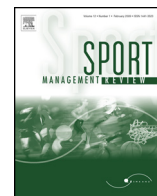




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Sports gambling as consumption: Evidence from demand for sports lottery



Luke Lunhua Mao^{a,*}, James J. Zhang^b, Daniel P. Connaughton^c

^a University of New Mexico, United States

^b University of Georgia, United States

^c University of Florida, United States

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ABSTRACT

Although the fact that sports lottery has become a prevalent phenomenon, it remains an under-researched area in sport management literature. Based on Conlisk's (1993) theory on the utility of gambling, an econometric model of demand for sports lottery gambling was constructed. The model assumes an experiential utility associated with sports lottery gambling, and proposes that rational consumers are mainly motivated by product attributes and marketing variables. The model is empirically examined by using a set of draw-to-draw sales data of a sports lottery in China. Time series analyses were conducted to analyze the determinants of sports lottery demand. This study revealed that ticket composition had considerable impact on the demand after partialling out information through the inclusion of an ex-post Prediction Difficulty Coefficient in the regression model. Eight percent of variance in the demand for sports lottery was found to be associated with ticket composition variables. The results provide additional evidence to the existing literature on sports gambling as consumption. The notion that nonmonetary activities associated with sports lottery gaming have a consumption value has considerable implications in terms of designing lottery products and delivering value to its consumers.

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1. Introduction

There has been a long and symbiotic relationship between sports and gambling. Some sports, such as horse racing and Jai Alai in the United States, owe their very existence to betting (Forrest & Simmons, 2003). Because of the unpredictability of competition results, sport events have always been an attractive medium for betting. In fact, the origins of three major types of betting systems, bookmaking (fixed-odds betting), pari-mutuel betting (totalisator), and betting pool (sports lottery) were closely related to sports (Munting, 1996). Sports lottery is a compromise between traditional lottery games and sports betting. It is a form of lottery gambling that involves betting on the results of preselected sport events. Sports lotteries are popular lottery games in much of the world, where they are termed as 'Sports Lottery' (China), 'Toto' or 'Totocalcio' (Italy), or 'Football Pools' (UK and Spain).

* Corresponding author at: Department of Health, Exercise & Sports Sciences, MSC04 2601, 1 University of New Mexico, Albuquerque, NM 87131, United States. Tel.: +1 505 277 5721.

E-mail address: lmao@unm.edu (L.L. Mao).

Gambling is a zero-sum game. The gambling market cannot simultaneously yield profits for both sides of gambling participants. The lottery market is even worse. With a higher take-out ratio compared to other forms of gambling and an extremely low probability of winning, the average expected return on a one dollar lottery ticket is between 40 and 60 cents (Thaler & Ziemba, 1988). Lottery tickets are evidently a type of “negative asset” and usually a poor investment for any rational economic agent whose goal is to maximize their expectation of return. Yet, people continue to buy lotteries in droves anyway, violating the standard economic assumption of rationality and risk-aversion in human behavior (McCaffery, 1994). Scholars working in the disciplines of psychology, economics, sociology, and others have explored this phenomenon. This has led to two broad categories of explanation: rational vs. irrational. The stream of rationality of playing lottery has focused on the consumption value of lottery play (Conlisk, 1993; Forrest, Simmons, & Chesters, 2002), lottery play as motivated by indivisibility in expenditures (McCaffery, 1994; Ng, 1965), and lottery play as a means to gain “something for nothing” (Nyman, Welte, & Dowd, 2008). The stream of irrationality has largely drawn on the cognitive theories of gambling (Rogers, 1998), maintaining that lottery play stems from ignorance or cognitive error of the players. With no exception, sports lottery is also subject to this rationality vs. irrationality debate. The central question regarding the demand for sports lottery, therefore is, are the players gambling or consuming?

Despite the prominent presence of sports lotteries in today’s society, there is a paucity of research specifically addressing the issues related to the consumer demand for this type of gambling product. Instead, various streams of research on gambling, lotteries, and sports betting provide a broad, general foundation to analyze the economic principles underlying the sports lottery industry. Drawing upon Conlisk’s (1993) gambling utility theory, the purpose of this study was to examine the consumption value of sports lottery. To accomplish this goal, this study focused on the demand for the *Shengfu* lottery game, a soccer betting lottery established in October 2001 and the most popular sports betting game in China. A set of nation-wide aggregate sales data for each draw of the *Shengfu* game from draw 2001001 (October 2001) to 2012110 (August 2012) were obtained and empirically analyzed through time series modeling.

2. Literature review

Because of the unpredictability of competition results, sport events have always been an attractive medium for betting. The betting pool, a concept introduced in 1923 by Littlewoods Pools based on soccer matches (Munting, 1996), can be regarded as a variant of pari-mutuel betting influenced by lotteries. In this system, players pay a fixed price into a pool, and then make a selection on some outcome, usually related to sport. The pool is evenly divided between those who have made the correct selection. Differing from the original pari-mutuel system, there are no odds involved; each winner’s payoff depends simply on the aggregate amount of betting and the number of winners. Sports lottery in most countries typically employs this adapted pari-mutuel system, including *La Quiniela* in Spain, and the *Shengfu* Game in China.

Sports lottery differs from traditional lottery in several critical aspects. The first difference is in the non-randomness of the drawing. All traditional lotteries that share the characteristic of random selection of winners without any intellectual factor, such as skill and knowledge, are associated with picking a winning ticket (Mikesell & Zorn, 1987). In contrast, sports lottery has no well-defined objective probability of winning. Information and knowledge that players have about sport teams, such as competition records, competence of the coach, and performance of the players, may influence one’s winning probability. It has been shown that the probability of winning a grand prize by correctly forecasting the competition results of all matches in a parlay is much higher than the probability if the competition results were completely random (García & Rodríguez, 2007).

A second difference is knowledge-based reasoning and over-confidence. Relating to the nature of sports gambling, players tend to rely more on their knowledge of the sport than evaluation of risk dimensions (e.g., probability of winning and pay-out rate) in their lottery ticket purchasing decision (Ranyard & Charlton, 2006). Moreover, sports fans often consider themselves as experts. Due to the simplistic nature of various sport competition forms, along with their familiarity and interest in sports, sport gamblers often feel they have superior expertise and intelligence in beating the prediction odds (Li et al., 2012). This over-confidence would likely carry over to their lottery purchase decision, and may also induce stronger wishful thinking than what has been found in traditional lottery games.

A third difference is related to the experiential utility in sports gambling. Sport events are emotionally charged and the final result of a game means much to a real sports fan. For a loyal fan, sports gambling may be used as a way to express their allegiance with their teams or hedge the potential disappointment and sadness in the event of a loss (Koning & van Velzen, 2009). Therefore, sports lottery consumption shares some commonality with spectator sports consumption. Some fan attributes that influence spectator sports demand, such as the quality of teams, were shown to have a positive and significant effect on the volume of bookmaker betting in the U.S. (Humphreys, Paul, & Weinbach, 2013; Paul & Weinbach, 2010) as well as the demand for sports lottery in Spain (García, Pérez, & Rodríguez, 2008). Furthermore, based on betting volume data of online sportsbooks, Paul and Weinbach (2010) found bettors replace baseball betting with football once the football season begins. They argued this finding is only consistent with the notion of gambling as a consumption practice.

2.1. Determinants of demand for sports lottery

Microeconomic theory of demand is a theory about the behavior of consumers in the marketplace. Its purpose is to explain the process by which a consumer makes choices to maximize the utility he or she can derive from selecting the best

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