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## Taiwanese gambling behaviors, perceptions, and attitudes

Che Hao Chang

*University of Nevada Las Vegas*

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TAIWANESE GAMBLING BEHAVIORS, PERCEPTIONS, AND ATTITUDES

By

Che Hao Chang

Bachelor of Arts  
Shih Chien University  
2004

A thesis submitted in partial fulfillment  
of the requirement for the

**Master of Science in Hotel Administration**  
**William F. Harrah College of Hotel Administration**

**Graduate College**  
**University of Nevada, Las Vegas**  
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## ABSTRACT

### **Taiwanese Gambling Behaviors, Perceptions, and Attitudes**

By

Che-Hao Chang

Dr. Kathryn LaTour, Examination Committee Chair  
Associate Professor of Tourism and Convention  
University of Nevada, Las Vegas

This study categorizes different Taiwanese gambling types using PGSI, and further evaluates the perceptions and attitudes toward the legalization of casino gambling. A survey was conducted using convenient sampling and distributed by Internet. Results indicate that across groups of different types of gamblers, there are significant differences in perceptions toward the legalized casino gambling industry. Also, across groups of different types of gamblers, there are significant differences in attitudes toward legalized casino gambling. Additionally, there are significant differences between perceptions toward the legalized casino gambling industry, and attitudes toward the legalization of casino gambling. In general, non-gamblers are relatively more conservative toward the development of the casino gaming industry due to non-gamblers' sensitivity toward the involvement of the economic and social costs involved in investing in this particular industry. Moreover, as the number of problematic gamblers increase, non-gamblers tend to feel negatively toward the gaming industry. Overall, with the exception of non-gamblers, all other groups are supportive of the gaming industry. In addition, the results of this study provide the Taiwan government with information about Taiwanese gambling behaviors and

opinions toward newly legalized gambling. By understanding Taiwan residents' gambling behaviors, perceptions, and attitudes prior to the opening of the casinos, this study could benefit Taiwan society and maximize the benefits and minimize the costs associate with the development of the casino industry.

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## CHAPTER 1

### INTRODUCTION

According to the forecast done by the World Tourism Organization, there will be 195 million tourists visiting East Asia and the Pacific region in 2010, and the number will continue to grow to 397 million in 2020 (WTO, 2001). Tourism has been an important industry in many Asian countries. Some studies have already shown that the casino gambling industry stimulates tourism (Henderson, 2006; Piner & Paradis, 2004). The successful cases of Macau and Las Vegas have attracted some Asian countries' interests. One of the current trends in many Asian countries has been to develop the casino industry to attract more visitors. Currently, Macau is the largest gaming destination in Asia, and countries such as Korea, Thailand, and the Philippines are also expanding their gaming industries.

In Taiwan, legislators proposed legalizing casino gaming as a stimulus to spur the economy as well as the tourism business (Chang, 2002; Chen, 1994; Ho, 2005; Ho, 2007). Many casino entertainment corporations have shown strong interests in investing in Taiwan (Ho, 2005; Ho, 2007; Hsu, 2006). Taiwan is viewed as one of the best potential Asian markets for legalized gambling (Gu & Tsai, 2005; Ho, 2007). With the economic and international trends evolving, the Taiwan government plans to develop tourism and the cultural and recreational industry to boost Taiwan's economy (Zeng, 2006). The Taiwan government eventually approved casinos to operate in the leisure resorts on the outlying islands in January, 2009. In general, gambling has been

banned throughout most of Taiwan's history; excluding some government issued and managed lotteries. With social and economic changes, gambling may be viewed differently in the eyes of the Taiwan residents today (Chen, 1994).

The gaming industry usually brings some positive benefits to countries; however, some negative impacts have been reported (Back & Lee, 2005; Gupta & Derevensky, 1997; Janes, 2004; Kang, Lee, Yooshik, & Long, 2008; Reith, 2006; Roehl, 1999; Vong, 2008; Vong, 2009). Problem gambling is common. Some countries, such as Spain, United States, New Zealand, Swedish, and Macau, where gambling is legalized, began noticing the problems associated with prevalent gambling issues (Abbott, Volberg, & Rönnerberg, 2004; Becona, 1993; Volberg, 1996; Fong & Zorio, 2005). Also, some studies showed that ethnic Chinese tends to have a higher risk for problematic gambling (Blaszczynski, Huynh, Dumlao, & Farrell, 1998). The gaming industry is relatively new to Taiwan. In order to minimize the negative social impacts of legalized casino gambling, it is important for the Taiwan government to understand resident gambling types and their attitudes toward gambling. Currently, there is not much extant research about Taiwanese gambling behaviors and their attitudes toward legal casino gambling. Thus, the purpose of this study is to understand Taiwanese gambling behaviors, perceptions toward gambling, and their attitudes toward legal casino gambling prior to the opening of casinos.

