Drive for Show, Putt for Dough? Reevaluating the Impact of Driving vs. Putting in Modern Golf Performance

Kevin Zheng

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The popular adage drive for show, putt for dough has long framed putting as the primary determinant of success in professional golf. This study reevaluates that assumption using performance data from the top 100 players on both the 2024 Professional Golfers Association (PGA) and DP World Tours (n = 200), stratified by official rankings. Statistical methods included simple linear regression, paired t-tests, Welchs t-tests, bootstrap confidence intervals, and Generalized Additive Models (GAM). Regression analyses demonstrated that strokes gained off the tee (SG: OTT) accounted for 28% of the variance in overall scoring (SG Total; R = 0.28, slope = 0.96, $p < 0.001$), compared with 19% explained by strokes gained putting (SG: P; R = 0.19, slope = 0.71, $p < 0.001$). Thus, driving explained approximately 9% more variance and contributed more strongly to overall performance. Paired t-tests confirmed higher within-player averages for SG:OTT: in the PGA Tour, SG: OTT = 0.205 vs. SG: P = 0.052 (Cohens d = 0.232, small); in the DP World Tour, SG: OTT = 0.205 vs. SG: P = 0.127 (Cohens d = 0.143, very small). Welchs t-tests with bootstrap intervals further showed that on the PGA Tour, SG: OTT exceeded SG: P by 0.0340.271 strokes per round (95% CI, p = 0.0122), whereas on the DP World Tour, the interval was 0.0270.183 (95% CI, p = 0.1466, not significant). These findings suggest that while putting remains critical in close contests, driving is the more consistent predictor of performance variation among elite professionals (1,3,6). Limitations include reliance on an elite-only dataset, a single-season timeframe, and omission of approach and short-game metrics. Future research should extend across multiple seasons, incorporate additional strokes-gained categories, and examine contextual influences such as course conditions and player strategy.

Keywords: Golf analytics, strokes gained, PGA Tour, DP World Tour, putting vs. driving, performance metrics

Introduction

Golf combines the spectacle of long drives with the precision of delicate putts. But which skill contributes more to overall success? The long-standing adage *drive for show, putt for dough* reflects the belief that putting is decisive, while driving is secondary. Yet the rise of advanced analytics invites a systematic re-examination [1,2].

The Professional Golfers Association (PGA) Tour introduced Strokes Gained (SG) metrics in 2011, developed by Broadie [3], to quantify performance relative to the field. SG isolates the contribution of different skills by comparing the expected number of strokes in a given situation with the players actual outcome. Among these, two of the most debated are Strokes Gained: Off the Tee (SG: OTT), which measures performance on par-4 and par-5 tee shots, and Strokes Gained: Putting (SG: P), which measures strokes gained or lost on all putts taken from the green.

Traditional golf wisdom emphasized putting. Pelz [4] estimated that it accounts for 4045% of strokes in a round, and players such as Ben Crenshaw [5] exemplified the perception that greens decide championships. Yet modern advances in equipment, athletic conditioning, and analytics suggest that driving may now serve as a stronger differentiator of elite performance [6,7].

Purpose of the Study. This study analyzes data from the top 100 players on both the 2024 PGA and DP World Tours (n = 200). By applying regression, paired and Welchs t-tests, bootstrap confidence intervals, and Generalized Additive Models (GAM), it evaluates whether SG: OTT or SG: P better explains variation in overall scoring (SG Total) and whether the results are consistent across tours.

Research Questions and Hypotheses

- **RQ1:** Does SG: OTT or SG: P explain more variance in SG Total among elite professionals?
- **H1:** SG: OTT has a stronger effect on SG Total than SG: P.
- **RQ2:** Are these effects consistent across the PGA and DP World Tours?
- **H2:** Driving demonstrates a more consistent impact than putting across tours.

Literature Review

For decades, putting was viewed as the cornerstone of success. Pelz[4] estimated that it accounts for 4045% of strokes in a round, and early PGA Tour statistics such as putts per green in regulation reinforced this belief. Players like Ben Crenshaw[5] became icons of the idea that greens decide championships.

