

Promotion Mechanisms on the PGA TOUR

Thomas A. Rhoads*

The dynamics of screening talent and promoting an athlete to a major team sports league is not entirely different from that of a major individual sports league. While talent is assessed through mechanisms offering more or less observations, coaching decisions and team quality that can affect performance in team sports are generally not present in individual sports. Avoiding the possible distortions that can come from assessing athletic talent in team sports, this article examines the ability of two PGA TOUR promotion mechanisms—the Nationwide Tour and Qualifying School (Q-school)—to predict success. As expected, the results suggest that more observations from the Nationwide Tour assessment mechanism provide more information about talent that can be used to better predict success on the PGA TOUR. But place of finish also matters, so promotion through the Nationwide Tour alone is not sufficient for a player to have the greatest chance for success.

JEL Classification: D83, J44, L83

1. Introduction

With rich contracts offered to the top draft picks in professional team sports leagues like the National Football League and the National Basketball Association (NBA), the newest prospects in these leagues attract increasing amounts of attention before they even step onto the field or the court. But there is considerable uncertainty in these prospects achieving success at the professional ranks. Therefore, it is not surprising that objective means of trying to predict success—such as scouting combines where invited participants' skills are systematically measured—have gained appeal as the stakes become greater and scouts attempt to reduce uncertainty in predicting success.

But how do the few observations of athletic skill in a setting such as a combine compare to multiple seasons worth of performance statistics in predicting future success? Should we expect good performance in a combine to be a better predictor of future success than putting up good statistics over the past few seasons? Because coaching decisions and team quality can affect athletic performance in team sports, a dose of subjectivity is often used when promoting athletes to the next level. Any test of observation mechanism or length on predicting success for individual athletes in a team sport is therefore likely to include unavoidable distortions.

But coaching decisions and team quality are generally not factors that affect performance in individual sports. The promotion mechanism for one individual sport league, the PGA TOUR, is the focus of this article. That the PGA TOUR is now promoting more players through a season-long observation of talent via the Nationwide Tour than in a one-tournament

* Department of Economics, Towson University, 8000 York Road, Towson, MD 21252, USA; E-mail trhoads@towson.edu.

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Qualifying School (Q-school) suggests more value in predicting future success by using more observations of talent. This article examines promotion mechanisms present on the PGA TOUR¹ with an eye toward how well these mechanisms can assess true player ability and thus screen talent for entrance into the PGA TOUR.

The payoff to the individual athlete can be substantial on achieving promotion to the top division in any individual sports league that allows for promotion between divisions. The player will compete for larger prizes, and endorsement deals are often more lucrative in the major league. But pursuing this promotion is not without cost since the athlete must demonstrate his or her talent level in an arena that is recognized and will lead to promotion. Because fans desire top talent² competing in individual sports leagues, these leagues are expected to, *ceteris paribus*, prefer promotion mechanisms that have a higher probability of properly assessing talent and predicting success. At least two general types of promotion mechanisms seem natural for an individual sports league—either a short-term or a long-term assessment of talent. A short-term mechanism in golf would generally involve assessing talent in one or a very limited number of tournaments, whereas a long-term mechanism would generally incorporate a series of tournaments. Most evidence suggests that a long-term assessment of talent is a better screening mechanism (see, e.g., Lee 2007) primarily because more observations are collected over a longer period of time; that is, sample size and time period matter. If we assume that a promotion mechanism in an individual sports league is to serve partly as a screening device to identify top talent, an open research question is what promotion mechanism, if any, leads to a higher degree of predicting success for a particular individual sports league—the PGA TOUR.

Each season, approximately 50 PGA TOUR cards are made available to promoted players. While these players are not granted full exempt status that would allow them to enter any PGA TOUR-sanctioned event they desire, they do not seem to have any fewer opportunities to enter tournaments with this marginally inferior designation on the PGA TOUR.³ These cards are distributed among graduates of the PGA TOUR Q-school and the top money winners of the Nationwide Tour.⁴ Q-school is a long tournament generally played in November or December, stretching six rounds, and includes two stages of regional qualifying for some players. Other players can qualify for the final stage based on their performance in other world tours throughout the year. Even so, this promotion path can be characterized as a short-term assessment mechanism when compared to the long-term assessment mechanism provided by the Nationwide Tour, with its full season of tournaments that players can compete in to attain promotion to the PGA TOUR. Many players enter more than 25 tournaments in the year, designating this path as a long-term assessment of player talent.

