Taking Handle into Account:
An Economic Analysis of Account Betting

Abstract

Technology plays an important role in the gambling services racetracks provide. Cable TV, telephones, and the Internet have opened up opportunities for betting away from racetracks. Consumers can now determine their preferences for live entertainment, in-home entertainment, social interaction, and wagering and select the bundle of services they prefer.

This study uses regression analysis to estimate the demand for live and account betting. Separating the two types of betting services allows differentiation between the demand for betting services and the consumption aspect of horse racing. It also allows for the identification of unique characteristics of bettors using the different services.

The pari-mutuel horse racing industry has a long history in the United States. Since about 1875, betting on horse races has been conducted in the United States using a pari-mutuel system. Since its beginning, when, where and how pari-mutuel betting takes place has changed and expanded.

Technology plays an important role in changing the services racetracks provide. Telephones, televisions, and computers allow the racetrack industry to differentiate its product. Off-track betting (OTB) facilities allow bettors to consume racetrack services away from racetracks. Cable TV technology provides the opportunity to consume the same service OTB facilities provide at home. And telephones and the Internet have opened up opportunities for betting away from racetracks. Advances in technology help racetracks separate the consumption and betting attributes of their service.

Consumers can now determine their preferences for live entertainment, in-home entertainment, social interaction, and wagering and select the service they prefer. People interested in cheering for a horse in a crowd can go to a track or an OTB facility. Those who want to see races in privacy can view them on cable TV. Those interested only in wagers and results can bet without ever seeing a live or telecast race. Bets can be placed at the track, over the phone, or via the Internet. Racetracks now provide multiple services, each with its unique consumer group and demand.

This study estimates the demand for the two types of betting services provided by a pari-mutuel racetrack, live and account betting on a race. Separating the two types of betting services allows for differentiation between the demand for the betting service and the consumption aspect of horse racing. It also allows for the identification of unique characteristics of bettors using the different services.

The Literature

There is an extensive literature on pari-mutuel wagering on horse races. In a 1998 article in the Journal of Economic Literature, Sauer (1998) summarizes the literature on 'The Economics of Wagering Markets.' He found that 'prices set in these markets, to a first approximation, are efficient forecasts of outcomes. Second, price changes in these markets are driven by an informed class of bettors and improve prediction.' However, he concludes that studies have found departures from market efficiency due to diverse information, heterogeneous agents, and transaction costs.

Pari-mutuel horse racing is often used to study the efficiency of betting markets and the behavior of individual bettors. An edited volume by Hausch, Lo, and Ziemba (1994) includes 61 papers addressing the efficiency of betting markets. The papers look at psychological aspects of betting behavior (such as the 'gambler's fallacy'), the characteristics of the racetrack bettor's utility function, and optimal handicapping and wagering systems. Papers on the efficiency of win and exotic wagering markets and the favorite-longshot bias are also included in the volume.

Swidler and Shaw (1995) studied market efficiency with 'uninformed bettors' and found that the fast, repetitive feedback in horse racing facilitates learning and leads to an efficient win pool.

Chezum and Wimmer (2000) look at betting behavior with regard to 'homebred' horses (horses owned and raced by their breeder). They determined that homebred horses are favored by bettors, since breeders are expected to keep their best horses for racing.

Studies of bettor behavior and betting market efficiency focus on race odds and betting pools. These studies do not include analyses of bettor behavior with regard to the size of the handle bet on individual races.

There have also been a number of studies of the demand and elasticity of demand for pari-mutuel horse racing. Thalheimer and Ali have studied the demand for racing focusing on telephone wagering (1992), intertrack wagering (1995), exotic betting opportunities (1995), transportation costs (1997), and video gaming (1998). They consider the demand for alternative racing products and find that intertrack agering, telephone betting, and exotic wagering opportunities increase track handles. They find that track handle is sensitive to transportation (i.e. opportunity) costs and that the introduction of video gaming opportunities at a track decreases track racing handles.

