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research reveals...

an update on gambling research in ALBERTA

Economics professor analyzes betting behaviour in the lab and at the track

WHEN IT COMES TO PARI-MUTUEL BETTING on horse racing, the horse attracting the greatest total of wagers in a particular race makes it the favourite to win the event. If a horse receives comparatively few wagers, it becomes what is known as a "longshot" and is considered by the racetrack gamblers to have only a slim chance of emerging victorious. Winning bets on longshot horses have high odds and pay off at considerably higher returns than for bets on winning favourites. Given that some gamblers will bet on favourites and others on longshots, one might wonder—are there any economic determinants that influence these individual choices? Research undertaken by University of Calgary economist Dr. David Walls and funded by the Institute attempts to find answers to this question through the examination of betting behaviours in both experimental and real-world settings. In doing so, alternate mechanisms for generating gambling revenue in Alberta may become apparent.

A favourite-longshot bias?

Dr. Walls first became interested in studying gambling markets after reading a number of papers detailing the favourite-longshot bias in pari-mutuel horse racetrack betting. The favorite-longshot bias is the empirical regularity that bettors bet in such a way that the returns to low-odds bets are systematically higher than the returns on longshot bets. This means that gamblers in general overbet the longshots relative to the favourites. According to Walls, many researchers have used the favourite-longshot bias as evidence that people are irrational or love risk. These explanations of how individuals make decisions under uncertainty made little sense to him, and led him to study gambling markets. Fortunately for researchers, gambling is one of the few areas where individuals can be observed making decisions in an environment of uncertainty and where the probabilities of the outcomes are ultimately known.

Your comments and queries are welcome either by e-mail **abgaming@ualberta.ca** or phone 780.492.2856.

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The University of Nevada, Las Vegas Casino Lab experiment

The first phase of Walls' research involved the design of a laboratory experiment to collect data that reveal individual choices in response to several parameters relevant in gambling markets. In order to simulate the realism that is sometimes lacking in laboratory studies of human behaviour, the experimental "gambling market" was conducted in the Casino Lab at the University of Nevada, Las Vegas. Walls points out that, "By conducting the experiment in an actual casino lab, we provided a range of extraneous stimuli not unlike that available in a [traditional] casino". Participants in the study were undergraduate students who were familiar with gambling.

"By conducting the experiment in an actual casino lab, we provided a range of extraneous stimuli not unlike that available in a [traditional] casino".

The experiment used in the lab sought to quantify the demand for gambling by comparing repeated trials for ten different levels of "taxation". A traditional red and black roulette wheel was used to conduct the trials. This wheel also included a varying number of green slots that represented the gaming "tax". As additional green gaming tax slots were added to the wheel (increasing the effective tax rate), the participants' odds of winning were reduced. An option also existed for the participant not to gamble and instead take a guaranteed minimal payout based on the flip of a coin. At some point, the gambler would choose not to participate in the roulette wheel spin and instead select the coin flip. Identifying that point was one of the goals of the experiment.

Analysis of the tote* at Northlands Park

Phase two of the research project involved obtaining and analyzing actual wagering data from the Northland Park horse racing track in Edmonton, Alberta. Using the data allowed Walls to compare the gamblers' betting behaviour with profit-maximizing behaviour. In order to clarify the concept of profit-maximizing, Walls provides the following explanation: "If horse racetrack bettors maximized their returns from betting, the returns should be equalized across longshot and favourite horses." The results of a statistical analysis led Walls to conclude that gamblers at that track did not maximize expected financial returns. He observed that "instead of finding a preference for longshot bets, we found a preference for more conservative bets".

One interesting result of Walls' analysis of the Northlands Park data is that the actual betting behaviour of gamblers in this sample differs from nearly all other comparable studies. According to Walls, "the preference for conservative bets—those with the highest probability of winning—is consistent with bettors making their 'game bank' last as long as possible". These gamblers, it seems, bet in a manner consistent with minimizing the cost of actively participating in betting markets—behaviour consistent with rational economic agents engaged in a leisure activity.

