

Takeout: Then, Now, and in the Future

Steve May

Association of Racing Commissioners
International

RTIP Graduate Student

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Race Track Industry Program

Introduction

- From Miami, TX
- Education
 - THE Ohio State University
 - Race Track Industry Program Graduate
 - Research on Takeout

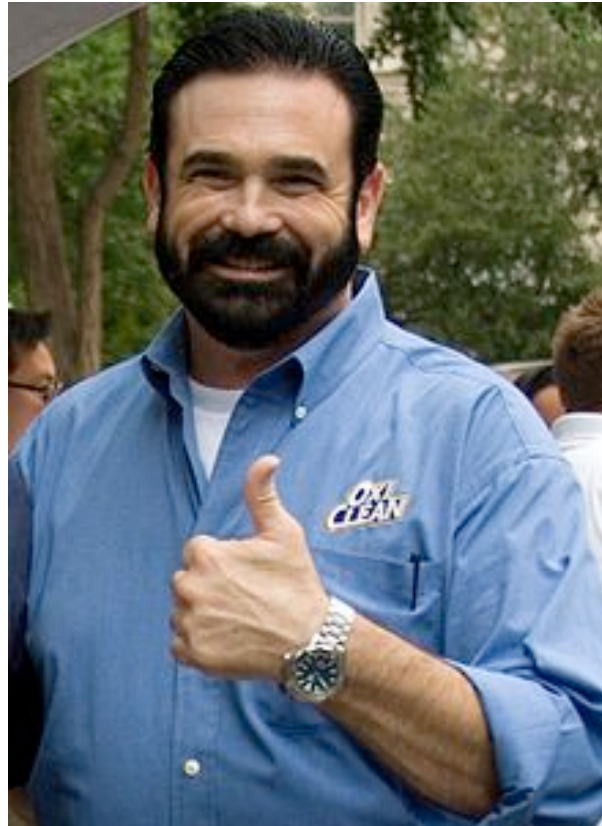


Employment

- Rillito Park
- Harness Tracks of America
- Tioga Downs
- RCI



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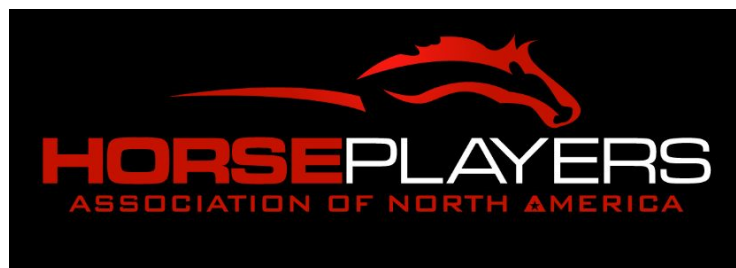
Graduate Research Project

A Simulation Model to Observe Potential Effects
of Altering Pari-Mutuel Takeout



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Takeout – A Current and Common Argument



- **Our Goals: ADW Signal Availability** - All track signals available to all licensed ADWs all the time. No exceptions and no blackouts. Ever.
- **Takeout** - Takeout needs to be lowered significantly and lowered NOW. We believe 9 or 10 percent takeout every pool - every track - every race - every day - *marketed in the right way as the greatest gambling game on the planet* will create an upward explosion in handle and generate new massive interest about the game among the millions of gambling customers racing has failed to reach for almost a generation and has absolutely no chance of reaching under the status quo.

Reductions and Increases Tried Many Times in Many Ways



Wagering innovations more effective than takeout reduction

[Print](#)

by Ed DeRosa

Maryland Jockey Club President Lou Raffetto had no trouble summing up the performance of Laurel Park's "ten days at 10%" promotion this summer.

"It was a [public relations] bonanza but a financial bust," Raffetto told attendees of the 15th annual International Simulcast Conference during Monday's opening session in Kansas City.

The blended takeout rate was about 11.4% on the Laurel signal, resulting in payoffs up to 20.2% higher on multiple horse wagers such as trifectas and pick threes, but bettors did not respond favorably, as handle during a five-day period in mid-August this year compared with similar dates in 2006 declined 8.5%.

Takeout Hike OK'd to Help Simulcast Sites

by Jack Shinar
Date Posted: 1/16/2010 6:08:00 PM
Last Updated: 1/16/2010 6:18:08 PM

Responding to what track owner Dr. Ed Allred called "a desperate situation" at the state's simulcast wagering locations, the California Horse Racing Board agreed to hike takeout on Quarter Horse wagers at Los Alamitos Racecourse by 2% on Jan. 15.