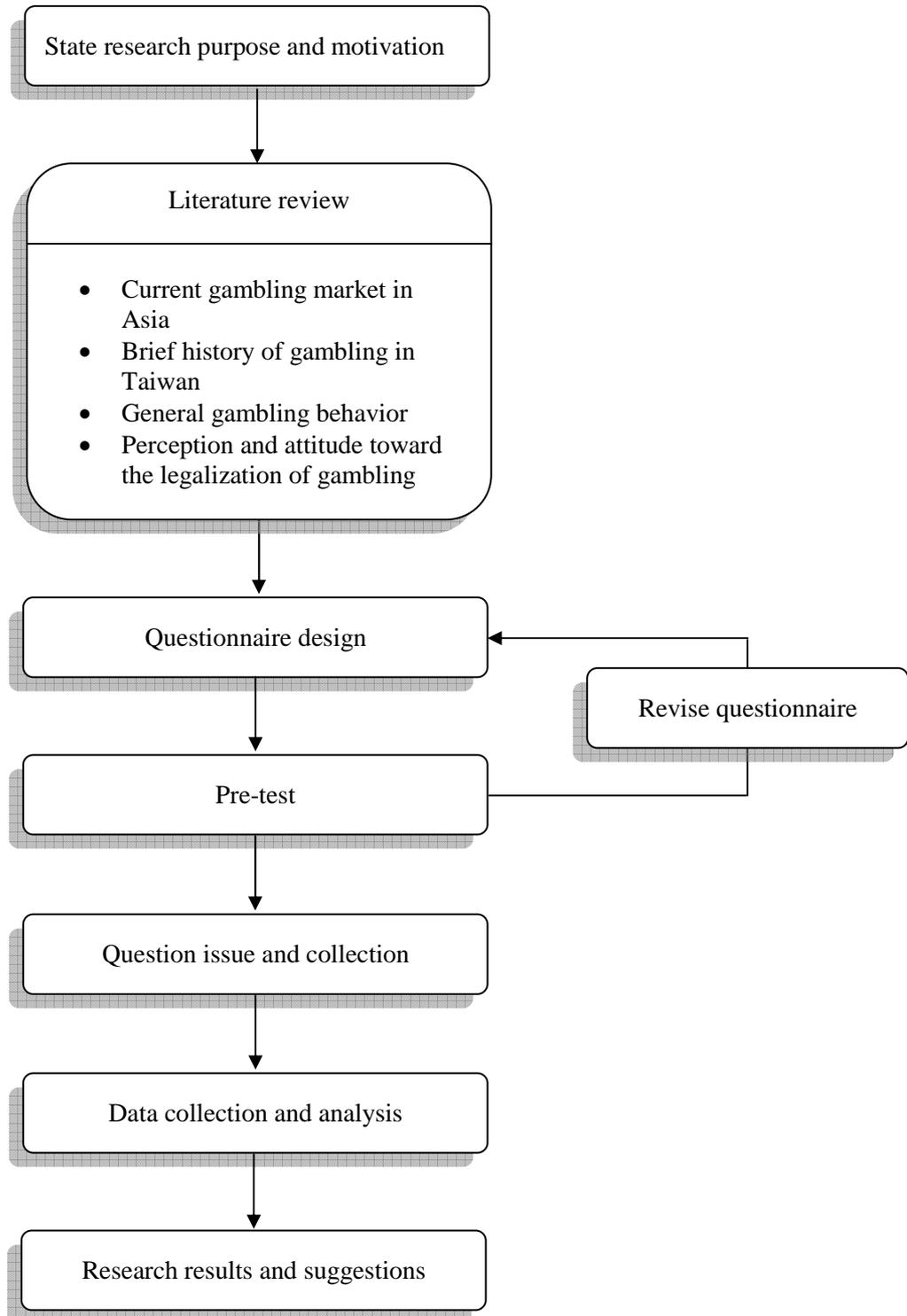
### Purpose of the Study

This study attempts to understand Taiwanese gambling behaviors, their perceptions of the benefit and costs associated with legalized casinos, and their attitudes toward developing the legalized gambling industry in Taiwan. These purposes could be stated as follows:

1. Provide an overview of Taiwan's gambling history and the current Asian gambling market.
2. Examine Taiwanese gambling behavior, their perceptions of the benefits and costs associated with the legalization of casinos, as well as their attitudes toward the legalized gambling industry prior to the opening of casinos.
3. Provide suggestions for future researchers and the Taiwanese government.

## Research Procedure

The research procedure is as follows:



## Justification

Today, Taiwan's tourism industry faces more competition than before, such as the booming gaming industry in Macau and the 2008 Olympic promotion in China. The Taiwan government passed gaming laws in early 2009, opening casinos on an island off the coast of Taiwan. Taiwan is trying to integrate available tourism resources and casino gambling activities to draw more visitors from China and other countries. Mostly, there are more and more communities or governments using or intending to use casino gambling as a tool to stimulate their economy or solve their economic problems (Ho, 2007; Janes & Collison, 2004). Some countries have been operating gambling businesses for a long time, for example, since 1990, gambling has been the most popular recreational activity in the United States, and casino gambling is also prevalent in Australia, Canada, Macau, South Korea, and the UK. Other Asian countries, such as Japan and Thailand, are also considering joining this lucrative market (Hsu, 2006). Unlike those countries that already have legalized casino gambling industries, Taiwan is relatively new to this business, though it has long gambling history. According to the National Central Library of Taiwan, most of the existing studies are related to the possibility of developing the casino industry in Penghu, an outlying island of Taiwan, or government policies on gambling behaviors. There are not many existing studies that explore resident perceptions and attitudes about legalized gambling. It is very important to governments and investors to understand this issue when they first enter the casino business. With the passing of the new legislation, gambling is no longer a "taboo" to be discussed, but a type of legal recreation. This study attempts to explore resident gambling behaviors, and their perceptions and attitudes toward legalized casino gambling, prior to the opening of casinos in Taiwan.