The balance began shifting with changes in technology, athletic preparation, and statistical modeling. Advances in club and ball design, along with the athleticism of players such as Tiger Woods, increased driving distances and highlighted the potential scoring advantage of long-game dominance[6,7]. The launch of the ShotLink system in 2001 enabled shot-level tracking of professional golf, which laid the foundation for Mark Broadies development of Strokes Gained (SG) metrics[1,3]. SG transformed golf analytics by quantifying the contribution of each shot relative to the field, providing a more precise framework than traditional measures such as fairways hit or putts per round.

Broadies early work found that driving and approach play explained more variance in scoring than putting, particularly on longer courses[1,8,9]. His analysis challenged the putting-centric narrative and emphasized tee-to-green performance as a key determinant of competitive outcomes. Building on this, researchers have investigated the relative contributions of different SG components with increasingly mixed findings.

Empirical Evidence

Smith et al.[8] found that approach play (SG: APP) was the strongest predictor of scoring averages, but SG: OTT consistently outperformed SG: P. Brown & Lee[10] reported that while putting remains decisive in playoffs and close contests, its predictive strength across a season was weaker than that of driving. Zhao & Kim[9] highlighted contextual variability, showing that course architecture influences the relative importance of SG metrics; SG: OTT becomes more influential on longer, wider layouts.

In contrast, Martnez-Martnez et al.[11] argued that putting still retains primacy in overall scoring, suggesting that the balance of skills may shift depending on tournament context. A recent study likewise emphasizes the primacy of approach play and reaches different conclusions from ours[12].

Furthermore, Hellstrm[6] found that both distance and accuracy off the tee were positively related to performance, reinforcing the importance of driving in the modern game[7,13].

Research Gap

Despite these advances, few studies have provided a direct head-to-head comparison of SG: OTT and SG: P using the same dataset of elite professionals across tours. Prior work often emphasizes approach play or aggregates tee-to-green statistics, leaving the long-standing debate unresolved. This study fills that gap by providing new comparative evidence using 2024 PGA and DP World Tour data[14–17].

Methods and Materials

Data Source and Sampling

Performance data were obtained from the 2024 Professional Golfers Association (PGA) Tour and the DP World Tour, using publicly available official tour statistics derived from ShotLink tracking[14,15]. The study sample consisted of the top 100-ranked players on each tour, based on official season standings, for a combined dataset of 200 elite professionals. This constitutes a stratified convenience sample, capturing the highest-performing players from each tour. Custom datasets were compiled for this analysis[16,17].

Variables

The analysis focused on three strokes-gained metrics:

- Strokes Gained: Off the Tee (SG: OTT).
- Strokes Gained: Putting (SG:P).
- Strokes Gained: Total (SG Total).

These measures have been widely used in prior golf analytics research[1,3]. SG Total served as the dependent variable in regression models, while SG: OTT and SG: P were used as independent variables in comparative analyses.

Data Handling

All top-100 players on both tours had complete statistics for SG Total, SG: OTT, and SG: P. Therefore, no substitutions or imputations were required[14–17], and each tour sample consisted of exactly 100 players with full data for the variables of interest.

Statistical Analyses

Several complementary statistical methods were applied to evaluate the relative importance of driving and putting. All statistical analyses were conducted in R version 4.3.3, using established approaches in sports analytics[2,8]:

1. Linear regression was used to assess the association between SG Total and each predictor (SG: OTT, SG: P). This quantified variance explained (R), slope coefficients, and overall model fit ($p < 0.001$ for both predictors). Regression was chosen to measure the marginal contribution of each skill to overall scoring.

2. Paired t-tests compared SG: OTT and SG: P within each tour. Results were summarized by reporting the mean and standard deviation of each metric along with the standardized mean difference, expressed as Cohens d (paired-samples effect size, calculated as the mean difference divided by the standard deviation of the paired differences). This provided an interpretable measure of the magnitude of the within-player differences.

3. Welchs t-tests with bootstrap confidence intervals were used to formally test the mean differences between SG: OTT and SG: P, accounting for potential variance inequality. Exact p-values and 95% confidence intervals were reported (PGA: p = 0.0122, CI = 0.034–0.271; DP: p = 0.1466, CI = –0.027–0.183).

