

## CASE STUDY

### Golf Participation in the U.S.: Investigating the Celebrity (“Tiger Effect”) and Other Impacts

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Received June, 2017; Accepted September, 2017

#### Abstract

*The golf industry faces many challenges. Decreasing golf participation and a reduction in the number of courses preceded the Great Recession of 2008-2009, but were certainly exacerbated by it. Golf course stakeholders bought into the hype of the early Tiger Woods era, and believed that the increased TV viewership and Tiger-related discussion would translate into an increase in participation and profitability. That sustained participation never materialized and the supply of golf courses easily outstripped the demand. Using data from multiple sources, the authors investigated the impact of Tiger’s off-course earnings (a form of a celebrity influence, we term as the “Tiger Effect”), on participation. Specifically, the components of total U.S. golfers (defined as the sum of core and occasional players) were used as the dependent variables in our analysis. Using regression, the impacts of Tiger’s off-course earnings, real U.S. household income and the return on the S&P 500 were used as explanatory variables for the three participation groups. The results indicate that on the surface, a Tiger Effect seemed to exist in the late 1990s, but in actuality, the increasing economy was a key factor in the increase in participation.*

**Key words:** Golf participation rates, Tiger Woods effect, Celebrity endorser

#### INTRODUCTION

Golf participation has decreased for the better part of ten years. In that time, the industry and particularly the golf course owners have seen their courses lose money and many of them shuttered. This reduction in the number of courses began before the Great Recession of 2008-2009, but was certainly exacerbated by it. As with any industry, investors look for trends and disruptions for opportunities. Investors and golf course owners bought into the hype of the early Tiger Woods era, adding 29% more courses between 1995 and 2008 – an amazing 220% greater annual growth rate than the previous 100 years (Joy, 2011). By 2014, only eleven new courses were built (Greenfeld, 2015).

Today, both private and public courses face persistent unprofitability (Biery, 2014), while facing pressure to reduce membership fees and round prices (Koba, 2014). But the courses are not the only sufferers in the golf

industry. Equipment makers such as Callaway and TaylorMade have both seen their stocks tumble and have only dim forecasts (Rupp and Coleman-Lochner, 2014). Retailers such as Golf Galaxy are suffering, and Dick’s Sporting Goods made national news when it laid off 500 golf professionals in their stores (Rovell, 2014). In the summer of 2016, Nike announced that it was exiting the golf equipment business (Reuters, 2016).

The golfing establishment saw Tiger Woods as a disruption to business-as-usual, and believed his turning professional in 1996 would have a positive ripple effect on golf participation and the industry as a whole – the so-called “Tiger Effect.” Investors and course owners saw the early data indicating this positive impact, such as increased TV viewership for golf in general (Farrell et. al. 2000), but especially when Tiger was on the leaderboard. Viewership even dropped by 10% when Tiger was in the tournament

but not in contention to win (Simpson, 2014). Badenhausen (2008) and Thomaselli (2008) reported that, according to Forbes, the top ten richest male and female celebrity athlete endorsers earned a total of \$600 million in prize money, endorsements and other income.

It has been estimated that Tiger Wood's sponsorship income for that year was \$100 million. Simmers, Damron-Martinez and Haytko (2009), developed a continuum for endorsers that ranged for acquirable expertise endorsers, or Source Credibility types, to Source Attractiveness individuals who typically possess a high degree of likeability from consumers. The authors cite as examples for the first category fitness experts such as Denise Austin, while Tiger Woods and Michael Jordan were provided as typical endorsers for the second category.

In one study, a category of golf balls dropped by over \$10 million in sales because Woods was not playing (Edwards, 2011). Nike's entry into golf was entirely on the back of Tiger's endorsement (Edwards, 2011). Early statistics showed that there were more, and younger, fans of golf (Simpson, 2014), even though it is not clear whether these fans turned into golfers (Joy, 2011). Besides increased TV ratings, he increased the number of sponsors (Pielke, 2014). Tiger was linked to increasing the skill level and physical fitness of golf professionals overall (Joy, 2011). They got swept up in the exponential growth of endorsement deals (Simpson, 2014).