DeGennaro (1989) considered the effect of breeder subsidies on the demand for wagering and found little or no economic impact on the volume of wagering. Pescatrice (1980) and Morgan and Vasche (1982) studied 'The Inelastic Demand for Wagering' at horse tracks. However, all of the studies of pari-mutuel horse racing demand to date have looked at daily track handles. There have been no studies that use race-by-race data to consider the attributes of individual races as they affect demand (handle).

Finally, the literature includes studies of a number of computer-based wagering systems and wagering experiments. Hausch, Lo, and Ziembe (1994) report on a variety of computer-based horse race handicapping and wagering systems. Wagering systems use a variety of race and horse specific criteria for selecting bets. Pescatrice (1985) and Piron and Smith (1995) use experimental racetracks to study wagering and test efficiency hypotheses such as the Asch-Quandt hypothesis.

Background

Advances in technology have a dramatic impact on the pari-mutuel racing industry. Before telephones, televisions, and computers, bettors attended races and placed bets at a track. Live racing was the only option. Today, races are simulcast to different tracks and OTB facilities. Cable TV carries races into people's homes. And bets can be placed via the telephone or computer. Bettors can bet on races held all over the world and place their bets from any telephone or via the Internet. Betting via the phone or Internet, rather than at a track or OTB facility, is termed account betting. Many major U.S. tracks operate account betting systems in which bettors open accounts with the track and submit their bets on the phone or computer.

Account betting systems separate the consumption benefits from attending a racetrack (the sights, sounds, excitement, social interaction, concessions, etc.) from the betting service. They serve consumers who are interested only in the gambling component of pari-mutuel horse racing. Therefore the demand for account betting services will be somewhat different from the demand for live racing services since the bettors and their demand differ.

Bettors will place a bet when the expected benefit of the bet exceeds the cost of placing the bet. The expected benefit of a bet is determined by the utility derived from betting, the probability of winning the bet and its payoff. The cost of placing a bet includes the opportunity cost of gathering and analyzing information and placing the bet either at a track or through an account. Since live bettors also receive consumption benefits from attending races, they may place a bet with a lower expected return than an account bettor would require before placing the same bet. That is, for a live bettor, part of the total return from placing a bet comes in the form of consumption benefits. Live bettors receive benefits in addition to the payoff from a bet, from watching a race and cheering for 'their' horse. Because account bettors and live bettors receive different benefits from placing bets, there will be differences in their choice of races to bet on (handicapping methods) and betting behavior.

Handicapping is the attempt to predict the winner of a race on the basis of past performance, breeding, track conditions, etc. Bettors use many different types of information to select a horse to bet on. Some bettors use very simple systems and others have very complicated methods for picking winners. The more complicated the system for selecting a bet, the higher will be the opportunity cost of a bet. Bettors interested only in the gambling aspect of betting on a horse race will be willing to spend more time handicapping to increase the probability of winning a bet with a higher payoff.

Taking a lot of time to handicap races can decrease consumption benefits for a live bettor. When bettors receive consumption benefits, the expected payoff from a bet need not be as high. The opportunity cost of handicapping is lower when bettors place random bets, select bets from available 'tip sheets', use simple handicapping systems and when information is more readily available. Bettors can bet on races that are easier to handicap to reduce their opportunity cost.

Race type is important because bettors feel more capable of handicapping races with certain characteristics. According to The Complete Idiots Guide to Betting on Horses, (Smith, 1998) Rule #1 of the Golden Rules of Racetrack Betting is 'Don't bet every race.' The Guide suggests spot play, that is, bet on races that fit certain characteristics and increase your confidence in handicapping the race. The need for bettors to select specific race characteristics for handicapping races is shown in the variety of wagering and handicapping systems. (Hausch, Lo, and Ziembe, 1994)

Races are often segregated by age, sex, and/or quality of horses. Age segregation is important at both ends of the spectrum. Two-year-old horses 'can be erratic, physically and mentally' while older horses (6 years on) 'should be worshipped as well as bet on.' (Smith, 1998, p. 66) Standardbred horses (those racing in harness races) all must take part in qualifying (non-betting) races before being allowed to race in a pari-mutual race. In addition, Standardbred's tend to race much more often than Thoroughbred's. For these reasons, more information and experience is accumulated more quickly for young Standardbred horses and age is not as much of a consideration for as long with harness bettors.

