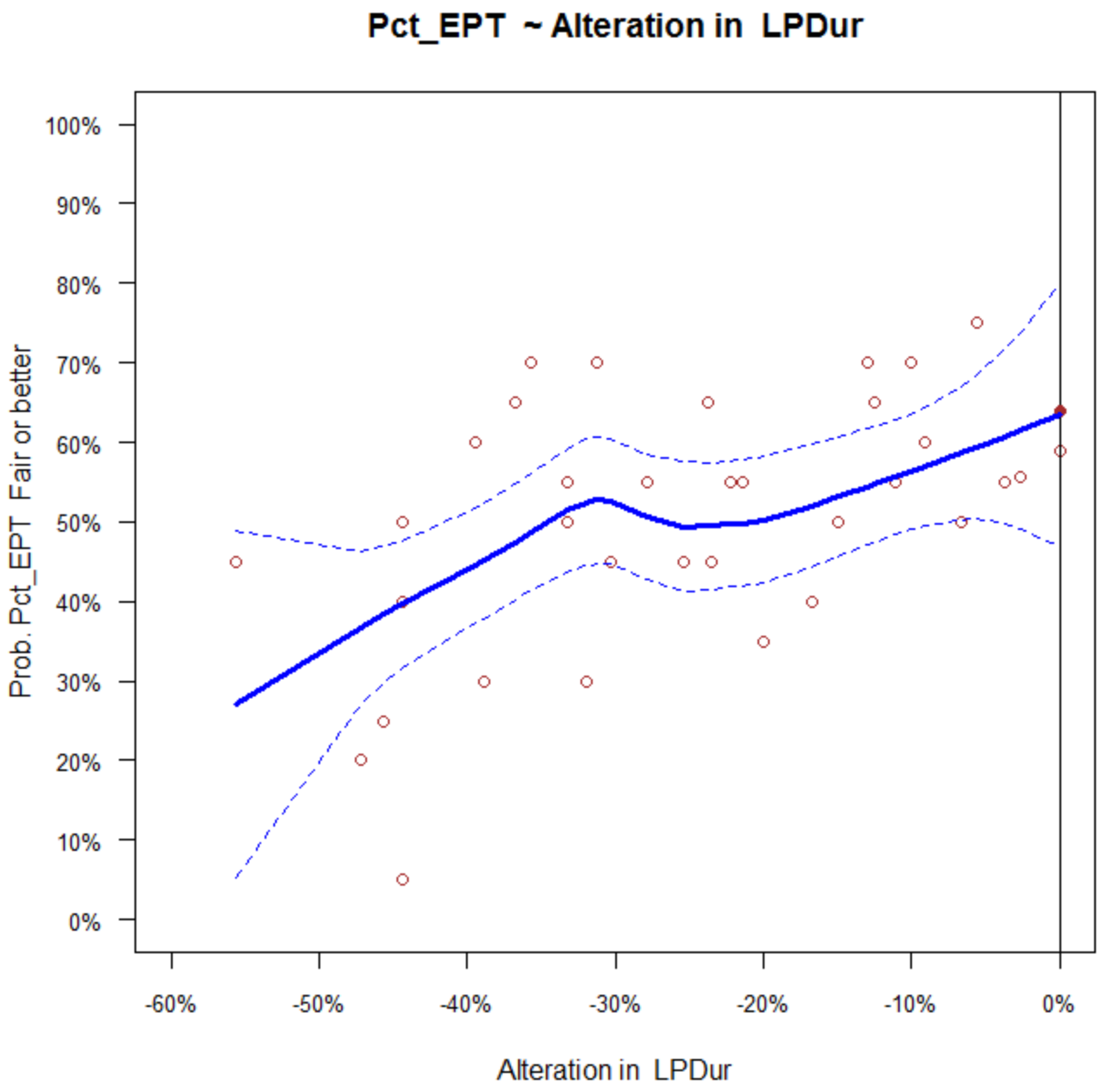
Alteration in LPDur


Pct_EPT ~ Alteration in LPDur
Prob. Pct_EPT Fair or better
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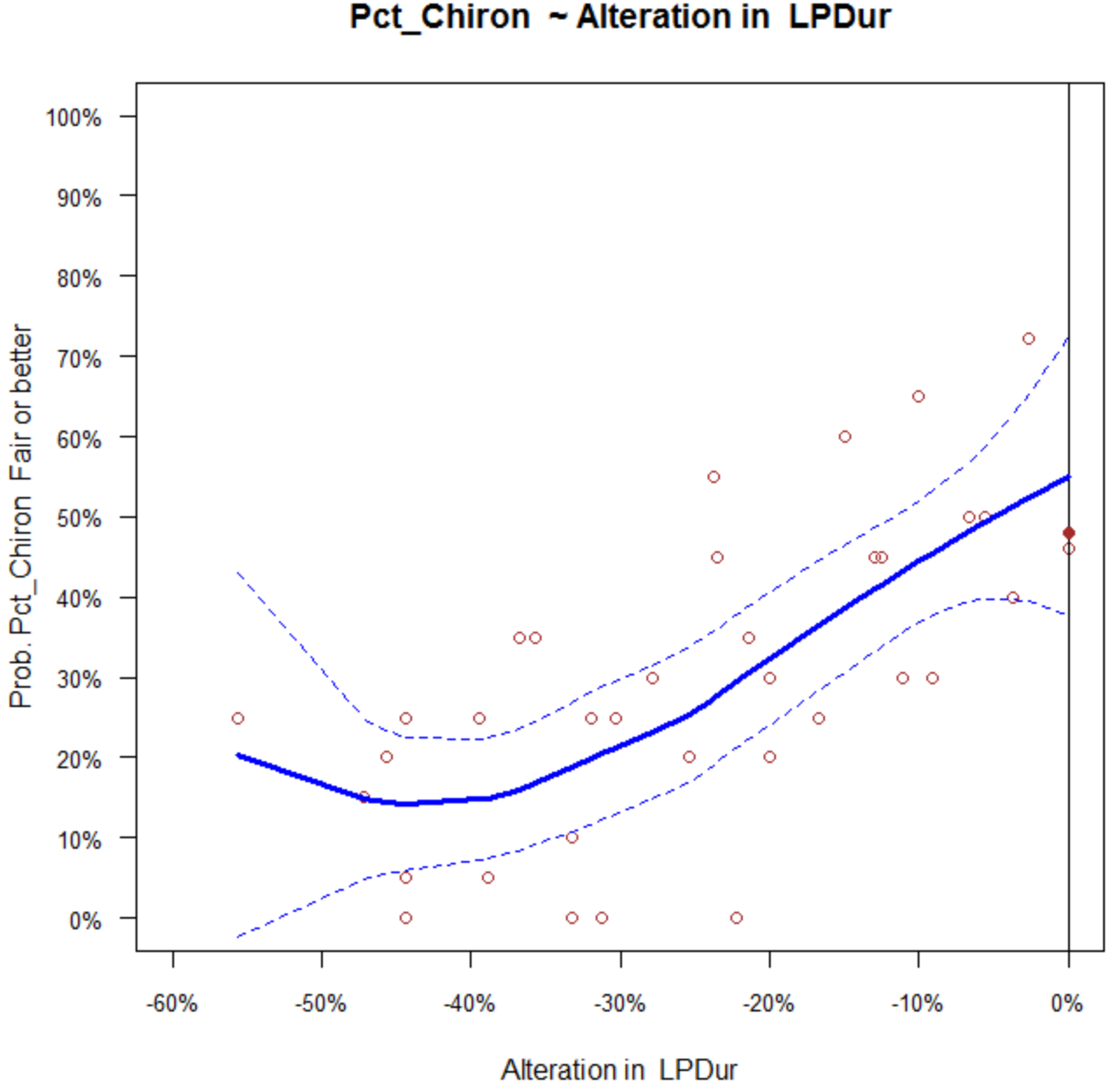
Alteration in LPDur