The PGA TOUR has recently allowed an increase in the number of players who are promoted from the Nationwide Tour and a decrease in the number of promotions available through the Q-School. In 1998, the top 35 finishers (and ties) in the Q-school received their

¹ Relegation mechanisms are discussed briefly in this article, but analysis is left for another article.

² Fan demand for individual sports leagues often centers more on absolute talent than on relative talent. Sanderson and Siegfried (2003, p. 273) note, “More unbalanced achievements prevail in many professional individual sports than in baseball,” suggesting that fans seem to prefer higher-quality (absolute) talent to more balanced (relative) talent in individual sports leagues.

³ The average number of tournaments entered for players with a PGA TOUR card but lacking full exempt status was almost 28 for the years 1996–2006. In 2006, the average number of events entered for all players with earnings on the PGA TOUR was 22. All PGA TOUR card holders must enter a minimum of 15 events a year.

⁴ Earlier names for the Nationwide Tour include the NIKE and BUY.COM Tours. While the names are different, the Tour is the same and essentially serves as the minor league to the PGA TOUR and is run by the PGA TOUR.

PGA TOUR card, down from the top 40 finishers (and ties) in previous years. This continued until 2004, when another change was made to give a PGA TOUR card only to the top 30 finishers (and ties) in the Q-school. In 2007, the top 25 finishers (and ties) in the Q-school earned a PGA TOUR card. In keeping the number of PGA TOUR cards awarded at 50 (or close to it in the presence of ties), this allowed for an increase in the number of promotions awarded to top money winners on the Nationwide Tour. In 1998, the top 15 money winners on the then NIKE Tour earned a PGA TOUR card, up from 10 the previous year. In 2004, this policy was changed to allow the top 20 money winners from the Nationwide Tour to earn a PGA TOUR card. In 2007, the top 25 money winners from the Nationwide Tour earned a PGA TOUR card.

Except for a few elite players like Tiger Woods and Phil Mickelson, everyone joining the PGA TOUR since 1965 has gone through Q-school at least once (Feinstein 2007). Players go through Q-school to be promoted to either the PGA TOUR or the Nationwide Tour. With only a few exceptions, a player will typically receive a first-time exemption to play on the Nationwide Tour through a middle-of-the-pack finish in Q-school. Top tier finishers in Q-school are promoted to the PGA TOUR, and the second-tier finishers in Q-school become exempt for play on the Nationwide Tour. As this is the way to first become exempt for play on the Nationwide Tour, the entry requirements for Q-school are a necessary part of the entry requirements for play on the Nationwide Tour. Middle-tier finishers in Q-school are therefore in the group that most clearly faces the choice of pursuing PGA TOUR promotion through either Q-school or the Nationwide Tour, and the analysis in this article focuses mainly on this type of player.

Typically, about 1200 players apply to participate in Q-school and a series of prequalifying, first- and second-stage rounds are held to reduce the field to about 160 players in the final qualifying stage.⁵ About 80% of the applicants enter at the first stage, but not all of these applicants are first timers in Q-school, and around 10 of these first-stage entrants eventually receive a PGA TOUR card (Feinstein 2007). The Nationwide Tour is structured very much like the PGA TOUR with similar-sized fields of about 150 players, but only 60 of them make the cut in each event, whereas 70 players make the cut in a typical PGA TOUR event. About 2% of Q-school applicants and close to 15% of Nationwide Tour players receive a PGA TOUR card.

Because the cost to players and the league of competing on the Nationwide Tour is expected to be higher than the cost of competing in Q-school, identifying a cost-effective talent screening mechanism, if one exists, is optimal.⁶ The goal of this article is to test the effect of promotion mechanism on success in the promotion year on the PGA TOUR. Section 2 provides a literature review and describes the data from the PGA TOUR. Section 3 presents a simple model of promotion and the empirical results. Section 4 offers concluding remarks.

⁵ Professionals and amateurs with a 2.0 handicap index or less and the appropriate entry fee may apply for Q-school.