### Importance of the Study

The Taiwan government has already agreed to establish casinos in outlying islands. The practical significance of this study could be beneficial to Taiwan's government, Taiwanese people, and future academic studies. To Taiwan's government and investors, this study could help the government understand resident gambling behaviors, concerns about the development of the casino gambling industry, and resident attitudes toward the legalized gambling industry. Many studies about the impacts of tourism development on the residents' perceptions and attitudes have been published (Allen et al. 1998; Ap & Crompton, 1993; Johnson, Senpenger, & Akis, 1994; Lankford & Howard, 1994; Long, Perdue, & Allen, 1990; McCool & Martin, 1994; Perdue, Long, & Yong, 1995; Soutar & McLeod, 1993). One important finding of this research is that resident support of tourism is a key component to provide visitors with a quality visiting experience, which could easily create positive word-of-mouth advertising and attract repeat visitors (Fick & Ritchie 1991; Ostrowski, O'Brien, & Gordon 1993; Perdue, Long, & Kang, 1995). This study attempts to help the government and Taiwan residents to not only understand resident attitudes and perceptions of gambling, but also to examine resident gambling behaviors, which could prevent or minimize gambling problems. On the other hand, as mentioned earlier, there is little research done related to this issue in Taiwan, so the result of the study could also benefit future academic researchers focusing on Taiwanese gambling cultures.

## CHAPTER 2

### REVIEW OF THE RELATED LITERATURE

This section of the related literature contains several areas. The first section presents the current gambling market in Asia. The next section consists of a brief history of gambling in Taiwan. The third section reviews the literature pertaining to gambling behaviors in general. The fourth section reviews studies regarding the perceptions and attitudes toward the gambling industry.

#### The Current Gambling Markets in Asia

Gaming has been in existence in Asia for centuries. In many Asian cultures, playing games is an integral part of people's lives (Hsu, 2006). Asian countries are awakening to the potential of the gaming industry and finding innovative and sustainable models to attract gamblers from Asia and across the globe. Many Asian countries believe that the gaming industry could potentially bring in revenues to stimulate their economies (Hsu, 2006). Generally speaking, Asian gambling types include sports, animal races, and cockfights. Asians used to gamble at home, on the streets, and in some traditional simplified versions of casinos (Hsu, 2006). The global geographical gaming revenue breakdown shows that North America accounted for about one-third (32.4%) of the gambling revenue, with Europe at 31.3%, and Asia and Middle East representing 22.4% of the entire gaming market as shown in Table 2-1

Table 2-1 Global Gaming Revenue Breakdown

With the new openings of casinos in Asia, the share of gaming revenue is expected to increase in the near future.	Share (%)	US\$ BILLION
North America	32.4	140.3
Europe	31.3	135.5
Asia /Middle East	22.4	97.0
Latin American /Caribbean Caribbean	8.3	35.9
Oceania	4.4	19.1
Africa	1.2	5.2
Total		433

Source: Koh, 2004

The American Gaming Association conducted a survey that indicated that gambling revenues in Asian casinos are likely to surpass those in the United States by 2012 (Blume, 2008). Experts in the gaming industry see Asia as a dynamic industrial marketplace with an enormous growth potential (Gu & Gao, 2006).

There are some countries operating casinos in Asia, which are discussed and categorized as follows:

Kang and Hsu (2000) categorized Asia gambling markets into five areas based on geographic vicinity and similar patterns of customer base and business performance in the casino industry: China, including Hong Kong and Macau; Australia; the Philippines and Malaysia; Vietnam and Cambodia; and South Korea. Table 2-2 presents a brief summary of the years of legalization and the number of casinos in selected Asia Pacific countries.

Table 2-2 Summary of Selected Asian Casino Industries

Country	Year of legalization	Number if Casinos (year reported)	Other Type of Gambling Allowed
Australia	1973	14 (1999)	Horseracing, lottery, gaming machines outside casinos
Macau	1961	10 (1999)	Horse & greyhound racing, lottery
Malaysia	1970	1 (1999)	Lottery
South Korea	1967	13 (1997)	Horseracing & lottery
Philippines	NA	11 (1999)	Bingo, horseracing, slot machine arcade, lottery
Vietnam	1994	1 (1996)	

Source: Kang & Hsu, 2000

#### *Mainland China and Macau*

“Basically, all Chinese have the gambling gene” (Casino City, 2002). Chinese are aggressive risk takers and are money hungry (Cullen, 2000). About 85 percent of the high rollers who gamble in Las Vegas come from China, Taiwan, and Japan (ABC News, 2002). Currently, there are no legalized casinos in mainland China; however, gambling is legal on the island of Macau. In 2001, China imported computerized lotteries from Taiwan, which later became fairly popular in mainland China (Hsu, 2006). There are two major legalized lottery systems in China, the Welfare Lottery and the Sports Lottery. The Welfare Lottery is designed to benefit Chinese social charities, while the Sports Lottery is to assist sports development projects (Asia-Pacific News Service, 2001). One other lottery is similar to “scratch and win,” in which players know whether or not they won the prize immediately (Hsu, 2006).