Allred told the board during its meeting at Santa Anita Park that roughly half of the projected increase in revenue as the result of the increased takeout would go to the struggling simulcast network. The other 1% would belong to horsemen and the racing association. The board approved the rate increase by a 6-1 vote with commissioner Keith Brackpool in opposition.

Keeneland Alters Takeout Rates for Spring Meet

by Tom LaMarra
Date Posted: 3/21/2002 11:08:18 AM
Last Updated: 3/21/2002 8:00:28 PM

Keeneland, which last fall experimented with a reduced 16 percent pari-mutuel takeout, has made adjustments for its spring meet, which begins April 5. The takeout for win, place, and show wagers will remain 16 percent, but for exotic bets, it will go back up to 19 percent.

The takeout reduction last fall led New York off-track betting corporations and a group of racetracks in the Mid-Atlantic Cooperative to pull the Keeneland signal from betting outlets. The Mid-Atlantic tracks got back on board a few days into the meet after a deal was made, but the New York outlets did not. As a result, total handle on the Keeneland product was off by \$11 million from the spring 2001 meet.

BloodHorse.com / Horse Rac

[Home](#) > [News](#) > [Laurel Cuts Meet Takeout to 10% Across the Board](#)

Laurel Cuts Meet Takeout to 10% Across the Board

Updated: Friday, July 20, 2007 3:01 AM
Posted: Wednesday, July 18, 2007 10:11 AM



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Literature Review



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An Inquiry Into the Economics of Race-Track Gambling

- Arthur Gruen, Tufts University, 1976
- Journal of Political Economy
- One of the original papers on the topic



An Inquiry Into the Economics of Race-Track Gambling (Cont)

- Expected Monetary Value

EVM Schedule of Bettor 1				
Option	Bet	Probability of Winning	Payoff	EMV
1	No Bet	0%	\$ -	0.00
2	A	30%	\$ 3.40	-0.38
3	B	5%	\$ 25.00	-0.65
4	C	15%	\$ 11.40	0.01
5	D	25%	\$ 7.00	0.25
6	E	25%	\$ 4.60	-0.35

- Probability of Winning multiplied by Payoff

EVM Schedule of Bettor 2				
Option	Bet	Probability of Winning	Payoff	EMV
1	No Bet	0%	\$ -	0.00
2	A	40%	\$ 3.40	0.16
3	B	5%	\$ 25.00	-0.65
4	C	10%	\$ 11.40	-0.66
5	D	20%	\$ 7.00	-0.20
6	E	25%	\$ 4.60	-0.35

An Inquiry Into the Economics of Race-Track Gambling (Cont)

Effects on EMV with 17% Takeout Rate

New EMV Schedules			
Bet	Payoff with 17% Takeout	EMV for Bettor 1	EMV for Bettor 2
No Bet	\$0.00	0.00	0.00
A	\$2.80	-0.56	-0.08
B	\$22.80	-0.76	-0.76
C	\$10.40	-0.14	-0.76
D	\$6.40	0.10	-0.32
E	\$4.20	-0.45	-0.45

An Inquiry Into the Economics of Race-Track Gambling (Cont)

- Studied races from Aqueduct and Belmont Park between 1940-1969
- Found that with changes in takeout rates that wagering changed in an elastic manner
- Determined that optimum price was around 14.88%

An Inquiry Into the Economics of Race-Track Gambling (Cont)

- *“Off track betting (OTB), on the other hand, would have a significant effect on on-track gambling. It is for this reason that our sample period stops before OTB was instituted. Gimic wagering has the allure of huge payoffs and is designed to promote betting. Again our sample period stops before such bets were instituted.” –Arthur Gruen*

The Elasticity of Demand for Gambling

- Daniel Suits, Michigan State University, 1979
- The Quarterly Journal of Economics
- Began to take into account off-track wagering
- Maximum revenue to state is derived from low takeout but low track fees

The Inelastic Demand for Wagering

- Donn R. Pescatrice, Tulane University, 1980
- Applied Economics
- Stated that demand was inelastic in relation to takeout rates, cited that New York lost revenue when lowering takeout rates

Economic Principle Involved

- Paper: Taxes, revenues, and the “Laffer curve”
- Jude Wanniski, 1978
- National Affairs

- Does this apply to pari-mutuel wagering?