⁶ Good cost data are not available, so comparing costs of playing on the Nationwide Tour to costs of Q-school is mostly limited to considering cash flow. Scully (2002) estimates that endorsement contracts for the average PGA TOUR player pays for most playing expenses, so this player typically will not experience cash flow problems. But new full-time players on the Nationwide Tour are not likely to earn similar endorsement incomes that can offset their playing expenses and may experience cash flow problems if they do not finish in the money in their first few tournaments. A player would not expect cash flow problems if he opted to pursue promotion through Q-school since he would likely have a job such as club pro while preparing for Q-school. Thus, players may prefer pursuing promotion to the PGA TOUR through Q-school instead of through the Nationwide Tour if cash flow matters.

2. Literature and Data

Leagues often implement various policies—such as promotion and relegation—to increase attendance and revenues through achieving an optimal level of competitive balance, but these effects are likely to be different in team and individual sports leagues (Sanderson and Siegfried 2003). Promotion and relegation mechanisms in open leagues tend to lead to more effort while providing few incentives to share resources. Because shared resources can aid in achieving competitive balance, open leagues are generally thought to lead to a reduction in competitive balance compared to closed leagues (Szymanski and Valletti 2005). The extent of this trade-off in open leagues remains uncertain, but the debate so far has focused on team sports leagues. Some individual sports leagues, such as the PGA TOUR, allow for promotion and relegation mechanisms to exist, and because fans of individual sports leagues usually demand higher levels of effort and skill over balance (see Sanderson and Siegfried 2003), an open-style league of competition in professional golf leagues may be the optimal structure to enhance fan utility while also maximizing league attendance and revenues. But errors in assessing the true ability of players playing in professional golf leagues can occur, which may lead to wrong players being promoted or relegated.

To this point, studies of promotion and relegation in team sports leagues have not focused on the assessment quality of promotion or relegation mechanisms, largely because the best teams that are promoted and the worst teams in the league that are relegated are determined through a season-long schedule of games that can identify with a large degree of accuracy the best and worst teams in that league. Since promotion and relegation mechanisms are intended mainly to screen talent, there has been little or no need to craft a promotion and relegation mechanism that can correctly identify talent beyond what already exists—promote the top teams and relegate the bottom teams at the end of the season.

Noll (2002) notes that player salaries and attendance are higher and competitive balance effects are ambiguous under a system of promotion and relegation, while Ross and Szymanski (2002) suggest that a promotion and relegation system would have welfare-enhancing effects in the United States. Entry can occur in a league with a system of promotion and relegation without the need for expansion, so promotion through sport merit makes it a possibility to eventually have a team reach a top division (Szymanski 2003). But promotion mechanisms are likely to differ in their ability to predict success—those that are good at predicting future success already are being sought in other arenas, such as education. And some promotion mechanisms are more costly than others, suggesting that cost-effectiveness matters. Lee (2007) finds that early selection of Olympic athletes is more efficient in medal production, even though it is less precise in identifying top athletes than a system that makes selection decisions later after much more information about skill is acquired. Thus, if resources are scarce, using a less precise predictor of future success, such as early selection, could be a favorable policy move.

A description of the promotion and relegation mechanisms for the PGA TOUR is helpful. The PGA TOUR, like other professional golf leagues, maintains a system of exemptions for players based on past playing success. Winners of tournaments in previous years as well as the past year's top 125 money winners are fully exempt to play in any PGA TOUR-sponsored event. Along with the 50 newly promoted players each year, this gives about 175 to 200 players who are eligible for play in a typical PGA TOUR event. Note that players whose exemptions are no longer current do not have full playing access on the PGA TOUR anymore. In most

cases, these players are relegated to the Nationwide Tour. This is the extent of the relegation mechanism on the PGA TOUR.

If the fully exempt players alone do not fill the fields for these tournaments, there are more slots available that may be filled by PGA TOUR members who are not fully exempt. Mostly, these openings in the field are filled by PGA TOUR members who were recently promoted to the PGA TOUR through top finishes on the Nationwide Tour money list in the previous year or from a top finish at the PGA TOUR's Q-school tournament in the previous year. Data for this analysis were collected from the PGA TOUR Media and Fan Guides and from the PGA TOUR's Web site for 560 promoted players in the year immediately following their promotion—their promotion year—from 1996 to 2006. Players who were injured during the season and could not complete a full schedule of play were not included.