Macau was formerly a Portuguese colony and is now a special administrative region of China. Macau is also viewed as Asia's gambling capital (Hsu, 2006). Millions of Chinese from the mainland flood into the small enclave each year and put their hard-earned and, in some cases, not so hard-earned, money on the block (Hsu, 2006). The casino industry in Macau was monopolized by S.J.M for a period of time; however, the Chinese government has helped to increase market competition by issuing new licenses to other casino market players in 2002, of which one license was given to Stanley Ho, two other licenses were awarded to Wynn Resort Ltd., and a Hong Kong group issued a sublicense to Sheldon G. Adlson, owner of The Venetian in Las Vegas. The casinos in Macau have been operating very successfully, attracting many gaming tourists since 2003 (Geiger, 2005). The Sands, the Venetian Group's first casino in Macau, opened in May 2004, was reported to have posted a net income of US\$36.69 million for the first two months of operation ending in July 2004 (Koh, 2004). The purposes of casino liberalization are to create taxes, enhance social contributions, and restructure tax revenue income (Hsu, 2006). According to a survey conducted by the Gaming Inspection and Coordination Bureau, there were 31 casinos in Macau at the end of 2008. The main casino operators are listed in Table 2-3:

Table 2-3 The Main Casino Operators in Macau

<b>CONCESSIONAIRE S</b>	2003	2004	2005	2006	2007	2008
S.J.M	11	13	15	17	18	19
Galaxy Casino, S.A.	0	1	1	5	5	5
Venetian Macau, S.A.	0	1	1	1	2	3
Wynn Resorts (Macau) S.A.	0	0	0	1	1	1
Melco Crown Jogos (Macau) S.A.	0	0	0	0	1	2
MGM Grand Paradise, S.A	0	0	0	0	1	1
Total	11	15	17	24	28	31

Source: Gaming Inspection and Coordination Bureau

The number of total visitors to Macau reached 30,185,740 in 2008. The top 10 countries where most of the visitors came were as follows: Mainland China, which accounted for 17,500,469 visitors; Hong Kong, with 8,227,421 visitors; Taiwan, which accounted for 1,322,578 visitors; Malaysia, which accounted for 451,499 visitors; Japan, which accounted for 370,409 visitors; the Philippines, which accounted for 334,445 visitors; Korea, which accounted for 281,129 visitors; Singapore, which accounted for 268,938 visitors; Thailand, which accounted for 255,866 visitors; and the USA, which accounted for 212,650 visitors (Statistic & Census Service, 2008).

#### *Australia*

Gambling in Australia is highly regulated, making it difficult for foreign investors to enter this market (Hsu, 2006). Licensed owners complain about the high tax rate, but the business is strong and profitable. Australian gambling involves

betting on races, both on-and off-courses, and gaming casinos, lotteries, poker machines, football pools, and minor betting. The Australian Bureau of Statistics (ABS) (2001) showed that at the end of June 2001, there were 13 casinos operating in Australia, employing a total of 20,413 people. These casinos generated a total income of \$3,137M, with a gambling contribution of \$2,054M, or 80% of the total income. McMillen (1996) pointed out three key characteristics of Australian casinos. The first characteristic was accessibility. Casinos in Australia are very accessible. Second, most casinos are located in urban centers. Local residents are the main source of income. Third, social demands are not a key concern to operating new casinos; instead, economic benefits motivated the government's support of legalized gambling.

#### *South Korea*

Lee and Kwon (1997) pointed out that since the first Korean casino opened in 1967, the Korean government has allowed only foreign visitors to participate in casino gambling as a way to generate foreign tourist receipts. Koreans are prohibited from entering casinos in their own country, as the Korean people are deeply influenced by Confucian philosophy, which believes gambling is a sin. The Korean government has liberalized overseas travel since 1989, and since then, some negative incidences of Korean tourists gambling in other countries have been reported (Hsu, 2006). The government recently passed a special law designed to stimulate the economy in the abandoned mining areas in the Kangwon province (Lee & Kwon, 1997). The law enabled Koreans and foreigners to gamble in the new casinos built in 1998. In October 2004, South Korea granted new licenses to two new operators, one in Seoul and one in Busan, to operate foreigner-only casinos, bringing the total number of casinos to 17. The South Korean government's rationale for liberalizing Korea's casino industry is to enhance its competitive position in light of the major

U.S. gaming companies' interests to enter Asia (Korean gaming conference attracts U.S. interest, 2007). Lee and Kwon (1997) observed the positive economic benefits brought by gamblers from Japan, Taiwan, and China.

### *Japan*

Gambling is illegal in Japan. However, Pachinko is prevalent among Japanese; about 50 million people have tried playing Pachinko, and on average, gamblers have gambled the equivalent of US\$235.7 billion. This is strong evidence showing that the Japanese love to gamble (Kiritani, 2003, Hsu, 2006; Lubarsky, 1995; Sibbitt, 1997; Tanioka, 2003). The nation's ruling Liberal Democratic Party announced that it would probably legalize land-based casinos in 2008, according to a report that ran in the Financial Times (Doocey, 2007).