Segregating races based on sex is important for predicting the outcome of races. Handicapping female horses can be difficult for biological reasons. Female horses can run or trot as fast as males, but their performance can be more difficult to predict. Hormones cause female horses to be less consistent than males. Also, wider hips make females more competitive with males in trotting races and running at shorter distances, but are a disadvantage in pacing races. (Smith, 1998)

The quality of horses in a race is important to bettors. Bettors are more likely to bet on premium races, like the Hambletonian (a premier harness race). A race's purse is an indication of the ability of the horses running in the race and therefore also determines bettor's interest in the race and ability to handicap the race (due to increased information about the horses).

A variety of other, non race-specific, information is also used by bettors for handicapping. For example, there is a variety of horse-specific information that can lead a bettor to bet on a race. Horse-specific information affecting handicapping includes breeding, workout times, past performance information, medications or equipment, and a horses trainer or jockey. Chezum and Wimmer (2000) found that 'homebred' horses are favored by bettors. Superstition, intuition, and 'tips' (e.g. from trainers and drivers) can also affect bettors' handicapping decisions. Bettors' handicapping of a race are encompassed in their bet selections and reflected in the odds on the horses in a race.

Many studies have found that betting markets are efficient and bettors, as a group, are generally able to handicap races well. However, some research has established a betting pattern, known as the Asch-Quandt betting hypothesis or the favorite-longshot phenomenon, found at most racetracks. This phenomenon leads bettors to over bet longshots and under bet favorites in a race.

The Theoretical Model

For pari-mutuel racetracks, the quantity of bets demanded is measured by handle. Race handle is the total amount of money bet on a race. Since the payoff from a bet is reported for $2 bets, handle/2 is the quantity of $2 bets. The track can supply any number of $2 bets, so the supply of bets is unrestricted and the level of demand determines the quantity of bets.

The demand for a $2 bet at a track is determined by the expected rate of return on the bet and by bettor tastes and preferences. The expected rate of return on a bet is influenced by the takeout rate (the combined profit of the track and the state that is deducted from the betting pool before its distribution to winners), the bettor's opportunity cost, race odds, and the bettor's expectations about the performance of horses in a race.

Bettor expectations are based on a bettor's information and intuition about a race. In other words, bettors handicap races. Tastes and preferences are the factors that cause a bettor to prefer one type of horse, bet or race. For example, a bettor may prefer show bets (betting a horse will finish in the top three) to win bets (betting a horse will finish first) or races restricted to horses of a certain age or sex. Tastes and preferences also determine which type of betting service a bettor will use to place a bet, in this study the two types of services considered are live and account betting.

The demand for bets on a particular race (the handle for the race) is a function of the expected return to a bet and can be determined as follows:

Handle = f (expected payoff, opportunity cost, race type, bet type)

The expected payoff of a bet is determined by race odds and the number of horses in the race. The number of starters in a race influences the expected payoff. Since favorites win about 30% of the time (in harness races they win more than 30% of the time) and generally finish second or third if they don't win, the expected return on a show bet becomes low with a small field. While the probability of winning is high, after the takeout even a winning bet may not pay off. Takeout (the percent of the handle that goes to the track and the state) will also influence the return to a bet, however the takeout rate at a track is the same across all races.

The return to a bet is also influenced by the opportunity cost of betting. Thalheimer and Ali (1997) showed that the demand for wagering is sensitive to the time it takes to travel to a track. Handicapping also takes time. Therefore, alternative uses for time will influence a bettor's decision to bet on a race. When and where betting takes place will affect bettors' opportunity costs. While at a track, the marginal cost of betting an additional race is relatively low, while the marginal benefit of betting an additional race includes consumption benefits.