4. Generalized Additive Models (GAMs) were employed as a robustness check to explore potential non-linear effects of SG: OTT and SG: P on SG Total, allowing for curved relationships beyond standard linear regression.

Software

All statistical analyses were conducted in R version 4.3.3 using the packages `ggplot2`, `dplyr`, `mgcv`, `readxl`, `tidyr`, and `boot`.

Limitations

The analysis was restricted to a single season (2024) and only two SG categories (driving and putting). Other strokes-gained metrics (e.g., approach play, short game) and longitudinal variation across multiple seasons were excluded, though they remain important for future research.

Results

Descriptive Statistics

To provide an overview of performance patterns, I first analyzed the distributions of SG: OTT and SG: P for the top 100 players on the 2024 PGA and DP World Tours. Figure 2 shows that all distributions were unimodal and approximately bell-shaped, indicating comparable variability across players. On the PGA Tour, SG: OTT averaged 0.205 (SD = 0.376) compared to 0.052 (SD = 0.471) for SG: P. On the DP World Tour, SG: OTT averaged 0.205 (SD = 0.385) compared to 0.127 (SD = 0.369) for SG: P. In both tours, SG: OTT values exceeded SG: P values on average, confirming that driving provided greater gains than putting at the elite level (6,10).

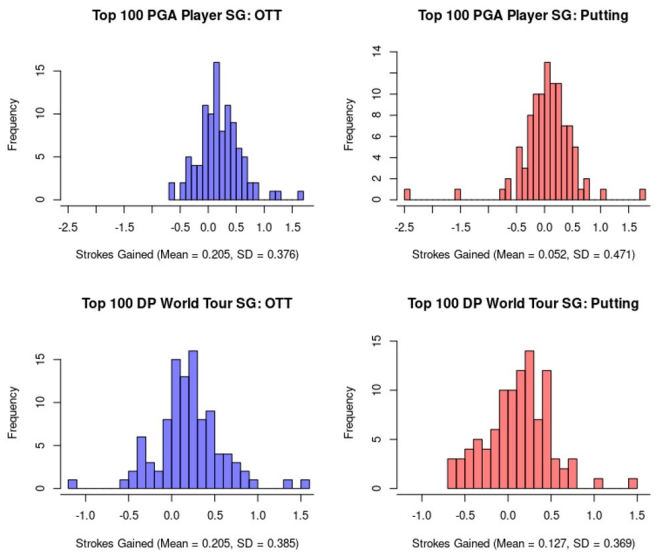

Fig. 1 Histograms comparing the distribution of SG: OTT and SG: P for the top 100 players on the 2024 PGA and DP World Tours.

Player-Level Comparisons

To examine player-level differences, scatter plots were constructed showing both SG: OTT (blue) and SG: P (red) values for each of the top 100 players on the PGA and DP World Tours (Figure 3). Horizontal lines indicate the tour-wide means for each metric. Across both tours, most blue points (driving) lie above the red points (putting), reinforcing that driving consistently yielded higher gains. Paired comparisons quantified these differences: for the PGA Tour, the mean difference (SG: OTT SG: P) was 0.153 strokes, corresponding to Cohens d = 0.232 (small effect). For the DP World Tour, the mean difference was 0.078 strokes, with Cohens d = 0.143 (very small effect). Although modest, these effect sizes consistently favored driving across both tours[8].

Relative Contributions

To evaluate the relative role of driving and putting in overall scoring, I first compared their average contributions to SG Total (Figure 4). On the PGA Tour, SG: OTT accounted for 36.65% of SG Total while SG: P contributed only 9.32%. On the DP World Tour, SG: OTT contributed 29.37% and SG: P 18.23%. In both tours, driving explained a larger share of total strokes gained than putting[8,9], underscoring its greater influence on overall performance.

