

# **Is Tiger Woods Loss Averse? Persistent Bias in the Face of Experience, Competition, and High Stakes**

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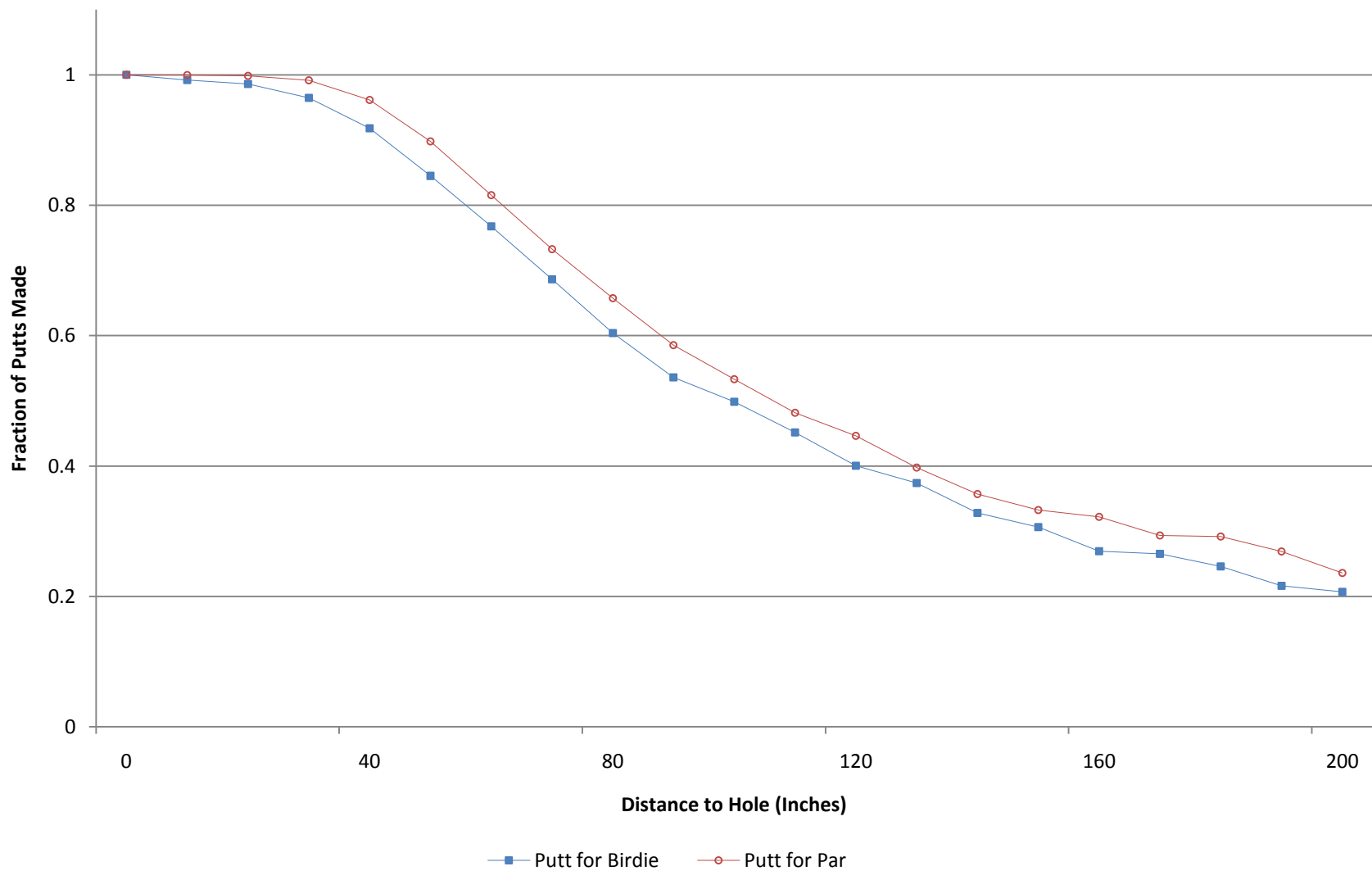
## **Web Appendix**

Appendix Figure 1 replicates Figure 2 of the paper by illustrating the probability of putt success from different distances, but only uses data from the matched par and birdie putts in Column (8) of Table 4. Due to the smaller sample size, we round the distance of the par and birdie putts to the nearest tens digit in order to eliminate excessive noise. The pattern of results depicted in Figure 3 is very similar to the pattern of results depicted in Figure 2 with the complete dataset.