Since live bettors are also receiving consumption benefits from their betting activities, and handicapping takes time away from non-betting activities, live bettors are expected to spend less time handicapping races and may rely more heavily on proxies, like race characteristics (including odds) to determine their optimal bet.

Finally, the type of bets that can be placed on a race will affect the handle. The more different bets available, the more betting will take place, ceteris paribus, as bettors can choose from differentiated betting products. (Thalheimer and Ali, 1995)

The Data

This study looks at the demand for bets, both live and account, on individual harness races held at a U.S. racetrack. It is unique in that it uses race-by-race data to look at the demand for wagering. The data set contains information on 283 races held during July 2000. Handle data, broken into live and account handle, is proprietary information provided by the racetrack. Other information about the races is from the United States Trotting Association, the organization that oversees harness racing in the United States. Variables, like takeout rate, income, and population, that do not vary at a single track, during a single month are not included in this study. In addition, the temperature during race times over the month studied did not vary significantly from a comfortable range around 70 degrees and therefore temperature is not included in this model. Studies of multiple tracks or over a longer time period would need to account for changes in other determinants of demand.

The Empirical Model

The demand function, estimated for both live and account handle, is given below.

Handle = f (Index, #Starters, Holiday, Weekend, EarlyRace, LateRace, TrCond, Gait, ColtRest, FillyRest, FastClass, 2YrOld, Purse, Superfecta)

The definition of variables and expected signs are included in Table 1. The competitiveness index and number of starters are included to measure the expected payoff of a bet. Characteristics of individual horses in a race and other factors (like bettor intuition and handicapping tips) are encompassed in the race odds. The competitiveness index is a measure of the spread of odds in a race. If bettors prefer more dispersed odds they will bet on races with horses with very high/very low odds, that is, a race with a strong favorite. If they prefer to bet on a race where the expected winner of the race is unclear, they will bet races with more concentrated odds. Details of the construction of the index are included in Appendix A.

Live bettors receiving consumption benefits from watching races may prefer to see, and bet on, close races. A race with several horses battling to win at the wire is more exciting than a race with a winner leading the field by many lengths. Therefore the live betting handle on a race may be higher with a lower competitiveness index.

Holiday (in this case, the 4th of July) and Weekend are included to measure the opportunity cost of betting, particularly the time it takes to attend live races. People have a lower opportunity cost of spending time at a track on holidays and weekends, since more people work during the week. Weather conditions, including temperature and precipitation will also affect the return to a bet for someone who gets consumption benefits from attending live races. If the weather is too hot or too cold or it is raining or snowing, utility from going to the track and placing live bets will be diminished. The TrCond variable measures track conditions (fast track or sloppy track) and is a proxy for weather conditions as well as race conditions. Live racing will be more appealing during good weather. The temperature during racing at this track in July 2000 did not vary significantly from a comfortable range, so a temperature variable is not included.

EarlyRace and LateRace are included to account for the length of time it takes to run 13 - 15 races each night. Individuals may come late to the track or they may leave early, but during the interim, their marginal opportunity cost of betting an additional race is low, while an additional bet brings additional consumption benefits. If you are at a track to enjoy the races and betting on races brings added utility, why not bet each race? Therefore, the middle races of a race card should experience higher handles, ceteris paribus. Opportunity costs may be different for the first or last races of the night, if individuals must get to the track after work or are unwilling or unable to stay as late as the last races. However, Ali (1977) found that the last race of the day 'offers a chance for losing bettors to 'get out'; i.e. to recoup their losses with a final wager.' This may lead to a greater handle in later races from those bettors concerned with the gambling, rather than the consumption benefit from betting on races.

The track conditions for a race may also affect betting because of influences on handicapping. Different horses are affected differently by a sloppy racetrack, and these differences make handicapping more difficult.