Possible Agreement in Literature

- Jeremy Bentham (1748-1832) and John Stuart Mills (1806-1973)

- Philosophers

- Utilitarianism



- Greatest Good for the Greatest Number

More Possible Agreement

Where You Stand on Takeout Depends on
Where You Sit



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Even More Agreement

Add another family member

Relationship Status:

Interested in:

Looking for:

Single
In a Relationship
Engaged
Married
It's Complicated
In an Open Relationship
Widowed

Networking

Political Views:

Religious Views:

My Project Plan



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Goal

- Develop a computer simulation model to observe the wagering possibilities in 2011 of racetrack bettors
- Relies heavily on possibility of wagering on multiple races at multiple racetracks
- Develop a Gambler's Ruin for pari-mutuel wagering

Research Basis

- Government Sanctioned “Tight” and “Loose” Slot Machines: How Having Multiple Versions of the Same Slot Machine Game May Impact Problem Gambling
 - Kevin A. Harrigan and Mike Dixon
 - University of Waterloo
 - 2010

Harrigan and Dixon (Cont)

- Noted that Canadian law exempts slot machines from requirements that takeout rates be posted
- Side-by-side games can have different takeout rates
- Games that are more “fair” can increase revenues to state by contribute to Problem Gaming

Gambler's Ruin

- Determines how many times a player can place wagers until the player dissolves entire bankroll.
- Used to control an environment while making slight changes

Gambler's Ruin Example

Times Played	Takeout Rate: 75%		
	Beginning Bankroll for Player A	Player B Keeps	Ending Bankroll for Player A
0	\$500.00	\$375.00	\$125.00
1	\$125.00	\$93.75	\$31.25
2	\$31.25	\$23.44	\$7.81
3	\$7.81	\$5.86	\$1.95
4	\$1.95	\$1.46	\$0.49
5	\$0.49	No Play	No Play
Times Played	Takeout Rate: 50%		
	Beginning Bankroll for Player A	Player B Keeps	Ending Bankroll for Player A
1	\$500.00	\$250.00	\$250.00
2	\$250.00	\$125.00	\$125.00
3	\$125.00	\$62.50	\$62.50
4	\$62.50	\$31.25	\$31.25
5	\$31.25	\$15.63	\$15.63
6	\$15.63	\$7.81	\$7.81
7	\$7.81	\$3.91	\$3.91
8	\$3.91	\$1.95	\$1.95
9	\$1.95	\$0.98	\$0.98
10	\$0.98	No Play	No Play



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Gambler's Ruin

- Very easy to develop for games of chance using a simple Random Number Generator
- Determine number of winning possibilities for mega-jackpots, jackpots, small wins, etc.
- All other possibilities result in a decline in player bankroll

Gambler's Ruin Simulation Different in Games of Skill

- Games of skill mean that player's ability "should" contribute to the likelihood of winning in next play
- Games of chance are totally that – chance

Trying to Build a Model

Research Limitations

- Wanted to use actual pool data to calculate pari-mutuel payouts correctly at different takeout rates
- Wanted to use actual player data

Limitations

- Unable to obtain **actual** pool data
 - Could only obtain WPS pool data
 - Estimated Win Pool
 - Estimated Amount Bet on Winning Horse

Player Profiles (2)

Player Type	Min Average Bet	Max Average Bet	Frequency	% of Total	Average Win Percentage
A	\$2	\$5	129	47.163%	14.596%
B	\$5	\$10	44	19.504%	16.423%
C	\$10	\$25	43	21.277%	22.244%
D	\$25	\$50	13	4.965%	21.197%
E	\$50	\$100	8	3.191%	35.081%
F	\$100	\$500	6	3.901%	15.016%

Simulation Model



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Player Profiles

- A single racetrack has helped me by providing Player Rewards data
- Tracked Win wagers on Thoroughbred Races for the short period of time
- Grouped Players into Betting Groups, along with their Winning Percentages



Basics of Model

- Used a “Weighted Random” to Determine Race
- Used a “Weighted Random” to Determine Player Type to Use
- Used a Random Number to Determine Wager Outcome

Basics of Model (2)

- Next Race is Randomly Selected over the next 6-Minute Period to Reflect Simulcast Environment of 2011
- A New Random Number is Used to Determine the Outcome of the Wager