Tournament purses went from 3.4% yearly increases pre-Tiger turning pro, to 9.3% increases post (Pielke, 2014). Purses have been decreasing since the recession, but also coincided with Tiger's 2007 well-publicized marital woes and the lack of a single major win since the event (Pielke, 2014).

However, perhaps the greatest motivation for course investors and owners to build more courses was the 18% increase in golf participation from 1996 to 2000 (NGF, 2015b). This seemed to be further evidence of the Tiger Effect, and surely this increase in demand justified the growth in the number of courses. But that participation growth halted, and then declined, while courses continued to be built on the presumption of continued growth, and the growing supply of golf courses easily outstripped the stagnating demand.

Now, twenty years since his professional career began in 1996, we can look back on his first decade and his dominance in golf and his impact on the industry, as well as his second decade of injury and faded hopes with a degree of perspective. This paper investigated whether the impact of Tiger's success led to the increase in golf participation during his first decade (1996-2005) or was there some other, better, explanatory factor. Alternate

explanations explored are the growth in real household income (income adjusted for inflation) and the return on the S&P 500 for the same time period.

## METHODOLOGY

This paper investigated whether the Tiger Effect could explain the level of golf participation, as was suggested earlier. The golf participation is measured using three variables: (1) Core golfers – those who golfed at least eight times per year, (2) Occasional golfers – those who golfed less than eight times per year and (3) Total golfers, which is the sum of the Core golfers and the Occasional golfers. The source data for these variables is the National Golf Foundation (NGF, 2016b) database. The trend line of long-term participation trends can be seen in Figure 1.

Real household median income results and the return on a U.S. stock market index (S&P 500) were collected and used as independent variables. Timelines for the real household income (U.S. Census, 2015), the S&P 500 market index and the total golfers are illustrated in Figure 2. One can easily see in the graph, why many assume the three variables are related.

## Hypotheses

It has been posited by the National Golf Foundation (2015a) and others (e.g. Cook, 2014) that the rise in golf participation during the mid to late-1990s was largely due to the general expanding economy. In addition to the golf-centric celebrity income effect, we look at household income and stock market returns as independent variables. Therefore:

**Hypothesis 1:** The Tiger Woods' Effect, operationalized as his off-course earnings, had a direct and positive impact on the level of golf participation of Core, Occasional, and Total golfers. This hypothesis reflects the impact of only Tiger's role as celebrity endorser.

**Hypothesis 2 and 2(a):** Real household income (or S&P 500 returns) is positively related to the level of golf participation for (a) Core golfers, (b) Occasional golfers, and (c) Total golfers.

**Hypothesis 3 and 3(a):** The dual impact of Tiger Woods' Effect, operationalized as his off-course earnings, combined with real household income (or S&P 500 returns) had a direct and positive impact on the level of golf participation of Core, Occasional, and Total golfers. These hypotheses were investigated utilizing linear regression.

