

Empirical study of Online Horse Race Bettors Betting Behavior in Finland

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Horse race betting in Finland

- Horse race betting is a traditional betting form, first events organized in the 1810s and betting become legal in the late 1920s.
- The form of the horse racing in Finland is mainly harness trot racing, also some Monte racing races are organized.
- According to the prevalence surveys, Fintoto organized betting online or offline participates 5-7% of the respondents that have participated in gambling during last 12 months. (6.8% in 2011 and 5.4% in 2015)
- One of the most popular spectator sports, thus the number of spectators on racetracks has been decreasing (1.5 million in 1990, 650 000 in 2014).
- The online gambling service initiated in 2002 nowadays the most significant platform to sell horse race betting (57.6% i.e. 133.1M€ of 231.1M€ in 2014).
- Due to the Lottery Act in 2012, Fintoto has legal monopoly on horse race betting. Before that horse race betting was offered by Fintoto and Veikkaus (higher volume pool games T5 and T65).

This study

- The goal of this study is to produce an overview of online horse race bettors betting behaviour in Finnish pari-mutuel betting markets.
- There are three stages in the study:
 - 1) The descriptive analysis of the data: 1) the geographical origin of the bets 2) analyse betting behaviour with summary statistics 3) the structure of the betting market
 - 2) Quantile regression analysis, where bet amounts are explained with the demographic variables (such as age, sex, living in a city) in each quantiles
 - 3) Analyse the most active five percent of players, referred to as the group of heavy bettors, with a probit model

Research data

- A data consist of all race-level bets (Quinella, Trifecta, Win Bet and Place Bet) and transactions made on Fintoto's online betting platform (www.fintoto.fi) from August 1st to August 30th 2012 on a daily basis. Information on multiple race betting types (Double, T4, T5 or T65) are not available for the analysis.
- During the data period players were offered horse racing events from over 50 different racetracks from Finland, Sweden, France and Unites States.
- After exclusions, the dataset consists of 18 641 differentbettors whose behaviour is tracked at the individual-level. Totally, data includes about 4.8 million bets and 135 000 transactions.
- The resolution of the gambling data is very high since the following specific betting information are given: the precise time of the bet, racetrack, bet amount, odds for the bet, bet type, result of the bet, and money transfers made to and from the betting account.
- The only demographic variables available are age, gender and postal code.

The geographical origin of bets?

- Individuals bet amounts are aggregated using provided postcodes at the municipality level. The aggregated bet amount is divided with the number of adults in each municipality. The received attribute is visualised in the following map.
- Findings:
 - Bets from nearly every municipality (306 of 320)
 - Racetrack increases volume
 - Volumes are lower in coastal area, especially in swedish speaking municipalities

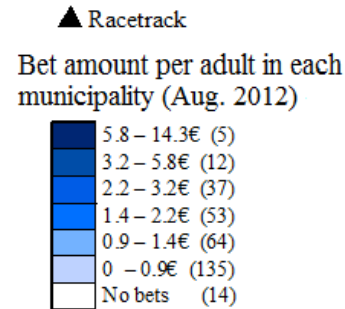


Figure 1. Average wagering per adult in each municipality

Table 1. Descriptive statistics for the online players behavior measures during 30 days

<i>Number of players</i>	<i>18 641</i>			
<i>Demographics</i>	Mean	Median	Min	Max
<i>Age</i>	48.46	49	18	103
<i>Gender (0=female, 1=male)</i>	0.81	1	0	1
<i>Activity attributes</i>				
<i>Number of played days (max. 30)</i>	6.97	4	1	30
<i>Number of events played (max. 93)</i>	9.55	4	1	93
<i>Number of races played (max. 856)</i>	31.20	10	1	749
<i>Number of bets made</i>	254.34	52	1	18 227
<i>Number of tickets made</i>	48.24	13	1	2750
<i>Transaction attributes</i>				
<i>Number of transactions</i>	6.80	2	0	247
<i>Number of deposits</i>	5.50	2	0	169
<i>Number of withdraws</i>	0.44	0	0	70
<i>Sum of transactions (€)</i>	109.82	45	-109 000	20 850
<i>Betting attributes</i>				
<i>Player total bets (€)</i>	337.29	58	0.50	65 791
<i>Player net win (€)</i>	-80.56	-21	-10 650.80	6 904.60

The structure of the betting market

Table 2. Aggregated shares of bet amounts in each game types

	<i>All game types</i>	<i>Quinella</i>	<i>Place Bet</i>	<i>Trifecta</i>	<i>Win Bet</i>
<i>Top 10 players</i>	0.046	0.064	0.151	0.045	0.112
<i>Top 1% of players</i>	0.278	0.294	0.402	0.207	0.403
<i>Top 5% of players</i>	0.551	0.571	0.668	0.471	0.673
<i>Top 10% of players</i>	0.699	0.720	0.785	0.629	0.785
<i>Top 25% of players</i>	0.882	0.893	0.910	0.842	0.906
<i>50% of players</i>	0.971	0.974	0.969	0.958	0.972
<i>Low 25% of players</i>	0.995	0.995	0.991	0.993	0.992
<i>Low 10% players</i>	0.999	0.999	0.998	0.999	0.998
<i>Number of players</i>	18 641	14 829	7019	11 777	9759
<i>Observed turnover (€)</i>	6 287 508	3 618 902	433 829	1 607 685	627 092

- Top 10 players generate nearly 5% of total turnover.
 - Top 5 percent of players generate 55% of turnover.
 - Top 10 percent of players generate 70% of turnover.
- ➡ Bet amounts are heterogeneous in such a manner that most players play moderately but some of them are very active.