Pct_Chiron ~ Alteration in LPDur
Prob. Pct_Chiron Fair or better
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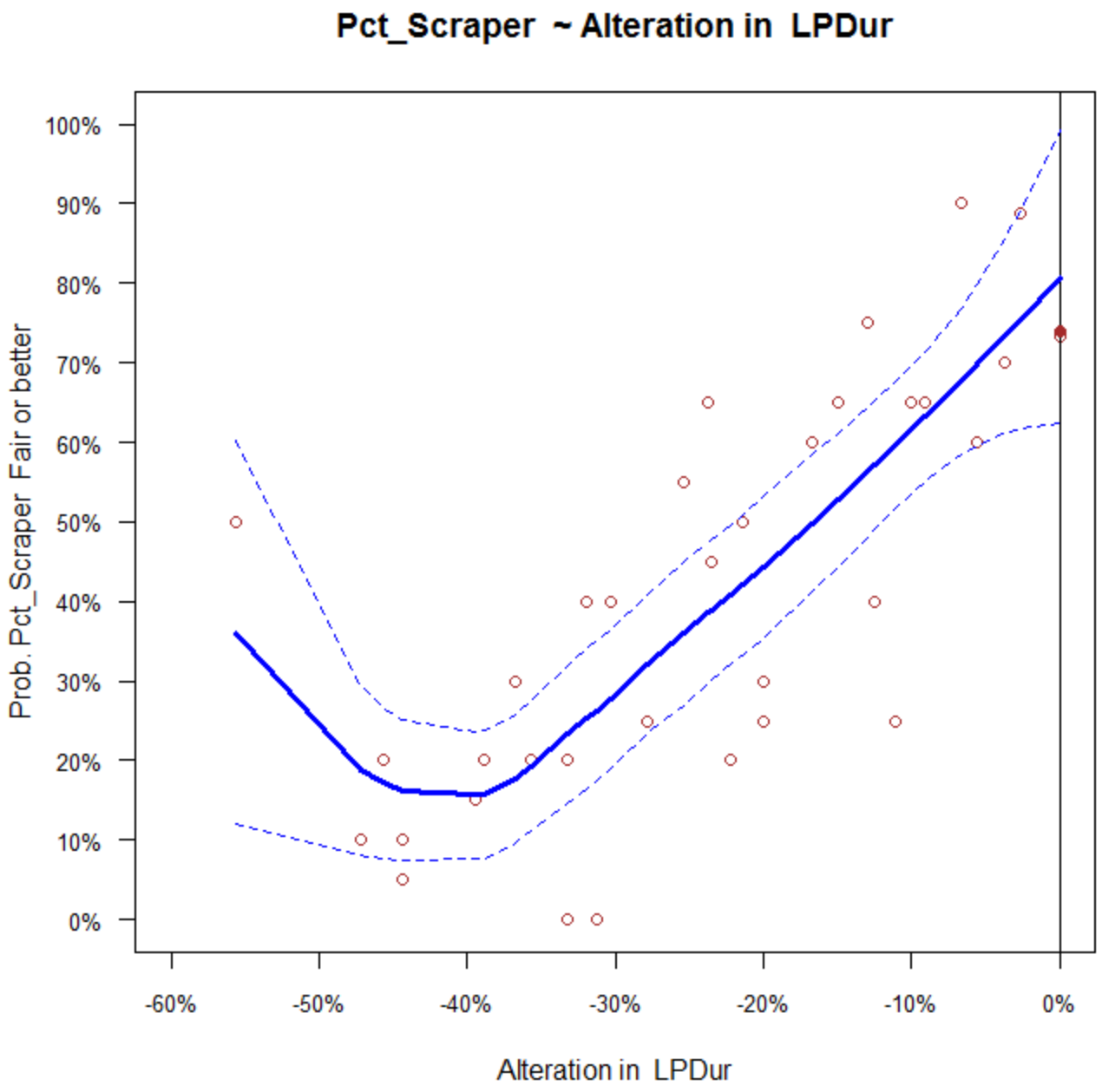
Alteration in LPDur


Pct_Scraper ~ Alteration in LPDur
Prob. Pct_Scraper Fair or better
100%
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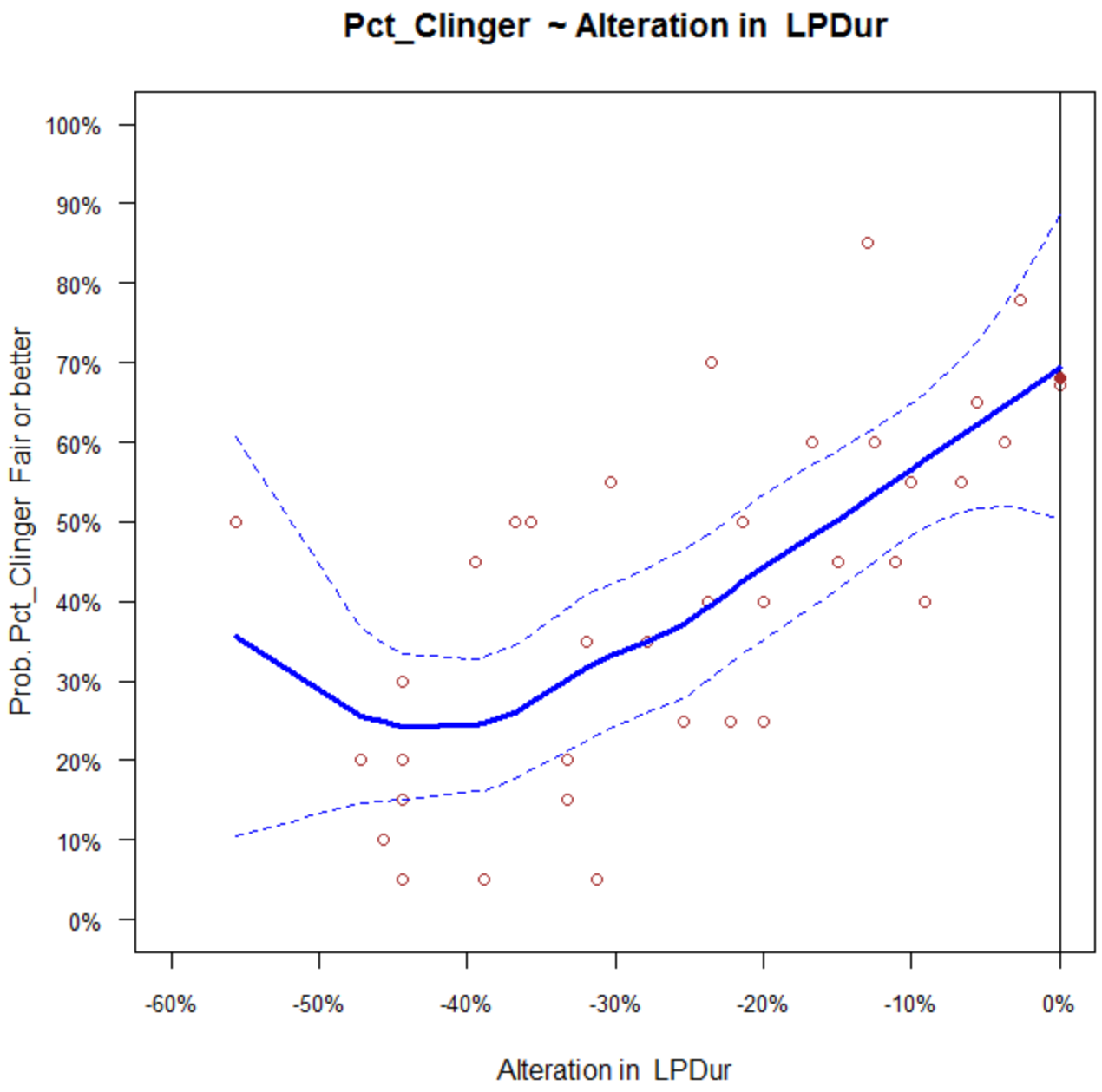
Alteration in LPDur


Pct_Clinger ~ Alteration in LPDur
Prob. Pct_Clinger Fair or better
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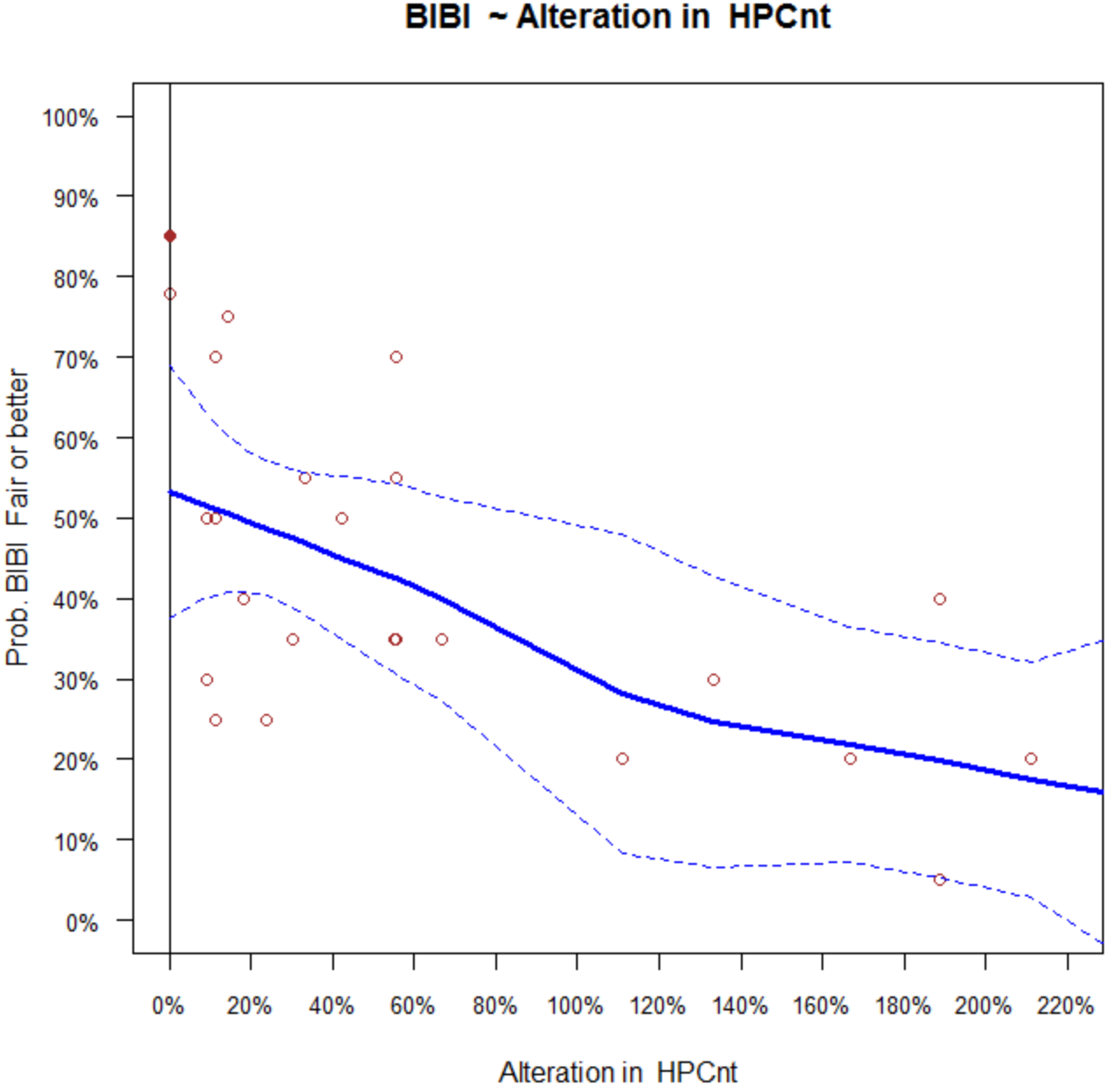
Alteration in LPDur