* The "tote" refers to the totalizator machine that was used in the days of mechanical computing machinery to calculate the odds in a pari-mutuel betting market.

Concluding remarks

Walls is careful to point out that his investigations are based on overall betting behavioural patterns and not those of any particular sub-group (i.e. problem gamblers). He also stresses that, in these studies, "we did not ask the bettors to articulate their behaviour to us". Overall, Walls says, "research findings are that the behaviour of gamblers is entirely consistent with maximizing behaviour. In other words, if you understand the bettor objectives and their constraints you will find that their decisions are consistent with rational economic behaviour."

Sources of additional information about this project:

Walls, W. D., Harvey, P., & Swayze, J. (2004).The revealed revenue effects of gambling taxation: Logit analysis of bettor behavior in a laboratory casino. *International Journal of Management, 21*(4), 407-414.

Harvey, P. J., & Walls, W. D. (2004). Laboratory economics as a research tool in the study of gambling markets. In G. Coman, (Ed.), *Proceedings of the 13th annual National Association for Gambling Studies Conference, Canberra, Australia, November 2003* [CD-ROM] (pp. 116-120). Alphington, Australia: National Association for Gambling Studies Inc.

Walls, W. D., & Busceh, K. (in press). The behaviour of Alberta gamblers: Evidence from the tote at Northlands Park. *Gambling Research.*

Walls, W. D., & P. J. Harvey. (in press). Modeling gambling demand in a laboratory casino: Discovering the importance of individual-specific effects. In L. V. Williams, (Ed.), *Information Efficiency in Financial and Betting Markets.* Cambridge: Cambridge University Press.

Horse racing at Northlands reached the zenith of its popularity in 1982...

History of horse racing at Edmonton's Northlands Park

THE ROOTS OF HORSE RACING in the Edmonton can be traced back to contests that started in 1882. They were held in conjunction with the Edmonton Agricultural Society's annual agricultural show and exhibition and took place in the city's Rossdale Flats area. By 1900, racing was relocated from this downtown location to its present site in the city's northeast. A new permanent track opened in 1907 and pari-mutuel betting was offered for the first time in 1913.

Photo by Ryan Haynes

Over the next several decades, the sport flourished and resulted in Northlands Park hosting the Canadian Derby in 1957. It continued to do so annually during the following seventeen years. As a testament to its popularity, the facility was averaging over $300,000 a day in wagers placed throughout the 79 race days by 1978. Horse racing at Northlands reached the zenith of its popularity in 1982 but a drop in revenues

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in the subsequent years threatened the sport's very existence. Northlands adapted to the financial challenges facing horse racing by making major improvements to its grandstand and adding slot machines in 1996 under the Province's Racing Industry Renewal Initiative.

For more information about Northlands Park and its long pedigree of horse racing, carnival (midway) gambling, and casino gaming, see the "Northlands Park—Memories Worth Keeping" web site (http://www.northlandsmemories.com).

2004 National Institute of Drug Abuse (NIDA) Young Investigators Award

NICOLE PEDEN, A DOCTORAL STUDENT in clinical psychology at the University of Calgary, was invited to present her Masters research at the Young Investigators: Poster Session and Social Hour sponsored by National Institute of Drug Abuse (NIDA) and Divisions 28 [*Division on Psychopharmacology and Substance Abuse*] and 50 [*Division of Addictions*] of the American Psychological Association. Her research focused on establishing the construct validity[1] of self-efficacy[2] in problem gamblers. Nicole was supervised by Dr. David Hodgins, who holds a university appointment funded by the Alberta Gaming Research Institute.

[1] *Construct validity* refers to the extent to which an instrument adequately measures a theoretical construct that it purports to measure.

[2] *Self-efficacy* is the conscious awareness of one's ability to be effective in controlling one's actions or outcomes.

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