Estimation results

Table 3. Regression results for Quantile regression and Probit model

<i>lnbets</i>	<i>Quantile regression</i>					<i>Probit</i>
	10%	25%	50%	75%	90%	<i>topfive</i>
<i>intercept</i>	-0.097	1.108**	1.568**	2.358**	2.946**	-4.106**
<i>Std. error</i>	0.227	0.220	0.176	0.188	0.270	0.306
<i>age</i>	0.033**	0.024*	0.052**	0.065**	0.084**	0.071**
<i>Std. error</i>	0.009	0.010	0.008	0.008	0.010	0.010
<i>male</i>	1.230**	1.202**	1.504**	1.896**	2.150**	1.204**
<i>Std. error</i>	0.168	0.196	0.139	0.144	0.223	0.224
<i>dracetrack</i>	0.182**	0.095*	0.024	0.048	0.058	0.031
<i>Std. error</i>	0.047	0.037	0.041	0.042	0.050	0.035
<i>dcity</i>	-0.049	0.071	0.087*	0.097*	0.214**	0.120**
<i>Std. error</i>	0.056	0.048	0.042	0.050	0.054	0.043
<i>age</i> ²	-0.1*10 ⁻³	-0.3*10 ⁻⁴	-0.3*10 ^{-3**}	-0.3*10 ^{-3**}	-0.6*10 ^{-3**}	-0.6*10 ^{-3**}
<i>Std. error</i>	0.9*10 ⁻⁴	0.1*10 ⁻³	0.8*10 ⁻⁴	0.9*10 ⁻⁴	0.1*10 ⁻³	0.9*10 ⁻⁴
<i>age*male</i>	-0.017**	-0.012**	-0.016**	-0.021**	-0.025**	-0.016**
<i>Std. error</i>	0.003	0.004	0.003	0.003	0.005	0.004
<i>R</i> ²	0.010	0.015	0.021	0.025	0.023	0.021

The main results of quantile regression analysis:

- The wagering of “typical male” is 1.5 times higher than with female
- Most active players live in cities (*dcity*–variable is significant in higher quantiles).
- *dracetrack* is significant in lower quantiles, but insignificant in higher quantiles.
- *age* has positive impact on the bet amount, but the impact is decreasing (*age*² is negative).
- The interaction term *age*male* has negative point estimates

Characteristics of heavy bettors

We analysed the most active 5% of the players with probit model where the dependent *topfive* - variable is dichotomous (1 belongs to top 5%, 0 otherwise). We computed probabilities for representative player:

$$P(\text{topfive} \mid \text{age} = 20, \text{male} = 1, \text{dracetrack} = 0, \text{dcity} = 1, \text{age}^2 = 400, \text{age} * \text{male} = 20) = 0.0279... \approx 3\%$$

$$P(\text{topfive} \mid \text{age} = 20, \text{male} = 0, \text{dracetrack} = 0, \text{dcity} = 1, \text{age}^2 = 400, \text{age} * \text{male} = 0) = 0.0026... \approx 0.3\%$$

$$P(\text{topfive} \mid \text{age} = 50, \text{male} = 1, \text{dracetrack} = 0, \text{dcity} = 1, \text{age}^2 = 2500, \text{age} * \text{male} = 50) = 0.0687... \approx 7\%$$

$$P(\text{topfive} \mid \text{age} = 50, \text{male} = 0, \text{dracetrack} = 0, \text{dcity} = 1, \text{age}^2 = 2500, \text{age} * \text{male} = 0) = 0.0300... \approx 3\%$$

$$P(\text{topfive} \mid \text{age} = 75, \text{male} = 1, \text{dracetrack} = 0, \text{dcity} = 1, \text{age}^2 = 5625, \text{age} * \text{male} = 75) = 0.0266... \approx 3\%$$

$$P(\text{topfive} \mid \text{age} = 75, \text{male} = 0, \text{dracetrack} = 0, \text{dcity} = 1, \text{age}^2 = 5625, \text{age} * \text{male} = 0) = 0.0271... \approx 3\%$$

The main results of the Probit analysis:

- For online horse race bettors, a middle-age male has a higher change of belonging to the group of heavy bettors
- The gender differences in belonging to heavy bettors are the highest among young individuals, whereas there is no gender difference among the older person.

Summary

Key findings

- Wide geographical distribution of bettors: 1) racetrack increases volume 2) volumes lower on swedish speaking municipalities
- A typical player nearly 50 year old male
- Heterogeneity of gambling behaviour, Top 5% wager 55% of total turnover
- Males bet typically 1,5-times more, most active players live in cities, age has positive impact – it's decreasing and older females bet more than older males and the difference is slightly increasing among quantiles
- Typical heavy bettor is middle-age male, among young individuals the heavy bettor is 10 times more likely male and among the older person there is no gender difference

Thank you!



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