BIBI ~ Alteration in HPCnt
Prob. BIBI Fair or better
100%
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160%
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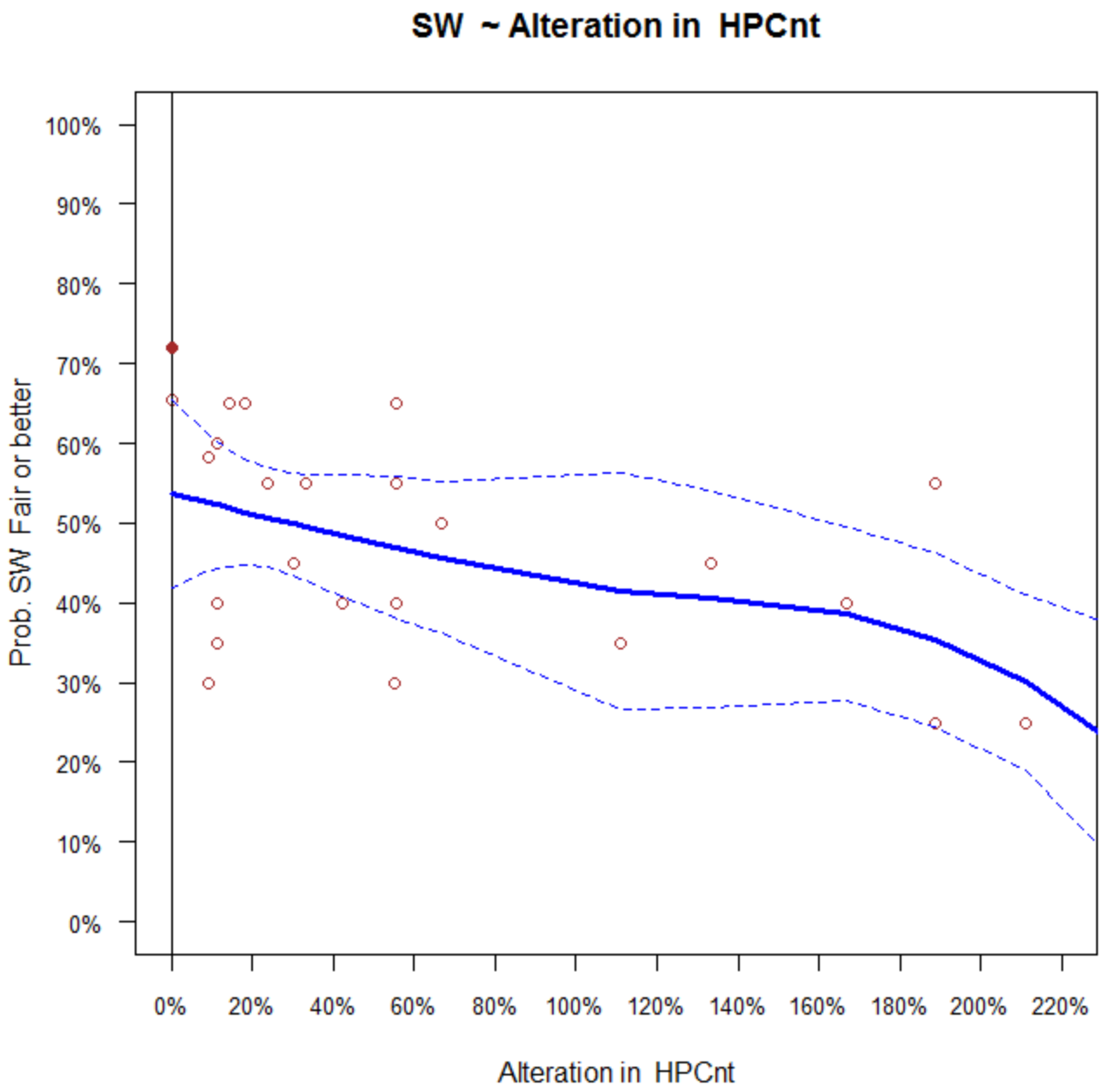
220%
Alteration in HPCnt


SW ~ Alteration in HPCnt
Prob. SW Fair or better
100%
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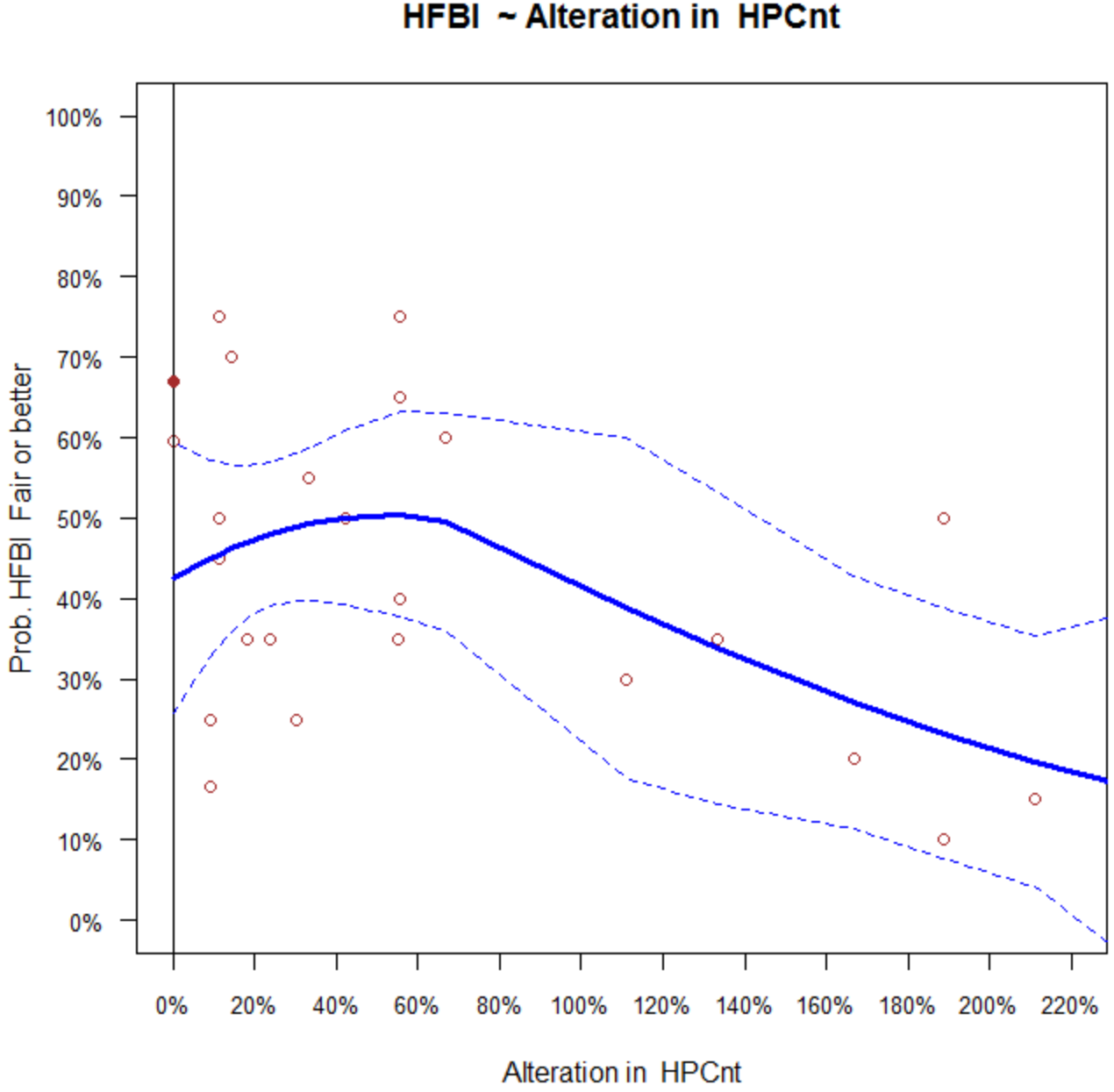
Alteration in HPCnt