In conclusion, governments in many Asian countries intend to develop the gambling industry or operate casinos as a way to stimulate their economies and generate government revenue income. There are over 150 countries worldwide participating in some type of legal gambling ("Gaming Books," 2005). On the other hand, as technology advances, online gambling is also a widely accepted gaming model in many countries. Players can gamble online, even when gambling is illegal in their countries. China and Taiwan are two regions in Asia that banned gambling for a long time. According to the market review discussed earlier, Taiwan, Japan, and China contribute to most of the gambling revenue in the Asian market. With that in mind, both China and Taiwan are perceived to have great growth potential for the gaming industry, and are expected to generate revenue that would exceed the current revenue generated by their counterparts in North America.

## Brief Gambling History of Taiwan

China and Taiwan are two nations rooted with the same ancestors, and have been influenced by the same culture and history. Gambling activities in Chinese society have evolved gradually with economic growth (Hsu, 2006). Even though gambling was prohibited in China for a long time, gambling activities never really ceased in Chinese society.

Generally speaking, gambling activities are not allowed in Taiwanese society. Gambling is perceived as being addictive, harmful to society. However, if legalized gambling leads to positive results, there would be tremendous benefits (Chang, 2002). During the Ching dynasty (A.D.1644–1911), over one hundred different gambling games existed in Taiwan. There were plenty of records describing how prevalent gambling activities were in Taiwan at that time (Chen, 1994). The most popular game was the “flower match game.” The way to play the game was very similar to Western wheel games. There were thirty-eight different animal pictures behind thirty-eight cover cards. Every card had an animal’s name on it. Gamblers made bets on which card’s name matched the animal’s picture. The winning match paid out thirty times the winner’s wager. The winning match announcement was made twice a day (Wu, 1988). Wu (1988) describes in a newspaper in Taiwan:

The peak of the flower match game was in 1896, with many citizens wallowed in gambling and unable to stop. This caused some people to become robbers and others even sold their daughters to brothels to pay their gambling debts.

In response to these problems, the government tried to ban gambling in 1897. However, the ban had minimal impacts as police officers would often collaborate with the game hosts to receive monetary benefits for allowing the games. In 1898, the government decided to strengthen the enforcement of its ban on gambling

activities; people who were caught gambling would be sent to the courts. Citizens turned to lotteries from countries such as the Philippines, Hong-Kong, and Macau (Wu, 1988). This resulted in an abundant outflow of capital to other countries (Wu, 1988). In other words, the Taiwanese never stopped gambling, even when the government banned gambling activities. According to the literature, Taiwanese gambling could be categorized into the following stages:

First of all, since Taiwan became a colony of Japan in April 1895, Japan has made a huge investment in Taiwan. Expenses included social order maintenance, industry development, and cultural facilities establishment, which all took a toll on the Japanese economy. In order to generate more government revenue income and separate Taiwan's economy from that of Japan's, the Japanese government intended to issue a lottery to improve their economy and consequently lessen social problems (Sue, 2002; Wu, 1988). The proponents argued that the issuance of a lottery would recognize and legitimize Taiwanese gambling habits and prevent capital outflow (Wu, 1988). On June 7, 1906, the Japanese government legalized the issuance of lottery and approved lottery regulation in Taiwan. Japan then became the first governmental body to issue a lottery in the Far East area (Chang, 2005; Sue, 2002; Wu, 1988). Government lotteries were issued five times in total. The first time that Taiwan issued a Lottery amounted to forty thousand tickets, which was only one-tenth of the demand (Wu, 1988). The second-term lotteries made sixty thousand tickets available, and still could not fulfill overseas demands (Chen, 1994).

Among the Taiwan lottery gamblers, one-fifth were Taiwanese, while the rest were Japanese (Wu, 1988). Because the large number of Japanese gamblers adversely affected Japan's domestic economy, the Taiwan Lottery was stopped in March of 1907 (Wu, 1988). Social order was not impacted by the issuance of the lottery.

Taiwanese still worked hard for their living expenses. Moreover, the “flower match game” was not as popular as before, people were focused more on the government lottery (Wu, 1988). At the beginning, the proponents argued that a legalized lottery would impair social discipline, threaten public order, and encourage citizens to be speculative in gambling (Chen, 1994). However, contrary to the proponents’ argument, the government lottery benefited government revenue income without creating a significant negative impact on society (Chen, 1994; Wu, 1988).

The second stage was the Patriot Lottery. On August 15, 1945, China won the war against the Japanese, and Japan returned Taiwan to China. In 1949, the Chinese National Party lost the civil war and moved its base from mainland China to Taiwan (Sue, 2002). Due to civil war and World War II, the economy of Taiwan was significantly damaged (Sue, 2002). The government had to generate revenue sources to support public works, so Taiwan Banks issued the Patriot Lottery in 1950 (Executive Yuan, 1990). The Patriot Lottery was popular among middle-class and lower-class citizens (Sue, 2002). In May of 1985, Taichung’s retailers began selling a disguised form of the Patriot Lottery, with an extra-large prize. It became known as the “Everybody Is Happy Lottery” (Chen, 1994). This illegal lottery expanded so quickly that by the end of 1985, there were three million people participating in the “Everybody Is Happy Lottery.” It went on to become even more popular in the following two years. Industrial workers, farmers, businessmen, and even housewives all neglected their work during the announcement of the winning numbers. It seriously damaged social order (Chen, 1994; Executive Yuan, 1990). Along with an increase in personal income, people tend to win more money by taking more gambling risks (Sue, 2002). Some of the hosts would often collect and then escape with the money as they did not have to register with any official government