During the PGA TOUR season, players compete in tournaments for relatively large purses. One explicit goal for each player on the PGA TOUR is to win at least one tournament or earn enough money to attain exempt status for the next year.⁷ Full exempt status carries with it many benefits, including job security and the ability to set a schedule in advance and play in tournaments that maximize expected marginal productivity and enjoy more lucrative endorsement contracts.⁸ In this article, success is defined as the attainment of full exempt status in the promotion year since earnings alone may not indicate success, as earnings can become high simply by entering many tournaments and having average success. To get away from this potential bias, a definition of success is used where the ability to win a tournament counts even when earnings would otherwise be low because a player entered few tournaments.

Mean and median earnings for Q-school graduates can be compared to earnings for Nationwide Tour money leaders. These earnings are adjusted for inflation. Tables 1 and 2 provide descriptive statistics for earnings and the number of events entered during the year for the promoted players in the data set. Using a *t*-test, an unconditional analysis indicates a significant difference in the mean earnings for players promoted through the two different mechanisms ($t = 3.30$). On average, Nationwide Tour graduates earn more in the promotion year than Q-school graduates. Since earnings are very much linked to skill (see Moy and Liaw 1998; Nero 2001; Rishe 2001; Alexander and Kern 2005), this suggests that the skill of the players in each promoted set of players is likely to be different as well. Another *t*-test reveals that the mean number of PGA TOUR events entered by players promoted through the Nationwide Tour is higher than for players promoted through Q-school ($t = 5.61$).⁹ Taken together, these results suggest there may be a difference in behavior and skill for these two recent promotion types on the PGA TOUR. For example, Nationwide Tour graduates likely

⁷ A player not achieving full exempt status is given a relegated status whereby that player does not have the opportunity to enter any PGA TOUR-sanctioned event as desired. Each year, about 20 newly promoted players either win or finish in the top 125 money winners, leaving about 20 veteran players to lose their exempt status. This is comparable to the turnover in the NBA, which has about 60 new players each year and about 360 active roster positions to fill and somewhat less than Major League Baseball, where teams lose about 27% of their players each year (Kahane and Shmanske 1997).

⁸ For most players, the opportunity cost of playing on the PGA TOUR is the salary from a club pro position. With 215 players on the PGA TOUR earning more than \$100,000 in 2006, continuing participation on the PGA TOUR is not assumed to be a losing proposition.

⁹ Note that players promoted through the Nationwide Tour have no advantage compared to players promoted through Q-school in attaining a spot on the priority ranking list if they had the same finish in their respective promotion mechanism. For example, a player finishing fifth on the Nationwide Tour will be at the same spot in the priority rankings as a player finishing fifth in Q-school. This gives no advantage to one promotion mechanism in gaining a spot in a tournament field.

Table 1. Earnings (\$2006) Data for Players in Data Set

	2006	2005	2004	2003	2002	2001	2000	1999	1998	1997	1996
Mean											
All	678,133	530,916	625,160	466,476	517,575	348,185	356,660	335,005	232,668	178,615	146,132
Q-school	626,334	587,636	480,638	483,174	485,010	302,141	344,263	308,658	212,153	165,010	142,691
Nationwide Tour	758,421	429,417	841,943	424,090	589,217	465,068	389,424	405,264	284,641	249,665	160,240
Median											
All	537,595	371,925	376,362	347,835	320,538	261,182	313,701	263,618	174,470	119,384	114,001
Q-school	491,043	355,868	323,553	348,976	281,421	206,022	305,745	189,686	161,896	85,220	99,849
Nationwide Tour	701,703	380,436	526,011	346,694	494,404	368,862	440,777	298,069	199,499	204,883	150,636
Standard deviation											
All	594,308	503,807	678,906	369,264	487,577	274,107	277,397	371,298	224,592	188,872	111,963
Q-school	605,202	598,859	551,919	398,938	463,628	239,497	290,170	372,574	223,351	180,783	118,246
Nationwide Tour	583,092	242,525	800,804	290,201	546,609	328,888	247,384	371,206	226,886	224,855	85,005

Sources: pgatour.com and annual PGA TOUR Media and Fan Guides.