Figure 1  
Long-term Participation Trends

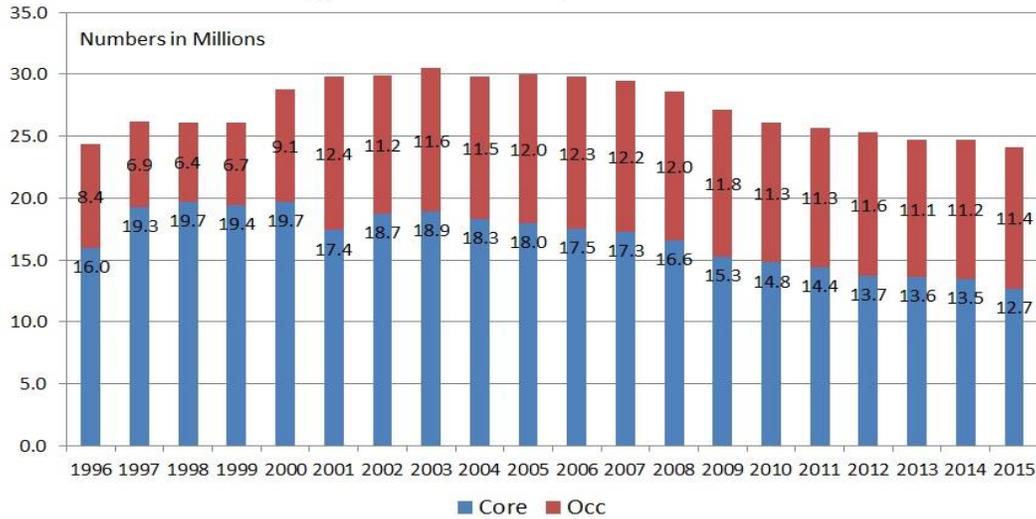


Figure 1: Long-term Participation Trends

Figure 2  
Median Real HH, S&P 500 and Golfers

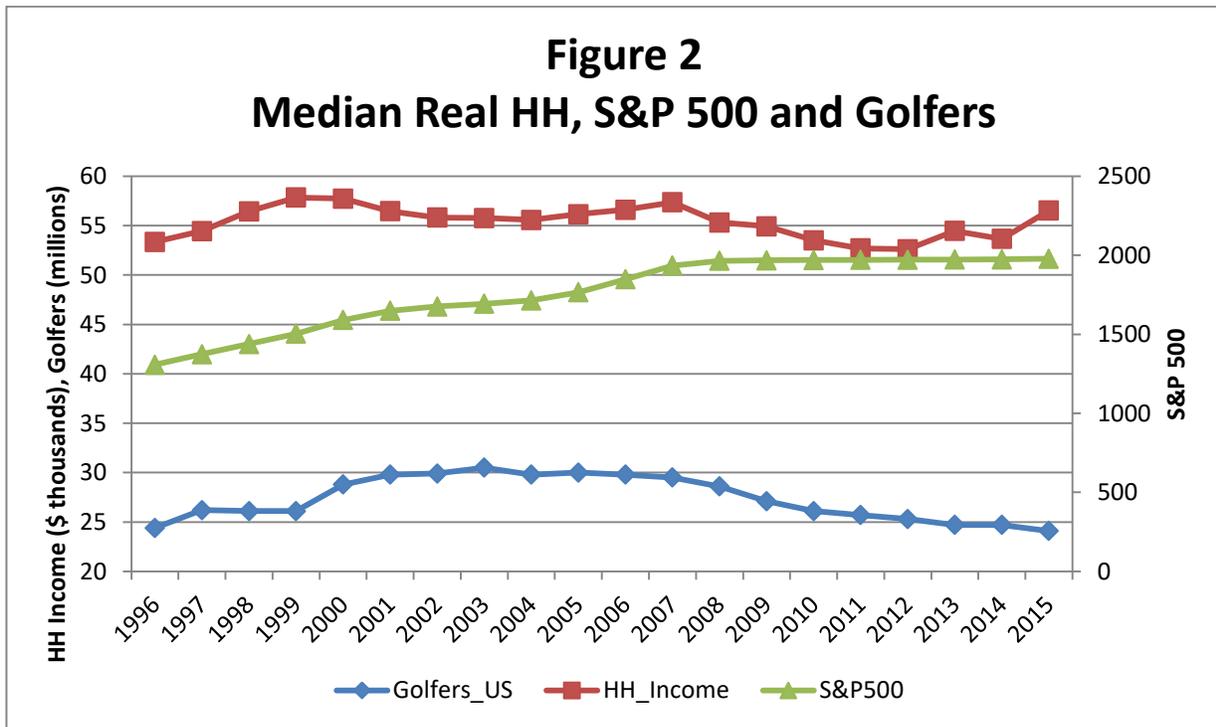


Figure 2: Median Real Household, S &P 500 and Golfers

Sample Results

The summary statistics used to investigate five hypotheses are shown in Table 1. Shown are the Means, Standard Error, Minimum levels, and Maximum levels of the dependent variables: Core golfers, Occasional golfers, and

Total golfers. The same statistics are shown for the three independent variables: Tiger’s Off-Course Earnings, Real Household Income and S&P 500 annual returns. Testing Hypothesis 1 –The results of testing the first hypothesis, the Celebrity Effect, can be seen in Table 2.