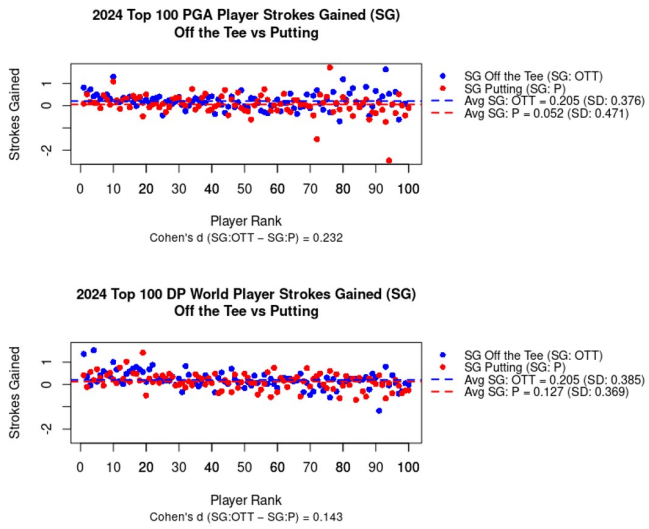

Fig. 2 Scatter plot of SG: OTT vs. SG: P values for top 100 players on the 2024 PGA and DP World Tours.

Fig. 3 Stacked bar and pie charts comparing the average contributions of SG: OTT and SG: P to SG Total among the top 100 players on the 2024 PGA and DP World Tours.

Linear Regression Analysis

Regression models were then used to quantify the predictive strength of SG: OTT and SG: P for SG Total (Figure 5). When pooling players across both tours, SG: OTT showed a slope of 0.959 with R = 0.283 ($p < 0.001$), while SG: P showed a slope of 0.711 with R = 0.194 ($p < 0.001$). These results indicate that driving explained approximately 9% more variance in overall scoring than putting [1,10]. While both skills positively contributed to SG Total, the steeper slope and higher R for SG: OTT demonstrate its stronger influence on player performance.

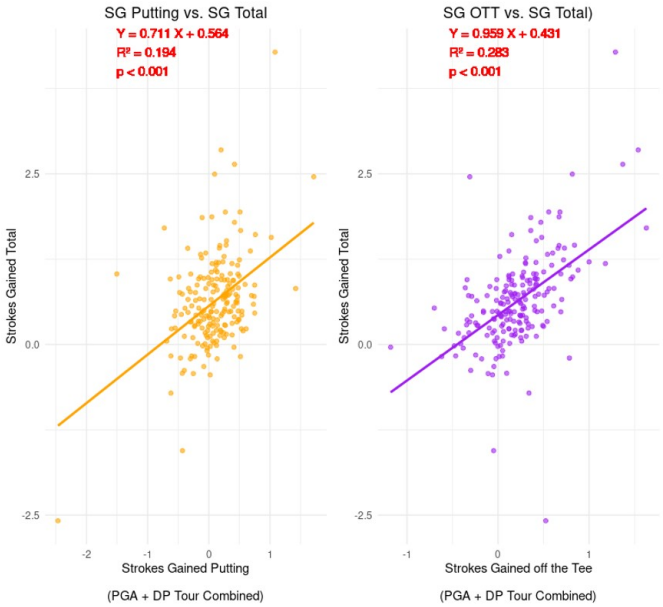

Fig. 4 Regression analyses of SG: P (left) and SG: OTT (right) versus SG Total for the combined 2024 PGA and DP World Tour players.

Generalized Additive Models (GAMs)

As an exploratory analysis, I used Generalized Additive Models (GAMs) to compare specialist cohorts: the top 100 PGA Tour players in SG: OTT and, separately, the top 100 in SG: P (Figure 6). Smoothed curves revealed nonlinear trends in performance across ranks. On average, driving specialists showed greater variability and higher gains at the extremes of the ranking distribution, while putting specialists were more tightly clustered in the midrange. These patterns are consistent with the boxplot comparisons and suggest that driving contributes more at the margins of elite performance, whereas putting may play a relatively greater role among mid-ranked players [2]. Since the cohorts were constructed using the metrics under comparison, the analysis is best viewed as descriptive rather than inferential.