Table 2. Events Data for Players in Data Set

	2006	2005	2004	2003	2002	2001	2000	1999	1998	1997	1996
Mean											
All	27.18	25.89	27.44	28.02	28.69	28.17	29.25	27.80	27.60	27.30	27.10
Q-school	26.71	25.38	26.93	27.64	28.52	28.03	28.51	27.30	26.66	26.53	26.46
Nationwide Tour	27.90	26.79	28.20	29.00	29.07	28.54	31.21	29.13	30.00	31.33	29.70
Median											
All	28.00	26.00	28.00	29.00	29.00	29.00	30.00	28.00	29.00	27.50	27.00
Q-school	27.00	25.00	27.50	28.00	29.00	29.00	29.00	28.00	27.00	27.00	27.00
Nationwide Tour	28.50	27.00	28.50	30.00	29.00	28.00	31.00	29.00	31.00	31.00	29.50
Standard deviation											
All	3.38	3.31	3.93	3.38	3.33	2.87	3.71	3.26	3.84	3.71	3.67
Q-school	3.54	2.75	3.88	3.24	3.01	3.20	4.01	3.12	3.91	3.51	3.64
Nationwide Tour	3.06	4.06	3.98	3.65	4.04	1.85	1.67	3.36	2.42	1.41	2.58

Sources: pगतour.com and annual PGA TOUR Media and Fan Guides.

have more experience in scheduling a season of tournaments, possibly giving them an advantage over Q-school graduates in planning a full and successful PGA TOUR season. A probit model is introduced in the next section and allows for a conditional analysis while controlling for skill.

Comparing earnings and skill sets is just one way of checking on and comparing the success of promoted players. A potentially cleaner way of analyzing success can be accomplished by examining how many promoted players attain full exempt status in a given year. Attaining full exempt status for promoted players can occur by either (i) winning a PGA TOUR event or (ii) earning enough money to end the season among the top 125 money earners.¹⁰ A promotion mechanism using a larger number of prior observations will on average lead to a larger number of higher-ability players being promoted through that mechanism. Therefore, Nationwide Tour top money earners are expected to have a higher success rate on the PGA TOUR than Q-school graduates. Table 3 summarizes the success of these players broken out by promotion mechanism. Using *t*-tests, unconditional analysis of the data shows a significantly larger percentage of players promoted through being a top money earner on the Nationwide Tour attaining full exempt status compared to those players promoted through Q-school ($t = 3.26$). Conditional analysis is needed to verify or refute these unconditional results.

In the next section, I present and provide results for a simple probit model. The results from this model are intended to provide insight to how promotion mechanisms can serve as screening devices for the PGA TOUR.

3. Model and Results

A model for success of newly promoted players on the PGA TOUR should include factors expected to influence earnings and wins (see Moy and Liaw 1998, Nero 2001; Rische 2001;

¹⁰ It is, of course, much more difficult for a player to achieve exemption through winning than through a top 125 finish on the money list. Recently, there has been an average of approximately 35 unique winners annually on the PGA TOUR.

Table 3. Number of Q-School Graduates and Nationwide Tour Top Money Earners

	2006	2005	2004	2003	2002	2001	2000	1999	1998	1997	1996
Q-school graduates	32	35	34	38	36	36	40	41	38	49	42
Q-school graduates in this data set ^a	31	34	30	33	33	33	37	40	38	47	41
Q-school grads attaining full exempt status	9	11	7	10	10	11	16	12	12	15	13
% Q-school grads in this data set attaining full exempt status	29%	32%	23%	30%	30%	33%	43%	30%	32%	32%	32%
Nationwide Tour top money earners	20	20	20	15	15	15	15	15	15	10	10
Nationwide Tour top money earners in this data set ^a	20	19	20	13	15	13	14	15	15	9	10
Nationwide Tour top money earners attaining full exempt status	11	3	8	6	7	5	8	6	7	5	4
% Nationwide Tour top money earners in this data set attaining full exempt status	55%	16%	40%	46%	47%	38%	57%	40%	47%	56%	40%
<i>N</i>	51	53	50	46	48	46	51	55	53	56	51

^a Some promoted players are not included in this data set because an injury prevented completion of a full schedule of play.