HFBI ~ Alteration in HPCnt
Prob. HFBI Fair or better
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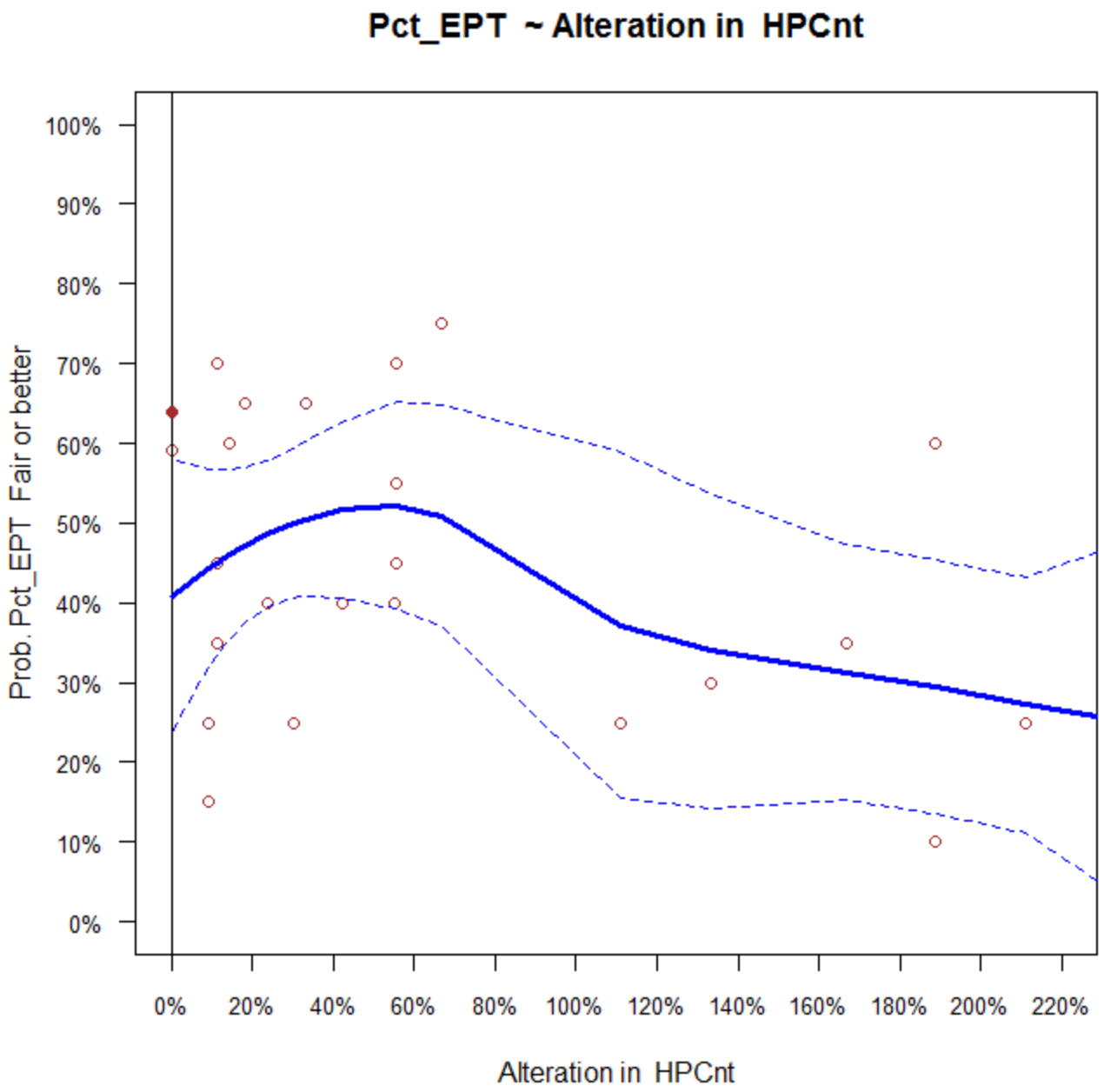
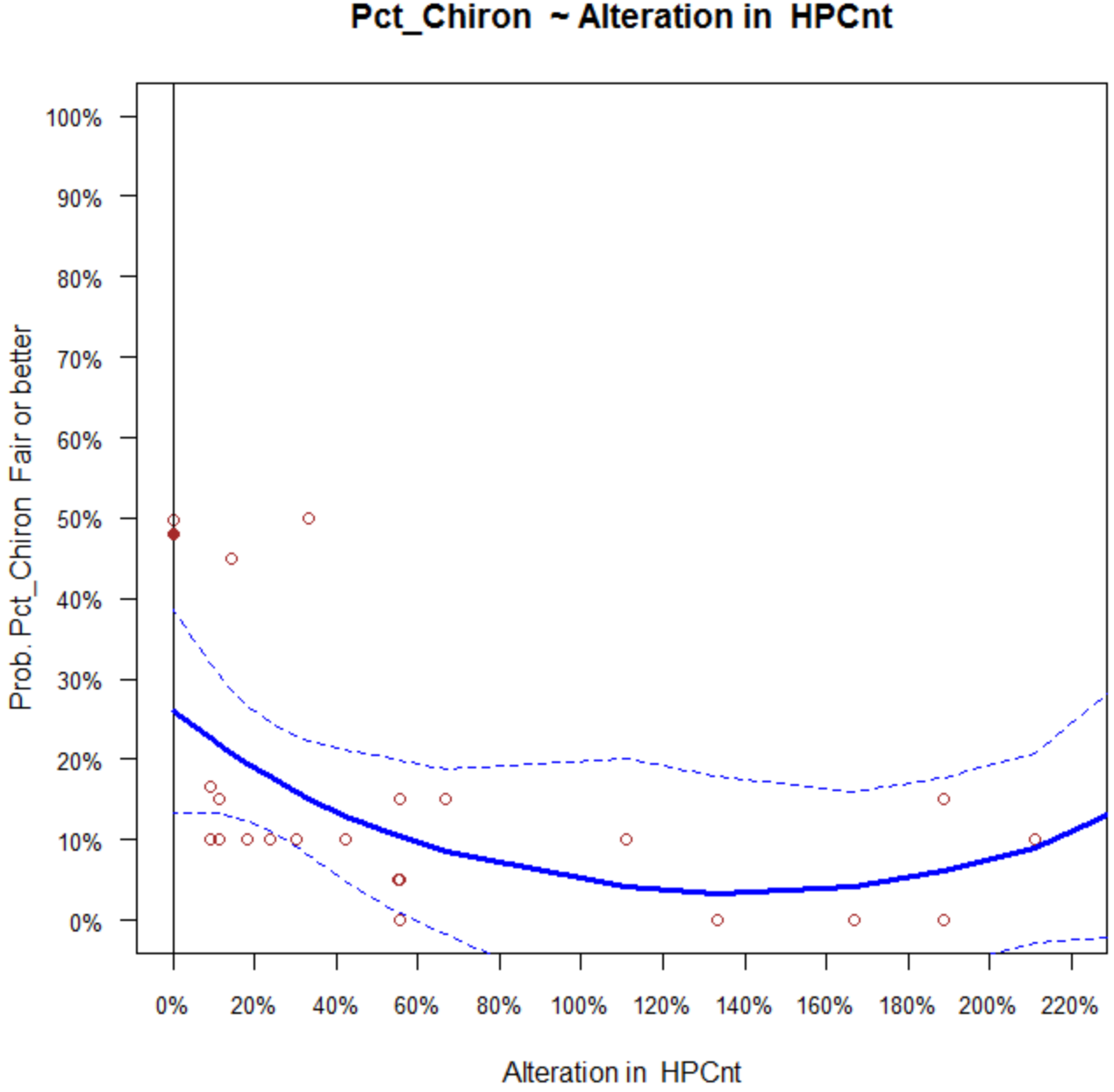