Table 1-Summary Statistics				
Series	Mean	Std. Error	Minimum	Maximum
Core Golfers (Rounds $\geq$ 8/year, in millions)	16.74	2.33	12.70	19.70
Occasional Golfers (1 < Rounds < 7/year, in millions)	10.62	1.96	6.40	12.40
Total Golfers	27.36	2.25	24.10	30.50
Tiger Wood's Off-Course Income (in millions)	\$63.18	\$27.78	\$12.25	\$109.60
U.S. Household Income (Real Median HH Income, in thousands)	\$55.36	\$1.61	\$52.61	\$57.84
Return on S&P 500	9.82%	18.56%	(36.55%)	33.10%

Table 2-Celebrity Effect			
	Core	Occasional	Total
Constant (P-Value)	17.98 (0.001)***	6.93 (0.001)***	24.91 (0.001)***
Off-Course Earnings (P-Value)	-0.02 (0.321)	0.06 (0.001)***	0.04 (0.032)*
R <sup>2</sup>	0.002	0.668	0.188
Level of Significance: * = 0.05; ** = 0.01; *** = 0.001			

Table 3-Household Income Effect			
	Core	Occasional	Total
Constant (P-Value)	-33.34 (0.037)*	19.38 (0.236)	-13.96 (0.378)
Real HH Income (P-Value)	0.90 (0.003)**	-0.16 (0.586)	0.75 (0.015)**
R <sup>2</sup>	0.356	-0.038	0.244
Level of Significance: * = 0.05; ** = 0.01; *** = 0.001			

Off-course earnings are positively related to the level of golf participation for (a) Occasional golfers and (b) Total golfers. The independent variable of off-course earnings has a significant statistical effect on the dependent variables Occasional and Total golfers at the  $p=0.001$  and  $p=0.032$  levels. Approximately, 67% of the variability in Occasional golfers and 19% of the changes in Total golfers are explained by changes in Tiger Wood's off-course earnings. Therefore, Hypothesis 1 is supported for two of the three dependent variables.

Testing Hypotheses 2 and 2(a) -Household income did not have a statistically significant effect on Occasional golfers, but the direct effect on the Core golfers was significant ( $p=0.003$  and  $R^2 = 35.6\%$ ). In addition, real

household income showed a positive effect on the Total golfers ( $p=0.003$  level and  $R^2 = 24.4\%$ ). Using the market return as the independent variable, in testing the alternative version of this hypothesis, none of the three groups of golfers indicated a statistically significant impact for changes in the market portfolio. These results provide support for Hypothesis 2, that real household income had a positive, and statistically significant, impact on the level of core and total golfer's participation. Therefore, Hypothesis 2 is supported and Hypothesis 2(a) is rejected. (See Tables 3 and 4). To this point, we have investigated three individual independent variables on their impact on the level of golf participation, measured by Core golfers (heavy users), Occasional golfers (light users), and the

Table 4-Wealth Effect			
	Core	Occasional	Total
Constant (P-Value)	16.79 (0.001)***	11.05 (0.001)***	27.84 (0.001)***
S&P 500 Return (P-Value)	-0.55 (0.855)	-4.35 (0.071)	-4.90 (0.077)
R <sup>2</sup>	-0.054	0.123	0.117
Level of Significance: * = 0.05; ** = 0.01; *** = 0.001			