Alexander and Kern 2005). These same factors should have a significant impact on the chance that a promoted player on the PGA TOUR will attain full exempt status for the next year. This examination isolates the effect of promotion mechanism on the probability of success:

$$S_i = \beta_0 + \beta_1 \text{DIST}_i + \beta_2 \text{DACC}_i + \beta_3 \text{IRON}_i + \beta_4 \text{PUTT}_i + \beta_5 Q_i + \beta_6 \text{PLACE}_i + \beta_7 \text{PLACE}_i Q_i + \beta_j \sum_j \text{YEAR}_j + e_i. \tag{1}$$

A probit model is used to estimate the probability of success for promoted players. Starting with Shmanske (1992) and continuing through Alexander and Kern (2005), previous studies have determined the effect of skill and age on earnings for PGA TOUR players. The model presented here follows closely with those studies. In Equation 1, S_i is a dummy variable for success, taking a value of 1 if the promoted player i attains full exempt status in the year of promotion to the PGA TOUR and 0 otherwise. DIST_i and DACC_i control for measures of driving distance and accuracy, respectively, which are two indicators of driving skill and thus can influence player success. It is expected that coefficients on DIST and DACC should be positive since longer and more accurate drivers of the golf ball should shoot lower scores more consistently and should earn more money and have a better chance at attaining full exempt status. Descriptive statistics are provided in Table 4.

Iron-playing ability and putting skill are also very important attributes that could influence player success. Alexander and Kern (2005), following Berry (1999), provide a measure of iron-playing and putting skill in developing the variables IRON_i and PUTT_i . IRON_i is built by regressing greens in regulation (GIR) on DIST_i and DACC_i and then using the residuals as a measure of iron-playing ability. PUTT_i is constructed by regressing putts per green in regulation on IRON_i and then using the residuals as a measure of putting. The units on IRON and PUTT are not intuitive and need further explanation. IRON picks up the variation in GIR that is not

Table 4. Descriptive Statistics for Player Characteristics

Variable	Mean	Median	Standard Deviation	Minimum	Maximum
<i>S</i>	0.350	0	0.477	0	1
DIST	279.0	278.2	12.0	250.2	318.9
DACC	0.660	0.663	0.055	0.454	0.814
GIR	0.643	0.644	0.028	0.545	0.720
Putts/GIR	1.792	1.793	0.260	1.682	1.879
IRON	-1.67e-11	0.00	0.022	-0.095	0.069
PUTT	-1.73e-11	0.00	0.026	-0.112	0.0887
<i>Q</i>	0.71	1	0.45	0	1
PLACE	15.05	13.00	10.10	1	37
Earnings	397,680	256,172	437,216	2509	3,063,778

accounted for by DIST and DACC, while PUTT picks up the variation in putts per GIR that is not explained by IRON. Both IRON and PUTT provide a truer measure of iron-playing ability and putting skill than GIR or Putts/GIR and are expected to affect success, with IRON having a positive coefficient and PUTT a negative coefficient in the model in Equation 1.

Q_i is a dummy variable taking a value of 1 if the promotion mechanism for player i was through Q-school and 0 if the promotion mechanism was through the Nationwide Tour. More observations of talent should allow a more accurate assessment of talent. Because the assessment mechanism that promotes players from the Nationwide Tour relies on more observations of talent than the Q-school promotion mechanism, better players on average are expected to be promoted to the PGA TOUR from the Nationwide Tour than from Q-school. This suggests that we should expect a higher success rate for players promoted through the Nationwide Tour than through Q-school, so the coefficient on Q should be negative.¹¹ $PLACE_i$ is the place of finish in either Q-school or on the Nationwide Tour money list from the previous year. It is expected that the coefficient on PLACE should be negative, so that a better finish through one of the promotion mechanisms (i.e., a smaller value on PLACE) is one measure of relative skill and will lead to a better chance of achieving success. The coefficient on the interaction term $PLACE_i Q_i$ is included to account for the notion that Q-school is a higher variance screening mechanism than the Nationwide Tour. $YEAR_j$ are dummies for years 1996–2005, with 2006 as the excluded year. These are included to pick up on any variation caused by season-specific characteristics on the PGA TOUR that would impact all players, such as the increase in purse size that occurred in the time period studied.

