Online Appendix for
The Hot Hand Fallacy: Cognitive Mistakes or Equilibrium Adjustments? Evidence from Major League Baseball

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This appendix reports results of additional tests that are mentioned but not included in the main text of Green and Zwiebel (2017). All references in table captions are to Green and Zwiebel (2017).

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	(1) Hit	(2) Hr	(3) Strikeout	(4) OnBase	(5) Walk
state	0.0525***	0.0991***	0.127***	0.0876***	0.150***
	(8.15)	(15.96)	(19.74)	(15.01)	(25.90)
batter_ability	0.363***	0.682***	0.759***	0.536***	0.654***
	(16.06)	(48.93)	(74.40)	(22.27)	(39.30)
pitcher_ability	0.533***	0.377***	0.822***	0.602***	0.792***
	(33.53)	(20.34)	(64.30)	(44.61)	(59.15)
samehand	-0.0135***	-0.00454***	0.0177***	-0.0246***	-0.0161***
	(-12.47)	(-8.95)	(17.67)	(-19.75)	(-19.05)
batter_home	0.00914***	0.00207***	-0.00834***	0.0136***	0.00680***
	(10.72)	(5.27)	(-11.20)	(16.44)	(13.06)
Observations	1154102	1154102	1154102	1400748	1400748

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table B.1 – Longer history lengths (Batters). This table reports the results for the same regressions as given in Columns (1) of Table A.5 across all 5 statistics except using alternative history lengths of L=40 to measure the batter's current state as given by equation (3). All regressions include stadium × year dummy control variables.

	(1) Hit	(2) Hr	(3) Strikeout	(4) OnBase	(5) Walk
state	0.0104**	0.0324***	0.0347***	0.0347***	0.0567***
	(3.17)	(9.76)	(11.15)	(11.82)	(19.07)
batter_ability	0.376***	0.733***	0.838***	0.564***	0.727***
	(15.98)	(52.82)	(89.40)	(21.80)	(38.85)
pitcher_ability	0.533***	0.377***	0.822***	0.601***	0.791***
	(33.53)	(20.34)	(64.35)	(44.54)	(58.95)
samehand	-0.0134***	-0.00448***	0.0177***	-0.0247***	-0.0163***
	(-12.28)	(-8.69)	(17.54)	(-19.56)	(-18.95)
batter_home	0.00905***	0.00201***	-0.00815***	0.0133***	0.00660***
	(10.69)	(5.23)	(-11.20)	(16.48)	(13.13)
Observations	1154102	1154102	1154102	1400748	1400748

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table B.2 – **Shorter history lengths (Batters).** This table reports the results for the same regressions as given in Columns (1) of Table A.5 across all five statistics except using alternative history lengths of L=10 to measure the batter's current state as given by equation (3). All regressions include stadium × year dummy control variables.

	(1) Hit	(2) Hr	(3) Strikeout	(4) OnBase	(5) Walk
state	0.0612***	0.0460***	0.139***	0.0883***	0.0661***
	(9.79)	(7.44)	(21.68)	(15.04)	(10.62)
pitcher_ability	0.380***	0.267***	0.704***	0.429***	0.656***
	(16.23)	(11.52)	(56.66)	(19.43)	(43.68)
batter_ability	0.562***	0.717***	0.831***	0.623***	0.629***
	(49.15)	(66.16)	(80.94)	(62.43)	(66.39)
samehand	-0.0132***	-0.00401***	0.0182***	-0.0222***	-0.0137***
	(-10.44)	(-8.62)	(10.05)	(-17.45)	(-18.28)
pitcher_home	-0.00865***	-0.00151***	0.00842***	-0.0117***	-0.00533***
	(-9.60)	(-4.33)	(9.88)	(-13.62)	(-10.35)
Observations	1095673	1095673	1095673	1297611	1297611

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table B.3 – **Longer history lengths (Pitchers).** This table reports the results for the same regressions as given in Columns (1) of Table A.6 across all five statistics except using alternative history lengths of L=40 to measure the pitchers's current state as given by equation (3). All regressions include stadium × year dummy control variables.