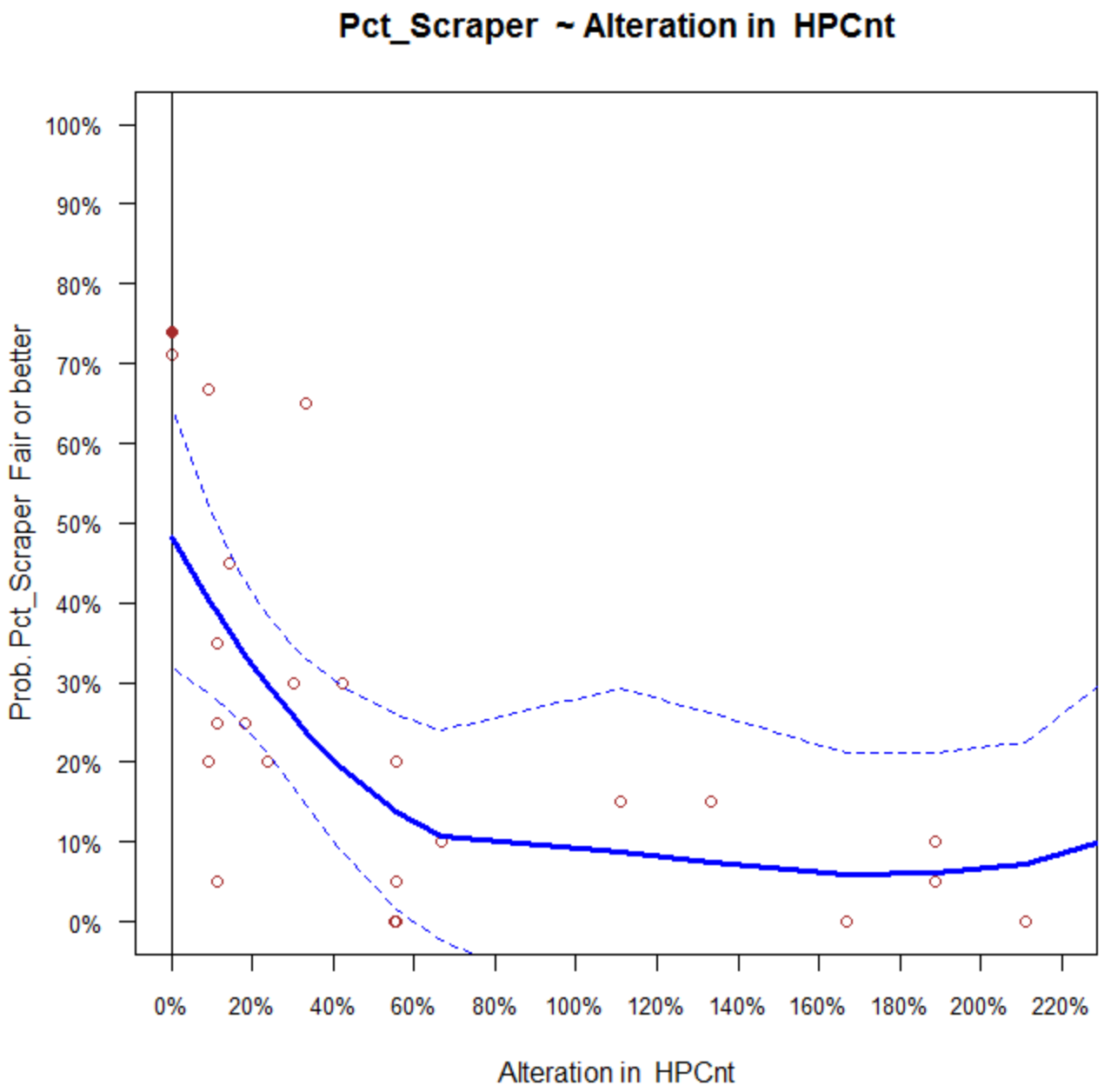
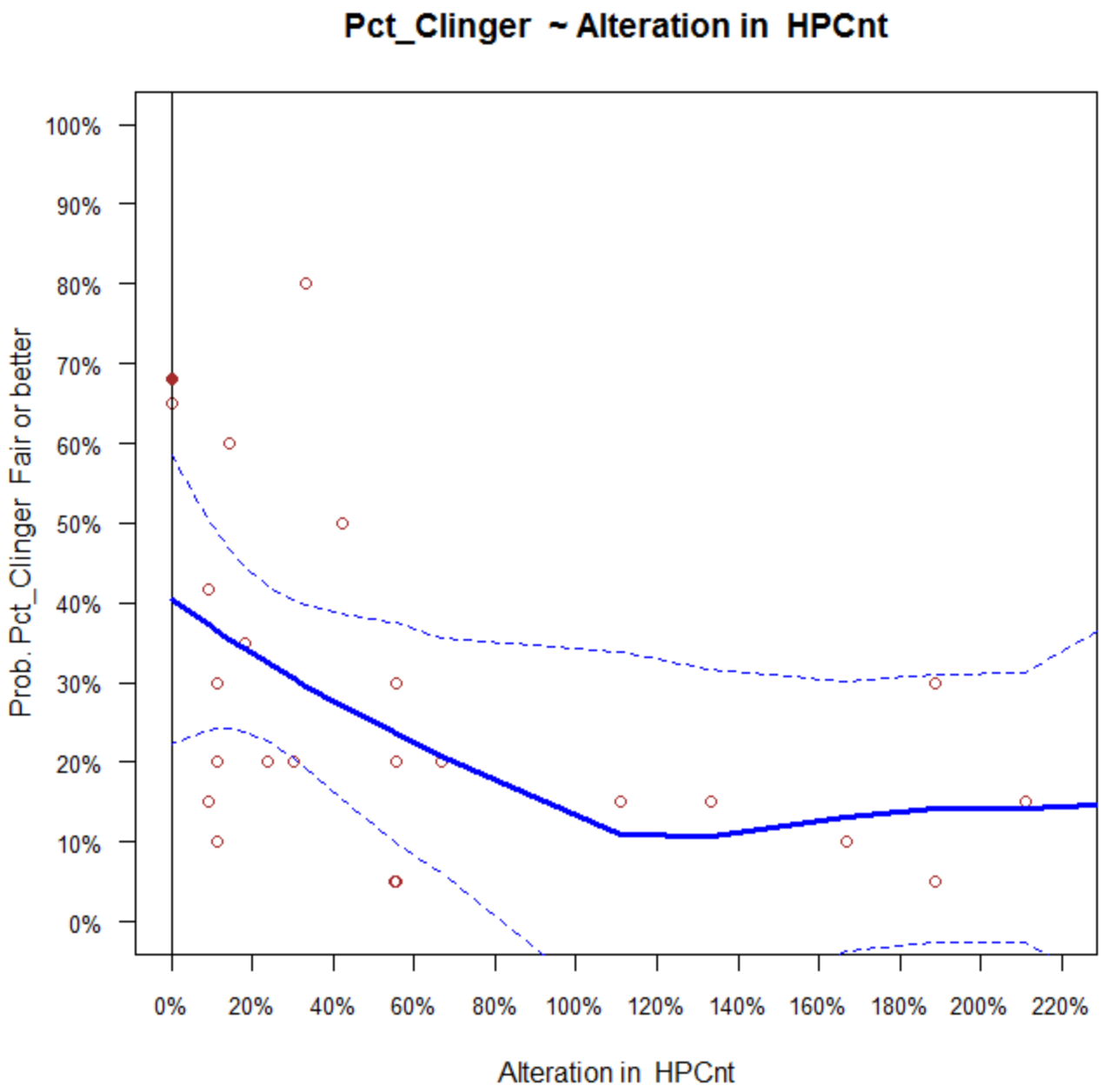
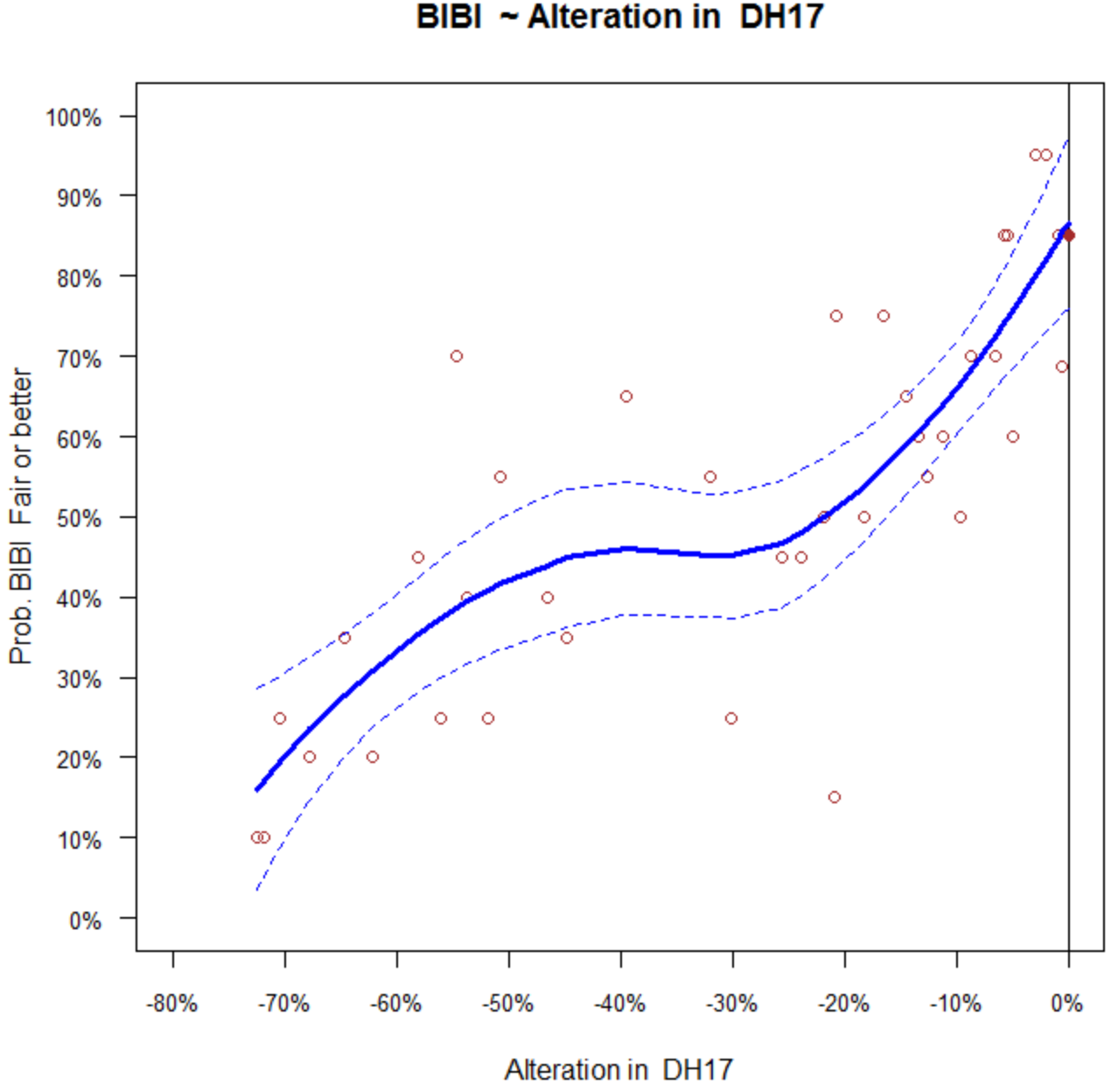
60%
80%
100%
120%
140%
160%
180%
200%
220%
Alteration in HPCnt