institution. As a result, gamblers could not find the game hosts and lost their gambling funds (Sue, 2002). Also, in many temples, the priests claimed they could predict the winning numbers and fraudulently sold the numbers to citizens (Executive Yuan, 1990; Chen, 1994). As the economy was improving in Taiwan, more and more people became addicted to the “Everybody Is Happy Lottery.” The government then decided to end the Patriot Lottery in 1987 (Chen, 1994; Executive Yuan, 1990). However, the “Everybody Is Happy Lottery” was still prevalent; changing to adhere to Hong-Kong’s Lottery. In 1990, the government decided to issue the Charity Lottery to balance the “Everybody Is Happy Lottery” (Tseng, 1994). Then, not only did adults make rush purchases, but they also made elementary school students join the Charity Lottery. It seemed that the popularity of Taiwan’s lottery had returned to that of the Japanese colonial period. These phenomena aroused public indignation and many citizens berated the government for re-issuing a lottery. Consequently, the Charity Lottery was forced to stop after three terms (Tseng, 1994). After the issuance of the Patriot Lottery was terminated, the R.O.C Ministry of Finance re-estimated the possibility of the issuance of a public lottery. The Ministry of Finance argued that Taiwan residents could rationally accept the public-lottery (Shiu, 2005). The Taiwan government also expected the new lottery to appeal to underground players and increase the government’s income revenue (Chen, 1994). In 1999, the Kaohsiung government issued the lottery for financial reasons. Without permission from the central government, the Kaohsiung Lottery was only issued once and then terminated in the same year 1999 (Shiu, 2005). In September 1999, Taiwan’s finances were seriously impacted by the 9/21 earthquake. In order to collect more revenue for reconstruction, the Ministry of Finance designated the Bank of Taiwan as a coordinator and a distributor of the “Two-In-One” lottery. As Taiwan faced the

pressure of financing a national health insurance program, the government intended to issue lotteries to supplement income revenue without imposing more taxes on the citizens. In February 2002, the Bank of Taiwan was appointed to operate the Public Welfare Lottery again (Shiu, 2005). By providing a variety of lotteries to the Taiwan citizens, the lottery is still popular today.

Shiu (2005) also sorted the history of Taiwan’s lotteries as shown in Table 2-4:

Table 2-4 Historical Issuance of Lotteries

	Patriot Lottery	Charity Lottery	Kaohsiung Lottery	Two-In-One Lottery	Public Welfare Lottery
Issue period	1950-1988	1990	1999	1999-2001	2002
Issue purpose	Finance for construction	Social welfare	Social welfare	Reconstruction budget	Social welfare
Organization	Taiwan government	Taipei government	Kaohsiung government	Ministry of Finance	Ministry of Finance

Source: Shiu, 2005

Legal gambling types are limited in the lottery model. On January 1<sup>st</sup>, 2009, the Taiwan government made a new evolution in the Taiwan gaming industry by legalizing casinos in the outer islands of Taiwan (Huang, 2009). The proponents of the legalization expected that legalized gambling will boom the tourism industry and benefit the local economies; however, some social groups argued otherwise and worried about the negative impacts, such as higher crime rates, pollution, and social problems (Chang, 2002; Chen, 1994; Ho, 2005; Ho, 2007). With the prevalence of the lotteries in Taiwan, some psychologists and experts demonstrated their concerns about the gambling addiction problem associated with the lotteries. Some social

groups even protested that the new gaming legislation would create more addictive gamblers, which would in turn waste social resources. Some foreign studies have shown that Asians are prone to gambling addiction, and have a relatively higher percentage of pathological gambling behavior compare to other ethnicities (Blaszczynski, Huynh, Dumlao, & Farrell, 1998). At present, there is limited research investigating problematic gamblers in Taiwan. One of the main purposes of this study is to compare problem gamblers' perceptions and attitudes towards the legalization of casino gambling to those who have no gambling problems.

### Gambling Behaviors

Recently, the availability of gambling venues has increased tremendously in many parts of the world. The boom of legal and commercial gambling casinos has been associated with not only increased gambling participation, but also some negative impacts. For example, the rapid expansion of casinos in the United States has provided more opportunities and attractions to Americans; however, the numbers and characteristics of problem gamblers have also increased (Volberg, 1996). In Taiwan, where the country has just passed the legalization of casino gambling without having many legal gaming entertainment venues, the government allowed the residents to vote as to whether or not they would like to develop the casino industry. This new offer could be a challenge to Taiwanese residents. It is very important to understand the gambling participation levels of Taiwan residents before providing residents with legalized casino gambling entertainment.