	(1) Hit	(2) Hr	(3) Strikeout	(4) OnBase	(5) Walk
state	0.0289***	0.0182***	0.0639***	0.0459***	0.0148***
	(9.68)	(5.76)	(18.08)	(16.67)	(4.79)
pitcher_ability	0.393***	0.274***	0.767***	0.447***	0.691***
	(16.27)	(11.62)	(60.96)	(19.38)	(45.14)
batter_ability	0.562***	0.716***	0.830***	0.622***	0.629***
	(49.16)	(66.20)	(81.03)	(62.42)	(66.39)
samehand	-0.0131***	-0.00401***	0.0182***	-0.0222***	-0.0137***
	(-10.39)	(-8.59)	(10.03)	(-17.40)	(-18.23)
pitcher_home	-0.00857***	-0.00150***	0.00829***	-0.0115***	-0.00533***
	(-9.61)	(-4.31)	(9.98)	(-13.62)	(-10.32)
Observations	1095673	1095673	1095673	1297611	1297611

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table B.4 – Shorter history lengths (Pitchers). This table reports the results for the same regressions as given in Columns (1) of Table A.6 across all five statistics except using alternative history lengths of L=10 to measure the pitchers's current state as given by equation (3). All regressions include stadium × year dummy control variables.

	(1) Hit	(2) Hr	(3) Strikeout	(4) OnBase	(5) Walk	(6) WalkEx
state	0.00522	0.0439***	0.0622***	0.0408***	0.0909***	0.0866***
	(0.95)	(8.10)	(10.82)	(8.50)	(16.22)	(15.70)
pitcher_ability	0.525***	0.393***	0.797***	0.587***	0.796***	0.795***
	(31.18)	(19.01)	(51.60)	(43.41)	(53.23)	(53.26)
samehand	-0.0182***	-0.00777***	0.0243***	-0.0333***	-0.0233***	-0.0234***
	(-13.18)	(-11.77)	(16.02)	(-20.98)	(-18.76)	(-18.83)
batter_home	0.00939***	0.00208***	-0.00825***	0.0134***	0.00694***	0.00692***
	(9.99)	(4.61)	(-9.74)	(14.66)	(12.52)	(12.41)
batter_state (hits)						0.00792*
						(2.32)
batter_state (hrs)						0.0798***
						(9.47)
Observations	1045160	1045160	1045160	1250826	1250826	1243403

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table B.5 – Robustness: Measuring Ability using Batter Fixed Effects. This table gives estimates for the batter regressions where fixed effects are used to control for batter ability. The dependent variable is listed directly under the column number. Each column gives the estimates from the OLS regression given in equation (6) and using the baseline measure of the batter's state as estimated by equation (3). Column (6) includes the batter's state in hit in home runs to capture the endogenous response of the defense. Batters with fewer than 2,500 attempts in the dataset were excluded from the regressions. Standard errors are clustered at the batter level. All regressions include stadium × year dummy control variables.

	(1) Prop10	(2) Prop2p5	(3) Add10	(4) Add2p5	(5) Dist10	(6) Dist2p5
hot	0.0128***	0.0186***	0.0132***	0.0181***	0.00870***	0.00753***
	(8.74)	(6.93)	(9.34)	(6.43)	(6.04)	(3.51)
cold	-0.0111***	-0.0147***	-0.0112***	-0.0158***	-0.00990***	-0.0143***
	(-8.59)	(-5.81)	(-8.31)	(-6.26)	(-6.61)	(-5.08)
Observations	1489346	1489346	1489346	1489346	1399046	1399046

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table B.6 – Robustness to thresholds. Dependent Variable: On Base (Batters). This table reports the results for the same regressions as given in Columns (4)-(6) (additive, proportional and distribution based thresholds for hot and cold) except using 10% and 2.5% thresholds as an alternative to the 5% thresholds used in Table A.7. The same control variable were included in the regressions but the coefficients are omitted from the above table. All regressions include stadium × year dummy control variables.

	(1) Prop10	(2) Prop2p5	(3) Add10	(4) Add2p5	(5) Dist10	(6) Dist2p5
hot	0.00436**	0.0119***	0.00543***	0.0131***	0.00221	0.00522**
	(3.03)	(4.71)	(3.86)	(4.83)	(1.45)	(2.64)
cold	-0.00476**	-0.00719*	-0.00437**	-0.00858**	-0.00489**	-0.00634*
	(-3.19)	(-2.43)	(-2.67)	(-2.90)	(-2.81)	(-2.49)
Stadium Year FEs	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1192266	1192266	1192266	1192266	1113087	1113087

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table B.7 – Robustness to thresholds. Dependent Variable: Hits (Batters). This table reports the results for the same regressions as given in Columns (4)-(6) (additive, proportional and distribution based thresholds for hot and cold) except using 10% and 2.5% thresholds as an alternative to the 5% thresholds used in Table A.5. The same control variable were included in the regressions but the coefficients are omitted from the above table. All regressions include stadium × year dummy control variables.

References

Green, B. and J. Zwiebel (2017). he hot hand fallacy: Cognitive mistakes or equilibrium adjustments? evidence from major league baseball. *Management Science (forthcoming)*.