Race characteristics can be used to provide information for handicapping. Since the data is for a harness track, the model controls for the two different gaits used in harness races. A harness race is held for either trotters or pacers. The handle for a race will vary depending on gait if bettors have a preference for betting on one or the other. There are generally more pacing races than trotting races at a harness track. Thus bettors have more experience betting pacers and handicapping pacing races entail a lower cost.

ColtRest and FillyRest are included to account for whether or not a race has a mixture of male and female starters. Mixing males and females makes handicapping harness races more difficult. Consider a trotting race in with both male and female starters. Handicappers must weigh the influence of the tendency of females to exhibit more erratic performance with their trotting advantage that comes from wider hips. This is why good trotting females are generally raced in female-only races. (Smith, 1998)

The age conditions of a race are measured by the 2YrOld and FastTrack variables. Races for two year-olds should be less appealing, while races for older horses (the invitational, preferred, or open races) should be more appealing. Finally, the purse for a race will help to determine the quality of the horses racing. Higher purses lead to higher quality entries.

At this track, the only types of betting that are not available for all races are the daily double and superfecta betting. The daily double is available only on the first and second races of the night and are therefore measured as part of the EarlyRace variable. Superfecta betting is allowed on selected races during the race meet. The opportunity for this additional type of betting should increase the handle on a race, ceteris paribus. The means and standard deviations of the variables are reported in Table 2.

The Results

The results of the regression for live and account handle are given in Tables 3 and 4. The F-statistics for both regressions show that the equations are significant. The R^2 indicates both equations have good explanatory power, especially for cross-sectional data of this type. The R^2 value is higher for the live handle equation, perhaps because the method used by live bettors for handicapping is simpler and easier to capture in the model.

For the live equation, all variables except for 2YrOld are significant and each has the expected sign. The index variable is negative and significant.

The live racing handle equation finds that handles are higher on weekends and holidays. Further, bettors like races in the middle of the race card and a dry track. These findings are consistent with the expected results for bettors that attend races at a horse track in part for the consumption benefits.

The results indicate live bettors prefer betting on races with more starters, as predicted. Live bettors also bet more on pacers, races restricted by sex, higher purse races, and special races for high quality older horses. These results are consistent with the idea that live bettors, who also receive consumption benefits from attending races, may use more basic, easily available information to handicap races. Since there are more pacing races at harness tracks, bettors have more opportunity to learn from experience with pacing races. In addition, horses are more likely to break gait in trotting races, making them more difficult to handicap. Races that restrict the class of horses entered remove some of the variables that must be considered in a race. For example, races that limit entrants by sex remove the difficulty of factoring in consistency issues for fillies - either none or all of the horses are affected by hormones. In higher purse and invitational races, higher quality horses with more readily available information compete. Live bettors can bet on these races effectively using readily available information, giving up fewer of their consumption benefits.

Races that have the additional option of superfecta betting had higher live betting handles, ceteris paribus. This is consistent with Thalheimer and Ali (1995).

Finally, the index variable shows that, for live betting, bettors prefer races with more concentrated odds. As the index variable decreases (the odds in the field are closer), the handle on a race increases.

For the account betting equation, all variables have the expected sign, but only 8 of the 14 variables are significant. The LateRace variable is positive and significant.

Account bettors were similar to live bettors with respect to weekends and holidays, but handle did not significantly decrease for early races in the account betting equation. It may be that account bettors can handicap early races in advance and place their bets. For later races, account bettors may be influenced by information that becomes available during the evening (e.g. track conditions, driver performance) or by their success/failure through the night. Track conditions did not affect the account betting handle significantly. Weather conditions are not as important to bettors who place their bets from a remote location (and don't have to stand in the rain that creates the sloppy track).

Account handle was significantly increased for pacers, races with more starters, and races with superfecta betting. These findings are consistent with the live handle equation results.