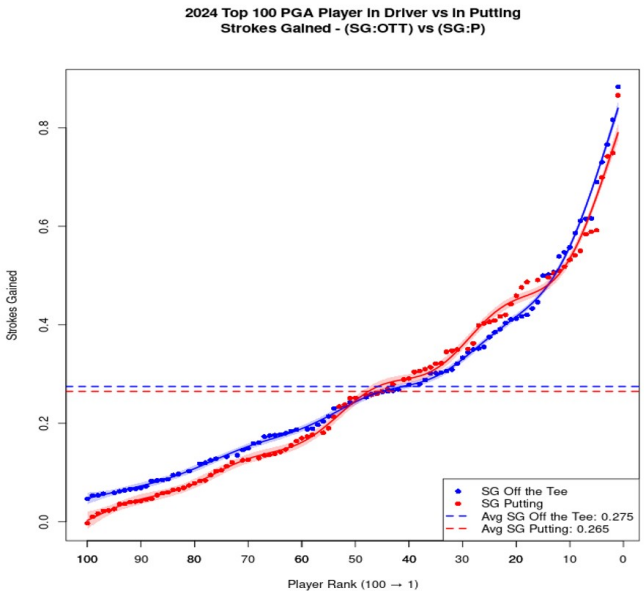

Fig. 5 GAM smooths for specialist cohorts: top 100 PGA Tour players in SG: OTT and top 100 in SG: P. Cohorts are selected on the displayed metric; results are illustrative only.

Boxplots and Welchs Confidence Intervals

To directly compare the magnitudes of SG: OTT and SG: P, I constructed boxplots for the top 100 players from both the PGA Tour and DP World Tour in 2024 (Figure 7). The medians for SG: OTT exceeded those of SG: P on both tours, confirming that players, on average, gained more strokes from driving than from putting. On the PGA Tour, the average SG: OTT (0.205) was nearly four times higher than SG: P (0.052). On the DP World Tour, the gap was smaller (0.205 vs. 0.127), but driving still contributed more to scoring.

An alternative visualization (not shown here) plots the differences (SG: P SG: OTT) as a single distribution, yielding negative values for both tours (PGA: 0.153; DP: 0.078). This indicates that players consistently gained fewer strokes from putting than from driving, with the larger gap on the PGA Tour suggesting that U.S.-based players rely more heavily on driving than their European counterparts.

Welchs confidence intervals (Figure 8) corroborated these findings. For the PGA Tour, the mean difference (SG: OTT SG: P) ranged from 0.034 to 0.271 strokes (p = 0.0122), confirming a statistically significant advantage for driving. For the DP World Tour, the interval ranged from 0.027 to 0.183 strokes (p = 0.1466), which included zero, suggesting a trend toward an advantage for SG: OTT that did not reach statistical significance[11].