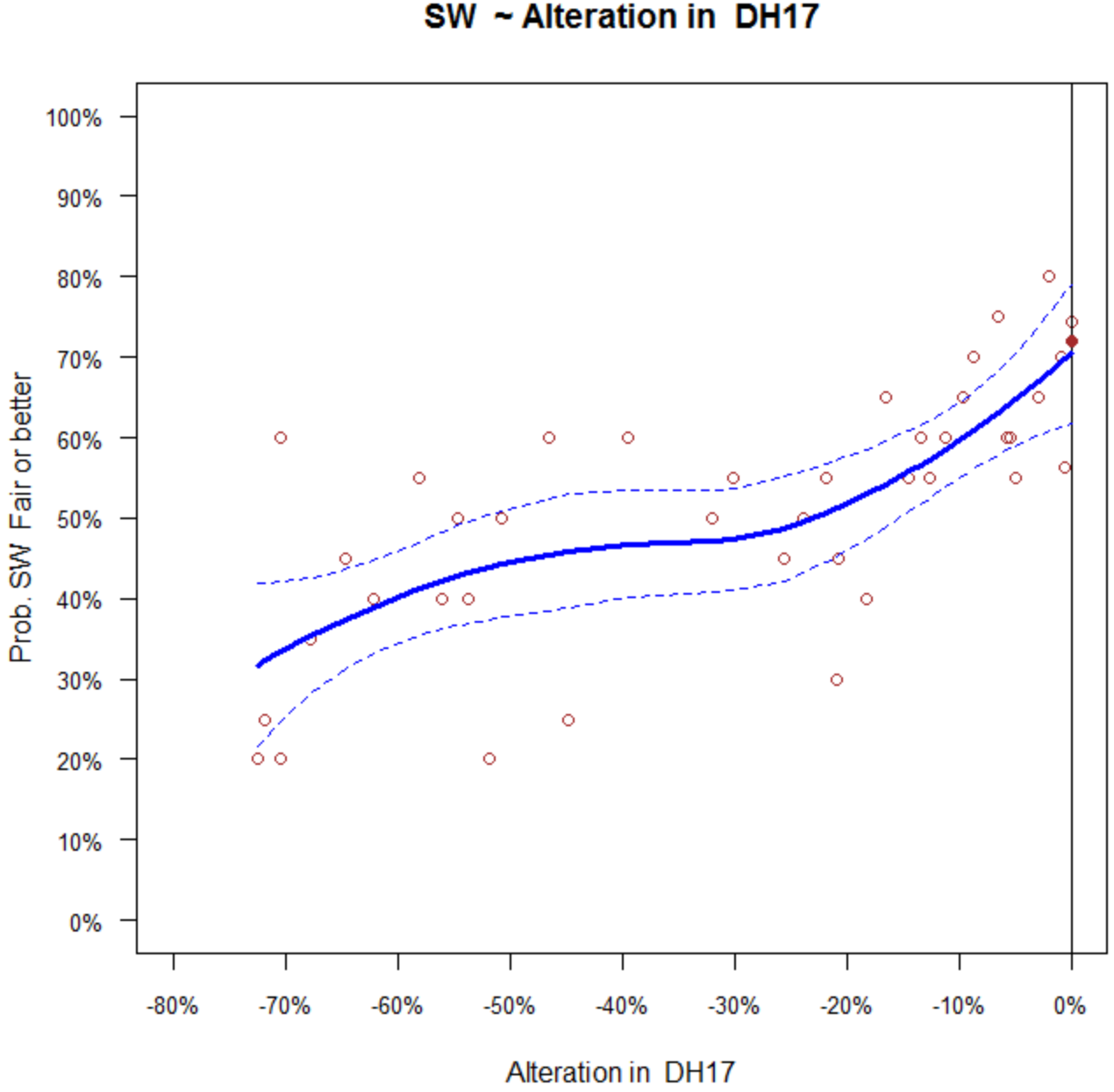

Pct_EPT ~ Alteration in HPCnt
Prob. Pct_EPT Fair or better
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
0%
20%
40%
60%
80%
100%
120%
140%
160%
180%
200%
220%
Alteration in HPCnt

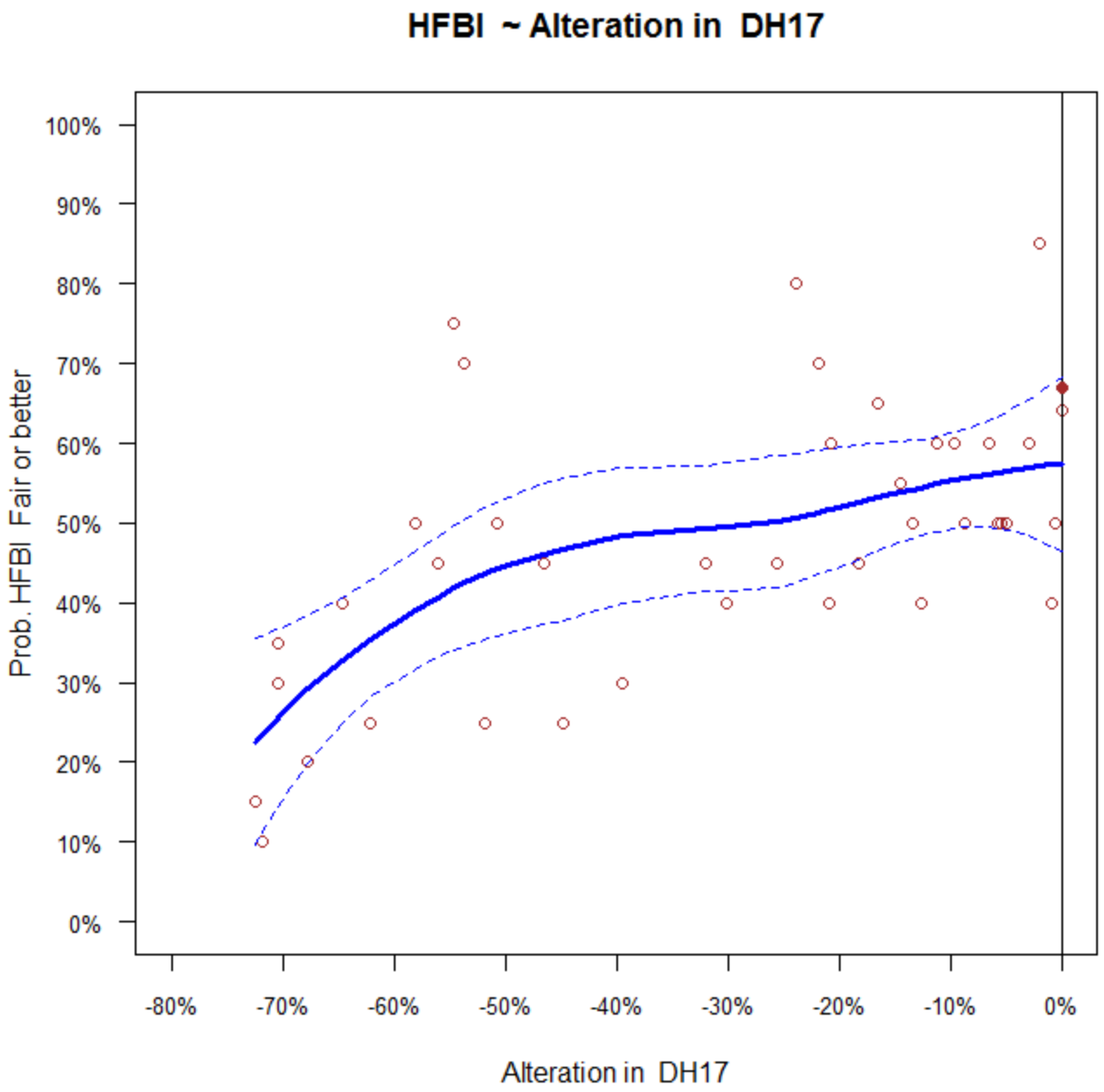

Pct_Chiron ~ Alteration in HPCnt
Prob. Pct_Chiron Fair or better
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
0%
20%
40%
60%
80%
100%
120%
140%
160%
180%
200%
220%
Alteration in HPCnt