Sex restrictions and quality measures (purse and FastClass) were not significant. These findings, and the lower R^2 value for account handle, may indicate a more detailed, complex handicapping system for account bettors. Account bettors may not be dissuaded by the more detailed analysis required for unrestricted races. Thus, factors outside the model influence account bettors' decisions.

ince account bettors select bets based on the expected return only (no consumption benefits), they will be influenced more strongly by the probability of winning a bet and its payoff than live bettors. They can be expected to spot play, only placing bets with high expected returns, rather than betting each race on a card. The account handle was significantly reduced for the less predictable two-year-old races.

Conclusions

The regression results for both the live and account betting equations are summarized in Table 5.

Race handles increase significantly on weekends and holidays. Based on the magnitude of the coefficients, weekends increase handle more for live racing while holidays increase handle more for account betting. These results show that a large portion of bettors respond to opportunity cost, placing more bets when their opportunity cost is low.

All other things equal, live handles tend to be higher for races on the middle of the race card and account handles increase for later races.

Superfecta wagering is found to increase race handle for both live and account betting, adding about $300 to the live handle and $500 to the account handle (ceteris paribus). Sloppy race conditions decrease live betting handle with little impact on account betting handle. The wet conditions appear to be more important for the performance of the humans than the performance of the horses.

There is a strong preference for pacing races over trotting races for both live and account bettors. There are more pacing races to provide information and experience for bettors. Age and sex restrictions influence handle, but differently for account bettors and live bettors. Live bettors bet more on races with sex restrictions and high quality races. The preference for high quality races may be due to the consumption benefit for live bettors and the type of information used for handicapping. The utility from attending races at a track may be higher for important, high quality races (e.g. the Hambletonian), where the race is also a social event.

Account bettors stay away from races for 2-year-olds. This may be due to the inherent difficulty in handicapping races where horses have less experience and therefore there is less information available. Live bettors (who are interested in the consumption benefits of racing as well as the wagering benefits) may be betting based on more general race-specific information while account bettors (who are most interested in the wagering product) handicap races using more detailed, horse-specific information. This would also explain the lower R^2 value for the account betting equation, since race specific variables don't capture the horse-specific information that may be important to account bettors.

Finally, the results for the index variable indicate that live bettors may indeed go to the track to bet on and cheer for real horse races (i.e. races without an overwhelming favorite).

Table 1

Definition of Variables

Index (?) Competition Index (see discussion in text)
#Starters (+) Number of horses starting in the race
Holiday (+) = 1 if 4th of July, 0 otherwise
Weekend (+) = 1 if Saturday or Sunday, 0 otherwise
EarlyRace (-) = 1 for race 1-4 of the night, 0 otherwise
LateRace (-) = 1 for races 11 and later, 0 otherwise
TrCond (+) = 1 if fast track, = 0 if sloppy track
Gait (-) = 1 if the race is for pacers, = 0 if the race is for trotters
ColtRest (+) = 1 if the race is restricted to colts, 0 otherwise
FillyRest (+) = 1 if the race is restricted to fillies, 0 otherwise
2YrOld (-) = 1 if the race is restricted to 2 year olds, = 0 otherwise
FastClass (+) = 1 if the race is invitational, preferred, or open, 0 otherwise
Purse (+) The dollar value of the purse offered for the winners of the race
Superfecta(+) =1 if there is superfecta betting on a race, 0 otherwise

Table 2
Descriptive Statistics

DependentVariables	Mean	Standard Deviation
Live Handle	4322	1332
Account Handle	3425	942
IndependentVariables	**Mean**	**Standard Deviation**
Holiday	.053	.225
Weekend	.475	.500
Earlyrace	.284	.452
LateRace	.291	.455
Superfecta	.223	.417
TrCond	.848	.360
#Starters	8.133	.951
Index	.382	.112
Gait	.362	.481
ColtRest	.060	.238
FillyRest	.220	.415
FastClass	.078	.269
Purse	6403	7212