“Gambling” is generally defined as an activity involving the use of money to take uncertain risks in order to win something of value (Abbott & Volberg, 2000; Bernstein, 1996). There are many scales that measure gambling behaviors. Custer and

Milt (1985) classified gamblers and behaviors into six types, which include social gamblers, professional gamblers, anti-social gamblers, serious social gamblers, relief and escape gamblers, and addictive or compulsive gamblers. First, the motivations of social gamblers are to have some fun, to chase after an exciting feeling for recreational purposes only. Winning money is not the only reason for gamblers to gamble. Their emotions are not affected much when they win or lose. Moreover, social gamblers usually place small bets when they gamble. Second, professional players view gambling as their careers. They conduct research on gambling products and try to maximize their winnings by understanding the odds. In comparison to social gamblers, professional players are relatively patient and have greater tolerance toward losses, as they believe that losing is also part of the gambling business. Third, anti-social gamblers are those gamblers who would do anything to win. Furthermore, they lie, cheat, or steal when they participate in gambling activities. Fourth, serious social gamblers view gambling as their hobby or a leisure activity. This type of players would bet more and could afford the losses. Winning is very important to them, because they invest more self-esteem and pride in the games than other kinds of gamblers. They feel angry and ashamed if they lose. Fifth, another type of gambler is called a relief and escape gambler. Custer and Milt (1985) argued that the characteristics of relief and escape gamblers are similar to those of relief drinkers. They gamble to seek some emotional relief, but they are not addicted to gambling. Lastly, addictive and compulsive gamblers are those people who have a progressive disorder. They increase the amount of time and money spent gambling. Gambling takes up most of these peoples' daily lives and they bet more money to chase their losses or to obtain greater excitement. Their gambling behavior can negatively affect their family relationships, health, and other area of their lives. Recently, with the

awareness of the prevalence of problematic gamblers, many countries or areas with a casino gambling industry, researchers and mental care organizations utilized analytic methods and developed some gambling behavior screens not only for clinical use, but also for the general population (Battershy, 2002; McMillen & Wenzel, 2006; Stinchfield, 2002). For example, countries such as the United States, Canada, Australia, the UK, and Macau have already completed some problem gambling prevalence research that focused on different groups using several gambling behavior screens, including SOGS, CPGI, 20 Q, or Q-sorts (Derevensky & Gupta, 2002; Ellenbogen, Gupta, & Derevensky, 2007; Fong & Ozorio, 2005; Gill, Grande, & Taylor, 2006; Olason, Sigurdardottir, & Smari, 2006; Volberg, 1996; Welte, Barnes, Tidwell, & Hoffman, 2008; Wood, Griffiths, Ursua, & Uribelarrea, 1998).

The South Oaks Gambling Screen, called SOGS for short, continues to be the most widely used screen in most research and parts of the world (Abbott & Volberg, 2006; Lesieur & Blume, 1987). For example, a random telephone survey was conducted to verify how prevalent gambling problems are among U.S. adolescents and young adults. The study sampled 2,247 residents ages 14-21. The results showed that the prevalence of problem gambling was 2.1%, based on the SOGS-RA (Welte, Barnes, Tidwell, & Hoffman, 2008). Gill, Grande, and Taylor's study (2006) randomly surveyed 6,045 interviewees via telephone. By using SOGS, they found the prevalence of adult problem gamblers was 2.0% in South Australian Adults, and those problem gamblers were more likely to have a mental health condition, such as suicidal thoughts. Fong and Ozorio (2005) conducted a telephone survey in 2003 to understand the prevalence of problem gamblers in Macau. The survey used the Chinese DSM-FV Gambling Behavior Index, and the results showed 1.78% of 1,121 respondents were classified as probable pathological gamblers and 2.5% were

identified as probable problem gamblers. The SOGS examines the past negative behaviors, feelings and impacts based on a lifetime of gambling behaviors. SOGS consists of twenty items and is designed to screen clinical populations. According to respondents' answers to each item, a score will be summed at the end. A score of 0 to 1 means the respondent has no problem with gambling, a score of 1-4 means the respondent has some problem with gambling, and if the respondent scores 5 or more, it means that he/she is probably a pathological gambler (Lesieur & Blume, 1987). Although SOGO is widely used now, some people began to question its validity from several viewpoints. The most important concern with the SOGS is that SOGS could potentially overestimate problem gambling (Abbott & Volberg, 2006, 1992, 1996; McMillen & Wenzel, 2006; Stinchfield, 2002; Thompson et al., 2005). Another concern is SOGS's validity when the screen is applied to general populations rather than clinical populations (Battersby et al., 2002; Dickerson, 1993; Ladouceur et al., 2000; McMillen & Wenzel, 2006). Moreover, some people began to question the applicability of SOGS. For instance, some of the money issue questions are unable to apply to different cultural areas (Battersby, 2002; McMillen & Wenzel, 2006; Stinchfield, 2002). McMillen and Wenzel (2006) evaluated three problem gambling screens, including the Victorian Gambling Screen (VGS), the Canadian Problem Gambling Index (CPGI), and the South Oaks Gambling Screen (SOGS, version 5+). The results showed, in general, that the Canadian Problem Gambling Index (CPGI) demonstrated a better measurement screening when compared to two other screens. Neal et al. (2005) also indicated that more and more Australian researchers prefer to use CPGI than SOGS. Neale et al. (2005) proved again that CPGI is the suitable gambling behavior screen for general populations. CPGI, the Canadian Problem Gambling Index, was managed by the Canada Centre on Substance Abuse. The

original goal was to develop a better problem gambling screen for general populations in Canada (Wynne, 2003). CPGI could provide valid information not only about the prevalence of problem gambling, but also the severity of problem gambling (Wynne, 2003). The Problem Gambling Severity Index, PGSI, is a subset of CPGI which is used to survey the risk level of gambling addiction. CPGI consists of nine items, and the respondents answer the questions based on their life experiences during the past 12 months. According to the screen results, the respondents could be categorized into four different risk levels, which include non gambler or non-problem gamblers, low-risk gamblers, moderate-risk gamblers and problem gamblers.