Given these organizational parameters, coefficients for the probit model in Equation 1 are estimated and results are reported in Table 5. Generally, the results are as expected, and the coefficients have the expected signs. All the four skill variables are significant at the 1% level in determining success, and these results agree with those results found in Alexander and Kern (2005).¹² The coefficients on YEAR05, YEAR02, and YEAR97 are significant and are all years in which television contracts began to be renegotiated, so a contract year may affect performance on the PGA TOUR. The negative sign on YEAR05 and YEAR02 differs from the positive sign on YEAR97 and is perhaps explained by the introduction of the World Golf

¹¹ The PGA TOUR's move toward promoting more top money earners on the Nationwide Tour and fewer Q-school graduates also suggests a negative coefficient on Q since the PGA TOUR is likely to promote more of the players with the most talent and the best chance of achieving full exempt status.

¹² Ordinary-least-square results not reported here for a model regressing the natural logarithm of real earnings on the same variables as in the model in Equation 1 show significance at the 1% level for all the skill variables but not for Q at any conventional level. Conditional results thus suggest that earnings are not affected by promotion mechanism.

Table 5. Estimated Coefficients for Probit Model

Variable	Coefficient	Variable	Coefficient
Constant	-27.89*** (4.51)	YEAR04	-0.22 (0.32)
DIST	0.066*** (0.012)	YEAR03	-0.38 (0.32)
DACC	13.97*** (1.99)	YEAR02	-0.65* (0.35)
IRON	33.35*** (4.16)	YEAR01	-0.39 (0.34)
PUTT	-37.53*** (3.69)	YEAR00	0.60 (0.37)
<i>Q</i>	-0.58** (0.30)	YEAR99	0.55 (0.35)
PLACE	-0.076*** (0.027)	YEAR98	0.59 (0.39)
PLACEQ	0.070** (0.028)	YEAR97	0.82** (0.40)
YEAR05	-0.56* (0.31)	YEAR96	0.82* (0.44)

$N = 560$; $R^2 = 0.38$; $\chi^2 = 278.08$. Standard errors are in parentheses. *, **, and *** indicate statistically significant at the 10%, 5%, and 1% level, respectively.

Championship events in 1999. These events had much larger purses, smaller fields, and no cut. Eligibility requirements for these four events favored veteran players, making it more difficult for newly promoted players to enter these events. This would be expected to lead to a diminished chance for newly promoted players to achieve success compared to veteran players.

Note that veteran players would not want to experience a negative impact on their expected earnings in a zero-sum game, as better players provide more and better competition. Even though a deeper talent pool on the PGA TOUR could cause all players to see a positive impact on their expected earnings from increased fan demand and higher purses due to more and better competition, veteran players will still have a vested interest in protecting rents by restricting competition. Minimum age requirements on the PGA TOUR provide just one example of how competition can be restricted in order to benefit veteran players. But restricting competition is not unique to the PGA TOUR, as the LPGA Tour recently made English proficiency a requirement for all players. While the policy is billed as a necessary step to attract and retain critical sponsorships, many view this stipulation as an attempt to slow down the dominance of young Korean-born players on the LPGA Tour in order to benefit veteran players.

As expected, the coefficients on the variables *Q* and PLACE and the interaction of these two variables together suggest that promotion mechanism and place matter in predicting success. The significant negative coefficient on *Q*, -0.58, is expected and suggests that players promoted through Q-school are less likely to achieve full exempt status than players promoted through the Nationwide Tour, all else equal. But the coefficients on the variables in Table 5 cannot directly be interpreted as the marginal effects on success. Calculating the marginal effect of *Q* on success at the means of the independent variables after estimating Equation 1 gives a coefficient of -0.19 and suggests that players promoted through Q-school are 19% less likely to achieve full exempt status for the next year on the PGA TOUR as players promoted through a top finish on the Nationwide Tour, all else equal. Place of finish also matters, so promotion through the Nationwide Tour alone is not sufficient for a player to have the greatest chance for success in the promotion year. As expected, the coefficient on PLACE is negative, so a higher (worse) finish lowers the chance of achieving success. The positive coefficient on the interaction of PLACE and *Q*—PLACEQ—suggests that with increasing place of finish, the drop in success for players promoted through Q-school is not as steep as for players promoted via the Nationwide Tour. This is reasonable; the coefficient on PLACEQ must be positive if some players promoted via Q-school are to have a similar chance to achieve success as players promoted through the Nationwide Tour.