Table 5-Celebrity and Income Effects			
	Core	Occasional	Total
Constant (P-Value)	-31.92 (0.043)*	15.02 (0.114)	-16.91 (0.213)
Off-Course Earnings (P-Value)	-0.02 (0.228)	0.06 (0.001)***	0.04 (0.001)***
Real HH Income (P-Value)	0.90 (0.003)**	-0.15 (0.381)	0.75 (0.005)**
R <sup>2</sup>	0.376	0.665	0.465
Level of Significance: * = 0.05; ** = 0.01; *** = 0.001			

Total golfers. We found that two of the independent variables, Tiger’s Off-Course Earnings and Median Household Income, were statistically significant for Occasional and Core groups of golfers. To test whether there might be interaction, multiple regressions was performed using Income and Off-Course Earnings as independent variables and the three golf classes level of participation as the dependent variable. (See Tables 5 and 6).

The results of the multiple regression show that Household Income is still statistically significant at the 0.003 level for the Core golfers and not statistically significant for the Occasional golfers. Again, the Total golfers are statistically significant at a similar level (p=0.005). However, the independent variable of Tiger Wood’s Off-Course Earnings remains statistically significant for the Occasional and Total golfer groups. Household Income is shown here to be the better predictor of the growth of Core golfers, as well as the growth in the Total number of golfers. When combining household income with the Tiger Effect (Off-Course Earnings), the Tiger Effect disappears for the Core and Total golfers. The effect of the return on the S&P 500, when combined with Real Household Income, does not influence the participation of any group of golfers.

**DISCUSSION AND SUMMARY**

The Tiger Effect may indeed be real – on other aspects of the ups and downs of the golf industry. In isolation, Tiger’s Off-Course Earnings, viewed as a Celebrity Effect, do not support the idea that there was an effect created by Tiger on the increased golf participation, particularly the Core players. But there was an indication that the Occasional golfer, which would usually include the beginner golfer, was impacted by the success of Tiger. So Tiger’s impact on golf participation was not going to translate to all golfers, anyway. Boorstin (1961) identified the athlete as a celebrity endorser was largely a creation of “a pseudo-event, claiming that the omnipresent print and broadcast media have provided a means of fabricating well-knowinness.” The celebrity endorser was identified by McCracken (1989) “as any individual who enjoys public recognition and who uses this recognition on behalf of a consumer good by appearing with it in an advertisement”.

As we added the Real Household Income (with a corresponding increase in discretionary income) for the same time period, it became evident that this variable had better overall explanatory power (R<sup>2</sup>). This was true when Income only was used (Hypothesis 2), but especially evident when both Household Income and Off-Course

Table 6-Celebrity and Wealth Effects			
	Core	Occasional	Total
Constant (P-Value)	18.37 (0.001)***	7.33 (0.001)***	25.70 (0.001)
Off-Course Earnings (P-Value)	-0.02 (0.278)	0.05 (0.001)***	0.03 (0.087)
S&P 500 Return (P-Value)	-1.67 (0.596)	-1.69 (0.263)	-3.36 (0.213)
R <sup>2</sup>	-0.039	0.674	0.217
Level of Significance: * = 0.05; ** = 0.01; *** = 0.001			

Earnings were combined in analysis. For Core golfers, the most significant factor for participation is Real Household Income. Occasional golfers are impacted positively by Off-Course Earnings and negatively by returns on the S&P 500.

The conclusion of this research does not support the idea that there was a Tiger Effect impact on golf participation in the late 1990s and early 2000s. It was always going to be a stretch of faith that an impact on one thing (increased TV viewership) would likely have a similar impact on all things golf (like participation). In those exciting early days of Tiger's entry into professional golf and his success and domination of the sport, it is not surprising that any – or all – of golf's problems were looking for a savior. Golf is still faced with many of the same problems such as declining participation (2015 showed another year-to-year decline) and the closing of golf courses (2015 showed a net loss of 172 courses) (NGF 2016a, b). The challenges are many, and relying on Tiger is no longer an option, and probably never was.

### Conflict of interest

Authors have none to declare

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