Example of Simulation Model

Wager Number	Date	Track	Race Number	Theoretical Wager	Random Number for Win
1	Sunday, August 30, 2009	DMR	3	\$16	0.490639665
2	Sunday, August 30, 2009	AP	5	\$10	0.133660293
3	Sunday, August 30, 2009	ELP	6	\$14	0.305821068
4	Sunday, August 30, 2009	SAC	5	\$18	0.756013534
5	Sunday, August 30, 2009	RD	4	\$12	0.067325351
6	Sunday, August 30, 2009	CT	6	\$10	0.715734682
7	Sunday, August 30, 2009	CRC	7	\$25	0.70827422
8	Sunday, August 30, 2009	HOO	8	\$14	0.959473516
9	Sunday, August 30, 2009	SAC	6	\$14	0.827928059
10	Sunday, August 30, 2009	RD	5	\$10	0.834039927
11	Sunday, August 30, 2009	PHA	9	\$16	0.553362395
12	Sunday, August 30, 2009	AP	7	\$11	0.380564789
13	Sunday, August 30, 2009	SAC	7	\$21	0.343410153
14	Sunday, August 30, 2009	RD	6	\$22	0.073963542
15	Sunday, August 30, 2009	DMR	6	\$20	0.716294519



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Example of Simulation Model (2)

						Baseline (2009 Takeout Rates)	
Date	Bankroll Balance	Track	Race Number	Amount of Wager	Win?	Calculated Mutuel Pay	Cumulative Bankroll
6/3/09	\$50.00	IND	5	5	No	0	\$45.00
6/3/09	\$45.00	PID	4	3	No	0	\$42.00
6/3/09	\$42.00	PEN	2	2	No	0	\$40.00
6/3/09	\$40.00	PID	5	2	No	0	\$38.00
6/3/09	\$38.00	PEN	3	2	Yes	\$5.20	\$41.20
6/3/09	\$41.20	PID	6	5	No	0	\$36.20
6/3/09	\$36.20	CT	2	4	No	0	\$32.20
6/3/09	\$32.20	PID	7	5	Yes	\$26.00	\$53.20
6/3/09	\$53.20	CT	3	4	No	0	\$49.20
6/3/09	\$49.20	IND	9	2	Yes	\$4.20	\$51.40



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Example of Simulation Model (3)

Wager	Base		-2%		-5%		All 20%		All 15%		All 10%	
	PM Pay	Bank	PM Pay	Bank	PM Pay	Bank	PM Pay	Bank	PM Pay	Bank	PM Pay	Bank
1	0	\$45.00	0	\$45.00	0	\$45.00	0	\$45.00	0	\$45.00	0	\$45.00
2	0	\$42.00	0	\$42.00	0	\$42.00	0	\$42.00	0	\$42.00	0	\$42.00
3	0	\$40.00	0	\$40.00	0	\$40.00	0	\$40.00	0	\$40.00	0	\$40.00
4	0	\$38.00	0	\$38.00	0	\$38.00	0	\$38.00	0	\$38.00	\$0.00	\$38.00
5	\$5.20	\$41.20	\$5.40	\$41.40	\$5.40	\$41.40	\$5.00	\$41.00	\$5.40	\$41.40	\$5.60	\$41.60
6	0	\$36.20	0	\$36.40	0	\$36.40	0	\$36.00	0	\$36.40	0	\$36.60
7	0	\$32.20	0	\$32.40	0	\$32.40	0	\$32.00	0	\$32.40	0	\$32.60
8	\$26.00	\$53.20	\$27.00	\$54.40	\$27.50	\$54.90	\$25.00	\$52.00	\$27.00	\$54.40	\$28.50	\$56.10
9	0	\$49.20	0	\$50.40	0	\$50.90	0	\$48.00	0	\$50.40	0	\$52.10
10	\$4.20	\$51.40	\$4.40	\$52.80	\$4.40	\$53.30	\$4.20	\$50.20	\$4.40	\$52.80	\$4.60	\$54.70

Why Are Player Profiles Important?



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Gambler's Ruin for Games of Skill

- Reliable Player Data is ESSENTIAL
- Different Skill Levels are Impacted Differently



Research Conclusions



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Flaws in Research

- Player Data, Player Data, Player Data
 - Without Reliable Data Gambler's Ruin is Impossible to Reliably Predict
- Access to Other Pool Data
 - Estimated Pools, Especially Amount Bet on Winning Horse

Flaws in Research (2)

- Player Biases
 - Regional
 - “Walk Away or Reload” Phenomena
 - “Outlier” Wagering Events
 - Other wager types
 - Etc, etc, etc...

Conclusion – Much Work to Be Done



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Suggestions

- Research and Understand Causation verses Correlation
- Look Into Sources for Player Data
 - Rewards Programs, Even Though Not Perfect
- Investment into Other Research