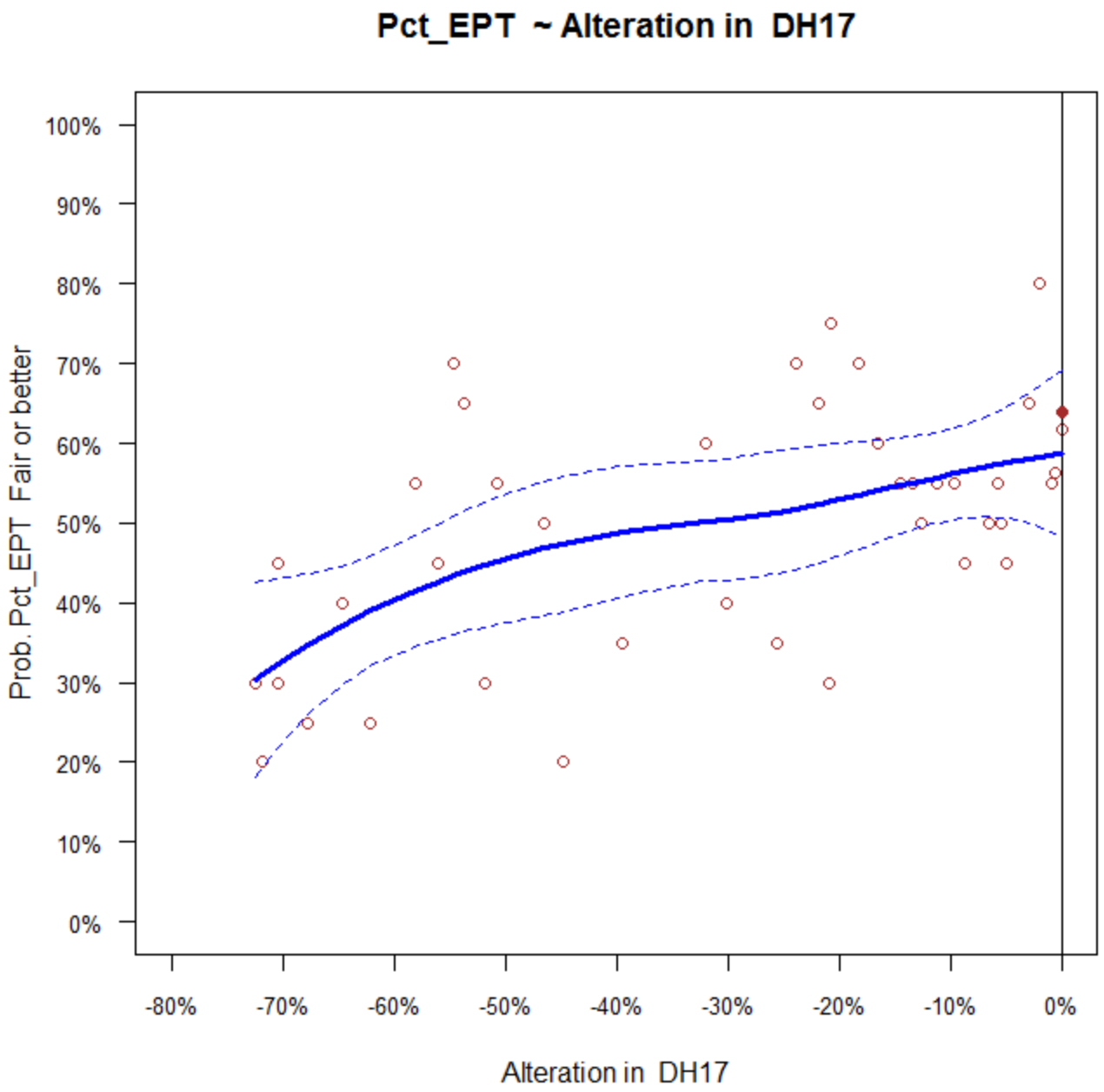

Pct_Scraper ~ Alteration in HPCnt
Prob. Pct_Scraper Fair or better
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
0%
20%
40%
60%
80%
100%
120%
140%
160%
180%
200%
220%
Alteration in HPCnt

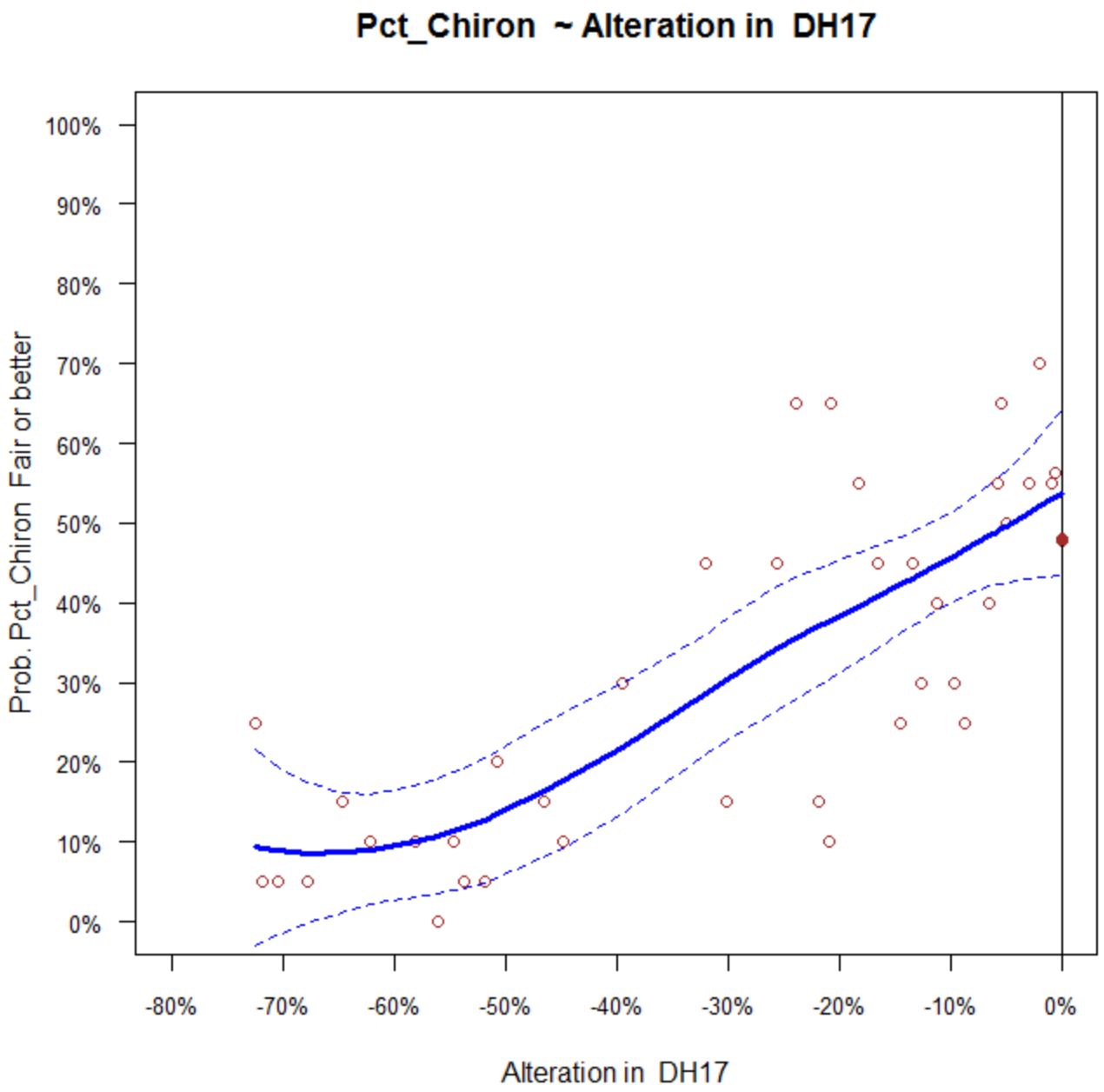

Pct_Clinger ~ Alteration in HPCnt
Prob. Pct_Clinger Fair or better
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
0%
20%
40%
60%
80%
100%
120%
140%
160%
180%
200%
220%
Alteration in HPCnt


BIBI ~ Alteration in DH17
Prob. BIBI Fair or better
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
-80%
-70%
-60%
-50%
-40%
-30%
-20%
-10%
0%
Alteration in DH17