The marginal effects of PLACE and PLACEQ on success at the means of the independent variables are -0.023 and 0.021 , respectively. Using the marginal effects at the means of the independent variables for Q , PLACE and PLACEQ suggests a way to provide 50 PGA TOUR cards using both promotion mechanisms discussed in this article so that only the 50 players with the highest probability of success are promoted regardless of promotion mechanism. This protocol ensures that each one of the promoted players will have a higher probability of success than any of the players that are not promoted. If at least one promoted player from each promotion mechanism is included, the probability of success of the best nonpromoted player from Q-school will not be greater than that of the last promoted player from the Nationwide Tour. And the probability of success of the best nonpromoted player from the Nationwide Tour will be no more than that of the last promoted player from Q-school. Using the results from Table 5 and holding skill constant, the 10th-place finisher on the Nationwide Tour and the 40th-place finisher in Q-school effectively have the same probability of achieving success on the PGA TOUR so that the optimal mix is to allow 10 promotions through the Nationwide Tour and 40 through the Q-school. This was precisely the promotion mix in effect until 1998, when the PGA TOUR increased the number of Nationwide Tour promotions to 15, 20 in 2004, and 25 in 2007.

It is somewhat puzzling that while players promoted through Q-school are less likely to achieve full exempt status on the PGA TOUR the following year than their counterparts on the Nationwide Tour, more Q-school promotions are being recommended. Perhaps players just missing promotion to the PGA TOUR through Q-school are more likely to try Q-school again, putting a typical Nationwide Tour player lower down on the distribution of unobserved skill. It is also possible that the risk-taking skills that are required for success in Q-school and that exhibit higher variance are similar to the skills needed for success on the PGA TOUR. The skill set necessary to make the cut in a lot of tournaments on the Nationwide Tour and finish at the top of the money list may not be what is needed for success on the more competitive PGA TOUR and may be a function of the nonlinear prize structure of the Nationwide Tour.¹³

This result suggests that the PGA TOUR's objective function is optimizing something besides the number of promoted players attaining full exempt status and provides some insight to the recent moves by the PGA TOUR giving more promotions to top money earners on the Nationwide Tour than in previous years. Because the PGA TOUR operates the Nationwide Tour, it seems as if marketing the two tours together likely adds additional revenue to the junior league. Thus, promotion mechanism in this case appears to be less likely to be only a screening mechanism for promoting top talent to the PGA TOUR but rather may serve increasingly as a mechanism to tie the two tours together for financial reasons (see Noll 2002).

4. Conclusions

This article has examined promotion mechanisms for the PGA TOUR. Results from a probit model indicate that players promoted through the Nationwide Tour are more likely to achieve full exempt status on the PGA TOUR than if promotion came through Q-school once skill and place are controlled for. But promotion through the Nationwide Tour is not sufficient for a player to have the greatest chance for success in the promotion year. A few conclusions

¹³ Including a quadratic term for PLACE did not significantly change the results of the model.

follow. First, because cost is expected to be higher for players trying to get promoted through play on the Nationwide Tour, the increased probability of success points to a trade-off facing players seeking promotion to the PGA TOUR. Q-school can serve as a cost-effective way to seek promotion when players have talent but face limited resources with which to pursue promotion. The PGA TOUR should probably not eliminate Q-school as a promotion mechanism, as those finishing out of the top 10 in the Nationwide Tour money list do not appear to exhibit any better chance of achieving success on the PGA TOUR than if they had finished in the top 40 in Q-school.

The second implication is that promotion mechanisms in individual sports leagues such as the PGA TOUR may be viewed as being more than just a means for screening talent to allow the best athletes to compete at the highest level. By linking the Nationwide Tour to the PGA TOUR in this manner, revenues from the Nationwide Tour can become larger with the prospect of promotion (see Noll 2002). The optimal number of promotions the PGA TOUR gives to top earners on the Nationwide Tour to ensure maximum revenues likely differs from the mix of promotions that will maximize the number of promoted players receiving full exempt status. This leaves fewer possibilities for promotion through Q-school for those players with limited resources forced to compete on the Nationwide Tour to achieve a promotion.

Some other recommendations follow. If promoting a relatively large number of players to the PGA TOUR is the goal and if those promoted are to be the best players available, Q-school as the only promotion mechanism is cost effective. But if promoting a relatively small number of the best available players to the PGA TOUR is the goal, the Nationwide Tour as the only promotion mechanism seems to be required. Of course, the PGA TOUR has goals that reach beyond just promoting players and includes an integrated marketing scheme, so these recommendations are limited.

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