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理性上癮與賭博行為之探討：台灣案例

Rational Addiction and Gambling: An Empirical Analysis in the Case of Taiwan

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中文摘要

本研究是運用 1978-1985 台灣地區所發行之愛國獎券的資料來對賭博之上癮性進行探討。這項實證研究有三個主要結論：一、賭博行為是具有強烈上癮性的，然而並非是理性的上癮。二、性別，就業情況，教育背景等社會經濟因素之差異對上癮性消費型態並沒有顯著影響。三、購買獎券之賭博性消費之長期價格彈性約為  $-0.467$  至  $-0.697$  之間。

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**Abstract**

This study analyzes the gambling addiction in Taiwan by using lottery data from period 1978-1985. Three main conclusions can be made from the empirical evidence of this study. First, gambling is strongly addictive in Taiwan but it is solely backward looking and inconsistent with the theory of rational addiction. Second, differences in gender, employment status, and educational background appear to have little impacts on consumers' choices in addictive consumption. Third, the long-run price elasticities of gambling are calculated with a range from  $-0.467$  to  $-0.697$ .

**Keywords:** rational addiction, gambling, lottery

**1. Introduction**

Since Becker and Murphy (1988) developed the theory of rational addiction, many empirical studies have been done to investigate whether consumption of addictive goods are rational behaviors made by individuals who are fully acknowledge of the future adverse effects caused by present consumption. Results from most of the empirical studies tend to support what Becker and Murphy's theory has predicted on consumption of addictive goods. In particular, evidences from the

cases of cigarette smoking, alcohol consumption and drug use appear to be consistent with the argument of rational addiction. This paper intends to further examine the addictive behavior on gambling by estimating the short-run and long-run price elasticities from the demand function of lottery in Taiwan.

## **2. Results and Discussion**

In this analysis, the most surprising finding is that the estimated coefficient of future consumption is statistically insignificant and, thus, the empirical evidence from the case of gambling in Taiwan is inconsistent with the model of rational addiction. Apparently, even though gambling is strongly addictive, most gamblers seem to ignore the future consequences of being addictive. Addicts' current behaviors are likely to be strongly affected by past consumption and current price and income but not the perception of what adverse consequences in the future might be caused by their current consumption of addictive goods. Unlike drinking or smoking, which are concluded as rational addictions by numerous empirical evidences, addictive gamblers are myopic and do not react substantially to the expected changes in price. However, in the case of gambling, the long-run price elasticity is still much higher than the short-run price elasticity. The long-run price elasticity of ranging from  $-0.467$  to  $-0.697$  is more than twice as large as the short-run price elasticity of ranging from  $-0.231$  to  $-0.254$ . In particular, when the instrumental variables include gender and educational background variables, and the payoff of lottery's grand prize, the long-run price and income elasticities increase substantially.

## **3. Conclusion and Evaluation**

By employing Becker, Grossman, and Murphy's empirical framework, the demand function for gambling in Taiwan is estimated with the lottery data from the period 1978-1985. The empirical evidence from this research provides several important insights into gambling behavior. First, with the estimated demand function, it is argued that gambling is addictive through the complementarity between past consumption and present consumption. Given the positive and significant coefficient of lagged consumption from the estimation, the reinforcement of past consumption on present consumption is very strong. That is, past consumption increases current consumption by raising the marginal utility of current consumption. Second, the result from this study is inconsistent with the theory of rational addiction. By testing the influences of future price and consumption on present consumption, the result suggests that future consumption does not have a significant impact on present

consumption, and therefore, gambling is a myopic addiction instead of a rational addiction. Third, the estimated result does not differ substantially with the inclusion of a variety of demographic and socioeconomic variables, such as gender, employment status, and educational background in the instrumental variables. Consequently, differences in the selected demographic and socioeconomic features do not play an important role on determining the type of addictive consumption. This implies that gambling is a myopic addiction with or without the consideration of demographic and socioeconomic variables. Even some demographic and socioeconomic variables are often considered to have large influences in the formation of addiction, as numerous studies have suggested, they tend to have little impacts on increasing addicts' rationality. It is likely that gamblers are only backward-looking regardless of their demographic and socioeconomic characteristics.

Nevertheless, the long-run price elasticity is considerably higher than the short-run price elasticity. Since gambling addicts are not strongly responsive to future changes in prices, the permanent reduction in prices is unlikely to have a substantial positive effect on reducing the purchase of lottery tickets. Surprisingly, the evidence from this study indicates that, unlike alcohol consumption and smoking, gambling addicts largely neglect the future adverse effects caused by the accumulation of past and current consumption.

Moreover, this analysis would be helpful in understanding the public policies intending to reduce gambling addiction. Since gambling is myopically addictive, the legalization of gambling business associated with a current decrease in price will lead to an increase in current participation of gambling given that changes in current price have a strong negative effect on current consumption. In contrast, policies attempting to reduce gambling by raising expected prices would not be effective as long as the addicts do not behave rationally. In other words, the addicts are not very responsive to expected changes in prices because their current consumption decisions only depend on current price and income and past consumption but not future changes in prices. Given that gambling is a myopic addiction, to legalize gambling business without improving the rationality of addicts seems to be inappropriate when gamblers do not take into account the future adverse consequences caused by the addiction. Therefore, providing education programs of addiction control and inducing consumers to consider the future adverse effects of being addictive to gambling are necessarily such that addicts may behave rationally and become responsive to changes in future prices. In addition, regardless of the differences in gender and educational background, consumers behave myopically to gambling addiction. While consumers behave myopically, the social cost of legalizing gambling business would be substantially large because of the reduction in prices and the strong effect of

accumulated past consumption on present consumption. In Taiwan, if gambling business becomes legal, providing education programs to raise the rationality of conducting the addictive consumption should be necessary, and policies based on the long-run price elasticity may be favorable than those based on short-run price elasticity. However, on the other hand, if the legalization of gambling business is solely based on maximizing the tax revenue from gambling, more attention should be paid to the relationship between the demographic characteristics of gamblers and the demand for gambling. While the tax on gambling is considered as substantially regressive in most previous studies, the issue of equity would become more severe if the tax revenue counts as a greater proportion of government finance.

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