Table 3

Live Handle Equation

Variable	Coefficient	t-Statistic			
Constant	1365.87	2.13*			
Holiday	974.65	3.46***			
			Weekend	1580.88	11.84***
EarlyRace	-444.01	-3.17***			
LateRace	-400.26	-2.94***			
Superfecta	297.01	1.99*			
TrCond	65.00	3.91***			
#Starters	256.70	3.63***			
			Index	-1134.61	-2.21*
Gait	-543.11	-4.70***			
ColtRest	789.24	2.44**			
			FillyRest	451.34	2.76***
			2YrOld	227.52	0.98
			FastClass	812.00	3.48***
			Purse	0.01	1.29+
F-Statistic	25.09				
					R^2 .57
					N 283

*** Significant at the .01 level
** Significant at the .05 level
* Significant at the .10 level
+ Significant at the .10 level, 1-tailed test

Table 4

Account Handle Equation

Variable Coefficient t-Statistic		
Constant 748.30 1.35		
Holiday 1471.77 6.06***		
	Weekend 591.15 5.13***	
		Earlyrace -71.87 -0.59 Laterace 316.74 2.69***
Superfecta 485.10 3.76***		
TrCond 57.13 0.39		
#Starters 242.34 3.97***		
	Index 565.99 1.28+	
Gait -82.82 -0.83***		
ColtRest 166.96 0.60		
	FillyRest -35.27 -0.25	
	2YrOld -320.67 -1.59+	
	FastClass 190.33 0.95	
	Purse -0.006 -0.72	
F-Statistic 10.56		
	R^2 .36	
	N 283	

*** Significant at the .01 level
** Significant at the .05 level
* Significant at the .10 level
+Significant at the .10 level, 1-tailed test

Table 5
Regression Results Summary (significant variables)

Live Handle	Account Handle
Holiday(+)	Holiday (+) Weekend(+) Weekend(+)
EarlyRace(-)	
Laterace(-)	LateRace(+)
Superfecta(+)	Superfecta(+)
TrCond(+)	
#Starters(+)	#Starters(+) Index(-) Index(+)
Gait(-)	
ColtRest(+)	
FillyRest(+)	
2YrOld(-)	
FastClass(+)	Purse(+)

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Appendix A | Calculation of the Competitiveness Index

The competitiveness index is a measure of the allocation of money bet on a race and therefore the concentration or dispersion of the odds on horses in a race. This index is patterned after the Herfindahl Index, which uses sales percentages in an industry to measure market concentration. The competitiveness index uses the same approach as the Herfindahl Index to evaluate the competitiveness of a race (as determined by bettors). It takes into account the distribution of bets placed on a race by squaring the percent bet on each horse to give greater weight to favorites. The competitiveness index is given as;

$$_{m}C = \sum_{i=1} X_i^2$$

where each X_i is the percent of the total amount bet on a horse and m is the number of horses in a race. In a 'perfectly competitive' race, with an infinite number of horses each with a small amount bet on them, the competition index would approach 0. A more realistic example is a race with 10 horses where 10% of the total amount bet is placed on each horse. In this example, the competition index equals .1. In a race where the outcome is certain (according to bettors), all money would be bet on the favorite horse and the index would equal 100^2 or 10,000. The competition index measures the concentration/dispersion of odds on a race, which is part of the determination of the expected return on a bet (both the chances of winning and the payoff in the event of a winning bet). It can be useful in investigating betting behavior to determine how the level of competition affects the amount bettors are willing to bet on a given race. Do bettors look for a race where the horses are very competitive and it isn't clear which horse will win (a true 'horse race') or do they look for strong favorites or long shots in a race?

A bettor can select from a range of different situation with regard to the level of competitiveness perceived by bettors as a whole. Bettors can select from high return/low probability or low return/high probability bets in a race with a high competition index (and a likely winner). Or they can choose to bet on a race with a low competition index and experience the excitement cheering for their selection in what is expected to be a close race. In reality, the takeout and breakage (rounding of payoff values) are subtracted from the pool before it is distributed to winners.