SW ~ Alteration in DH17
Prob. SW Fair or better
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
-80%
-70%
-60%
-50%
-40%
-30%
-20%
-10%
0%
Alteration in DH17


HFBI ~ Alteration in DH17
Prob. HFBI Fair or better
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
-80%
-70%
-60%
-50%
-40%
-30%
-20%
-10%
0%
Alteration in DH17


Pct_EPT ~ Alteration in DH17
Prob. Pct_EPT Fair or better
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
-80%
-70%
-60%
-50%
-40%
-30%
-20%
-10%
0%
Alteration in DH17


Pct_Chiron ~ Alteration in DH17
Prob. Pct_Chiron Fair or better
100%
90%
80%
70%
60%
50%
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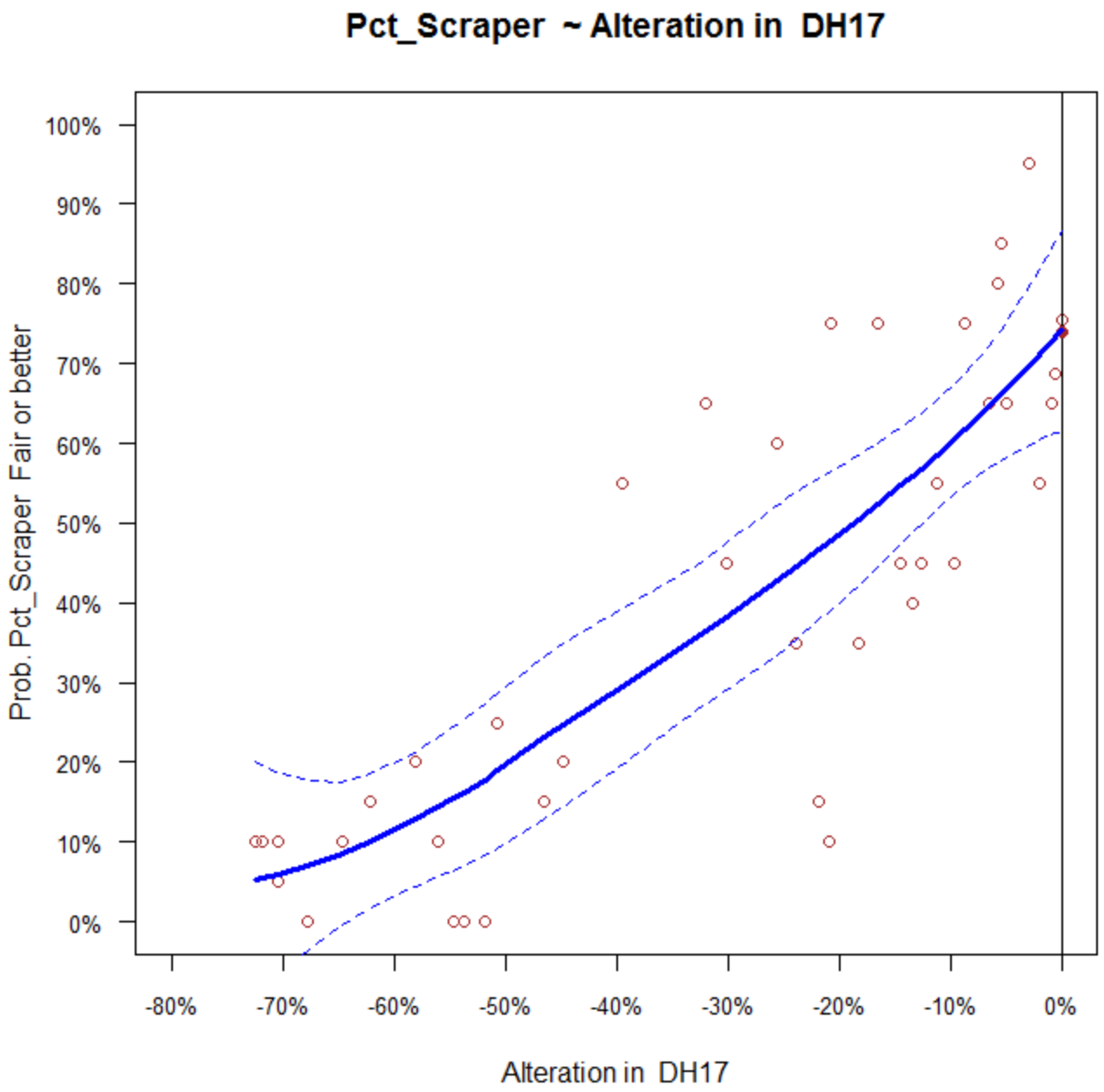
0%
-80%
-70%
-60%
-50%
-40%
-30%
-20%
-10%
0%
Alteration in DH17


Pct_Scraper ~ Alteration in DH17
Prob. Pct_Scraper Fair or better
100%
90%
80%
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-80%
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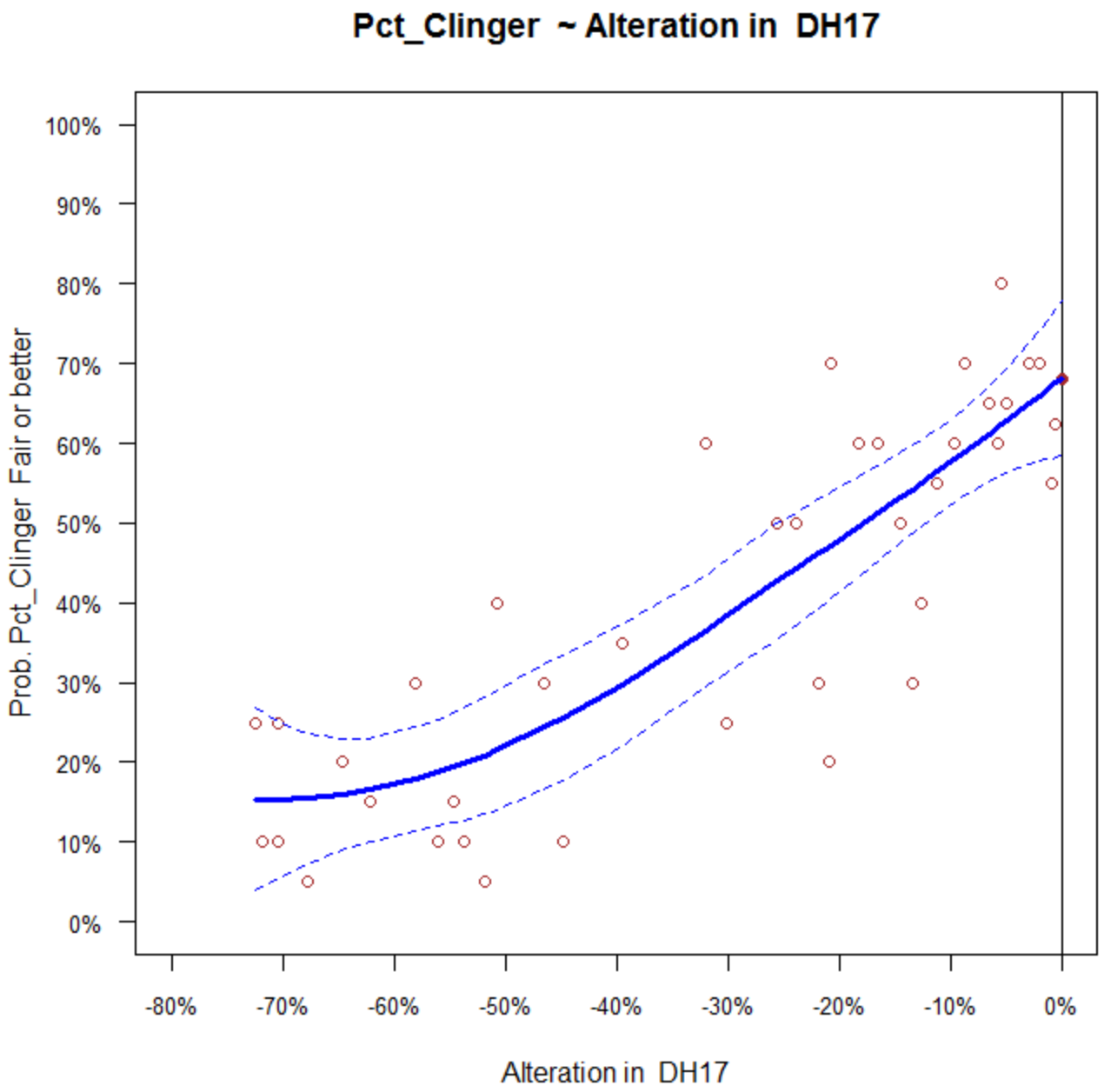
-40%
-30%
-20%
-10%
0%
Alteration in DH17


Pct_Clinger ~ Alteration in DH17
Prob. Pct_Clinger Fair or better
100%
90%
80%
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60%
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20%
10%
0%
-80%
-70%
-60%
-50%
-40%
-30%
-20%
-10%
0%
Alteration in DH17