We can also show the similarity between our matching estimates and our parametric results by running regressions using our matched sample. In this Appendix Table 1, we use only the matched pairs in Column (8) of Table 4 in a regression model that includes the specifications we use in Tables 2 and 3. In Column (1), we report results using the matched sample in a Logit regression. The Logit estimation allows the birdie coefficient to vary with distance, and we expect results from the matched sample to be nearly identical to the results we obtain with the entire sample. In fact, we find that the birdie coefficient from the matched sample (-.023) is slightly larger than the coefficient from the entire sample (-.020). Columns (2)-(5) in the Appendix Table replicate Columns (1)-(4) in Table 3 using OLS. The average distance of the putts in the matched sample is smaller, and as a result, the effect sizes are slightly smaller, but the same pattern emerges. Previous putts on the green matter, but birdie putts are consistently less accurate than par putts even when we account for player fixed effects and hole fixed effects.

Web Appendix Table 2 provides the coefficient and standard errors for the Logit regressions by hole difficulty. We use the coefficients from this Table in the paper (Figure 5) to demonstrate evidence of Koszegi-Rabin reference point adaptation.

**Appendix Figure 1.** This figure depicts the fraction of successful par and birdie putts by distance to the hole (in inches). The sample includes par and birdie putts attempted in the PGA TOUR that were matched to each other (with 24 inches being the maximum distance between matched putts). All putt distances are rounded to the tens digit due to small sample sizes at each inch mark.



**Appendix Table 1. The Effect of Different Shot Values on Putt Success - Robustness Checks From Matched Sample**

	Dependent Variable Equals 1 if Putt was Made				
	Logit	OLS			
	(1)	(2)	(3)	(4)	(5)
<b>Putt for Birdie</b>	<b>-.023**</b>	<b>-.028**</b>	<b>-.028**</b>	<b>-.016**</b>	<b>-.018</b>
	(.001)	(.001)	(.001)	(.001)	(.003)
Putt Distance: 7th-Order Polynomial	X	X	X	X	X
Player Fixed Effects			X	X	X
Previous-Putts-on-Green Effects				X	X
Tournament-Round-Hole Effects					X
R-Squared	0.429	0.424	0.425	0.426	0.452
Observations	473,083	473,083	473,083	473,083	473,083

**Notes.** This table reports estimates and robust standard errors for the differential success rate of putts of different shot values (par, birdie, etc.) using marginal effects from a Logit (Column (1)) and OLS (Columns (2)-(5)). These results use only the par and birdie putts that were matched within 24 inches of each other using our matching algorithm. Increasingly precise controls are included in each column including: player fixed effects, dummy variables for the number of putts previously attempted on the green by the golfer and the other golfer in a player's group, and fixed effects for each hole in a given round and tournament.

\* p < .05; \*\* p < .01

**Appendix Table 2. Testing for Changes in Reference Points**

	Dependent Variable Equals 1 if Putt was Made				
	Logit Estimation				
	Hole Score Quintile 1 (1)	Hole Score Quintile 2 (2)	Hole Score Quintile 3 (3)	Hole Score Quintile 4 (4)	Hole Score Quintile 5 (5)
Putt for Eagle	-.050** (.002)	-.064** (.007)	-.068** (.016)	-.098** (.030)	-.147** (.055)
<b>Putt for Birdie</b>	<b>-.034**</b> (.001)	<b>-.031**</b> (.001)	<b>-.029**</b> (.001)	<b>-.028**</b> (.001)	<b>-.023**</b> (.001)
Putt for Bogey	-.017** (.003)	.003 (.002)	.012** (.002)	.014** (.002)	.020** (.002)
Putt for Double Bogey	-.010 (.006)	-.023** (.005)	.003 (.005)	-.004 (.004)	.003 (.002)
Putt Distance: 7th-Order Polynomial	X	X	X	X	X
Pseudo R-Squared	0.513	0.548	0.564	0.567	0.563
Observations	505,610	542,053	467,929	504,796	504,773

**Notes.** This table reports marginal effects and robust standard errors for the differential success rate of putts of different shot values (par, birdie, etc.) using Logit. We report Logit results by quintile according to the difficulty of the hole. For example, quintile one represents putts attempted on the easiest holes (players often scored better than par); quintile 5 represents putts attempted on the most difficult holes (players often scored worse than par).

\* p < .05; \*\* p < .01