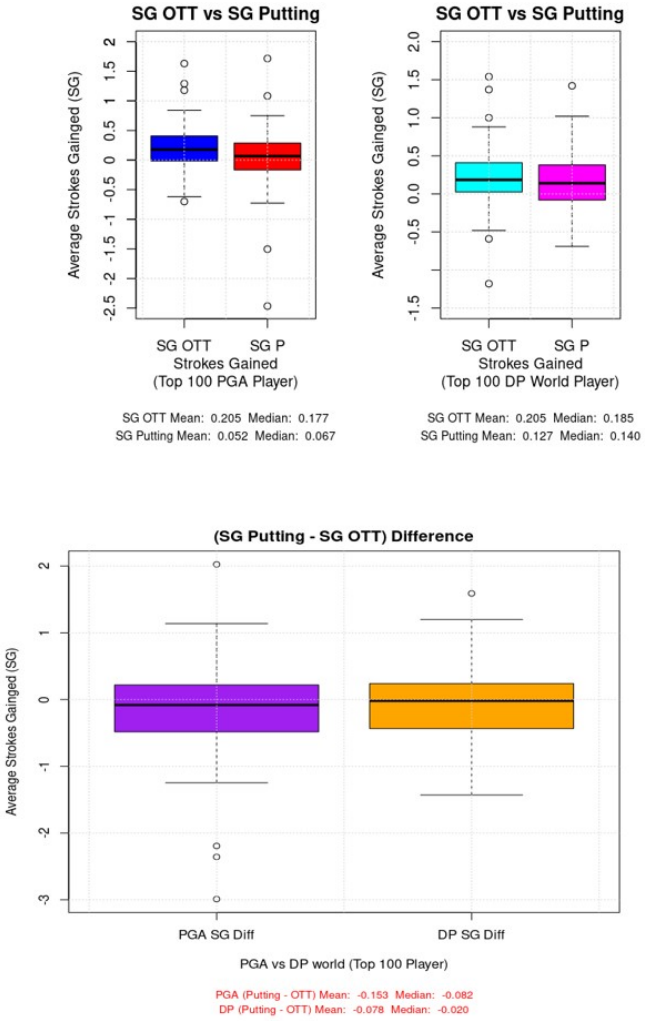

Fig. 6 Boxplots comparing SG: OTT and SG: P for the top 100 players on the 2024 PGA and DP World Tours.

Conclusion

This study reexamined the long-standing adage Drive for Show, Putt for Dough by comparing strokes gained off the tee (SG: OTT) and strokes gained putting (SG: P) among the top 100 players on the 2024 PGA and DP World Tours. The evidence suggests a different narrativeone in which driving contributes more strongly to overall scoring at the elite level.

For the PGA Tour, the 95% confidence interval for the mean difference (SG: P SG: OTT) ranged from 0.271 to 0.034 (p = 0.0122, Cohens d = 0.232), providing significant evidence that players gained more from driving than from putting. For the DP World Tour, the interval (0.183 to 0.027, p = 0.1466, Cohens d = 0.143) suggested a directional but non-significant advantage for driving. Linear regression further showed that SG: OTT

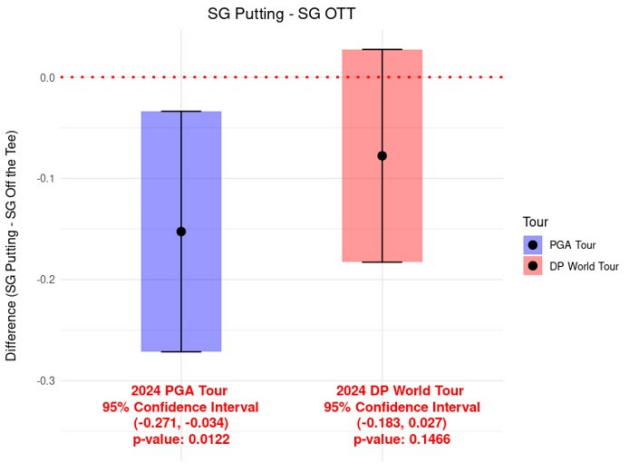

Fig. 7 Welchs 95% confidence intervals for the mean difference (SG: OTT SG: P) for the top 100 players on the 2024 PGA and DP World Tours.

explained approximately 9% more variance in SG Total than SG: P [1,8,9], confirming that driving has greater predictive value for scoring performance.

Together, these findings confirm that driving is a more consistent differentiator of performance than the skill of putting, while both skills remain essential for competitive success [18].

Discussion

While the results indicate that driving is the stronger contributor to scoring among professionals, two key limitations should temper interpretation. At the same time, these findings contrast with recent research that emphasizes approach play as the dominant determinant of performance and earnings [12].

First, the analysis was restricted to elite professional golfers. At this level, players typically exhibit highly refined putting skills, which compress variability in SG: P and may amplify the relative importance of SG: OTT [19,20]. For amateur or recreational golfers, putting inconsistencies could play a larger role in scoring outcomes, potentially shifting the balance.

Second, the study was confined to a single season (2024). This short-term scope provides a snapshot rather than a longitudinal view of performance. Golf performance can vary across seasons due to course setup, advancements in golf equipment, and evolving player strategies [7,21]. Multi-season datasets are needed to confirm whether the observed advantage of driving persists over time.

Future research should expand in three directions:

1. Extending analyses across multiple seasons.
2. Incorporating additional SG components, such as approach shots and around-the-green play [8,9].
3. Examining how course characteristics influence the relative value of driving and putting [22,23]. Such work would provide a more comprehensive and enduring understanding of the skills that most significantly shape competitive success in golf [18,22].

Additionally, visualization tools and ranking models aid interpretation [16], biomechanical indices contextualize skill contributions [17], and data-visualization workflows enhance communication of findings [12].

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