#### Perceptions and Attitudes toward the Legalization of Gambling

Butler's (1980) Tourist Area Life Cycle Theory identified six stages of tourism development that include exploration, involvement, development, consolidation, stagnation, and rejuvenation or decline. Under this view, benefits or costs brought by tourism development would impact resident perceptions or attitudes. Roehl (1999) demonstrated that the legalized gaming industry is similar to other mass tourism attractions, so this theory could be applied to casino development. Similar to other general tourism development, legalized casinos are usually associated with some social impacts. There has been some research related to perceptions of gambling (Back & Lee 2005; Gupta & Derevensky, 1997; Janes, 2004; Kang, Lee, Yooshik & Long, 2008, Reith, 2006; Roehl, 1999; Vong, 2008; Vong, 2009). Vong (2008) explored how resident perceptions were affected by their length of residence, personal gambling benefits, and other demographic characteristics, including gender, marital status, education level, age, and monthly income. The results show that age, education level, and residence status influences gambling perceptions. Roehl (1999) used socio-

demographic characteristics, including personal income, age, sex, education level, length of residence, homeownership, and occupation as variables, and found that these variables affect individual perceptions. Kang, Lee, Yooshik, and Long (2008) conclude, “perception by resident perception of positive gaming impacts significantly influenced residents’ perceived benefits and these positive benefits also had a positive effect on resident support for gaming”. Janes (2004) interviewed eight community leaders and attempted to verify their perceptions about the expansion of a Native American casino. Overall, the respondents agreed that the expansion would bring positive economic benefits, but also would result in more negative social concerns. Gupta and Derevensky (1997) examined 477 children between 9 and 14 years of age and found that gambling activities affect school performance. Gupta and Derevensky (1997) also demonstrated adolescent pathological gamblers have a higher probability to be negatively impacted by some problems, such as losing friends, severing ties with family and friends, academic failure, and criminal acts to finance their behaviors. Reith (2006) indicated that the most negative economic impacts were poverty, unemployment, dependence on welfare, homelessness, low education, and household income. Moreover, Reith (2006) also indicated that the location of casinos was very important to minimize gambling problems. Criminal acts are always viewed as a key social concern when legalizing gambling. There are some studies that explore crime rate issues (Betsinger, 2005; Madhusudhan, 1996; Powell, 2003). Betsinger (2005) conducted research about the relationships between gambling and crime. The results indicated that the opening of gambling venues is associated significant decreases in rape and assault rates, but the larceny and arson rates increased at the same time. However, there are also some studies that argue that crime rates do not positively correlate to the opening of casinos. Powell (2003) indicated that the total crime and

property rates both decreased significantly after riverboat casino gambling was introduced to Louisiana. Madhusudhan (1996) stated that crime rates were higher in Florida, a place that has no casinos facilities. Chhabra (2009) found that the opening of casinos could benefit communities. Some examples include increased property values, improved tourism, and stimulation of local businesses. Also, some residents feel better about their town. Several studies demonstrated the economic benefits brought by casino gambling industry (Barretta, 2004; Topoleski, 2003). Barretta (2004) mentioned the economic benefits of legalized casinos, including enormous tax revenues and employment opportunities. Topoleski (2003) conducted research about the social and economic impact of Native-American casinos. The research results show that the employment rate and tribal population have increased, while bankruptcy rates, violent crime, and auto thefts and larceny were up by 10 percent after the opening of the casinos.

In Taiwan, Chen (1997) compared local and foreign studies and argued that the costs and benefits of legalized casinos could be categorized into the social, economic, and environmental perspectives. The impacts include investment attractions, business stimulation, government revenue boosts, tourism income increases, higher property values, higher living expenses, money laundering problems, more social welfare, remodeling communities, increased crime rates, prostitution problems, pollution, and transportation problems. To sum up, the casino industry can be a stimulus to a country's economy, but there are also some negative social impacts. Residents' positive perceptions are a critical component to a successful referendum vote to support legalized casino gambling (Stitt, Nichols, & Giacomassi, 2000).

Some studies have demonstrated the importance of resident attitudes and participation when planning any tourism development strategies. Hernandez, Cohen

and Garcia (1996), Lankford and Howard (1994), Pappas (2008), and Simmons (1994) have suggested that residents are more willing to support the tourism development package if they have opportunities to participate in the planning and evaluation process, and they would be inspired if their opinions are used or their needs are taken into consideration. Derived from sociology and psychology, there are three widely utilized approaches to explain resident attitudes toward the tourism industry in general (Harrill, 2004). The first approach is the “community-attachment” approach. McCool and Martine (1994) stated that the community attachment concept is an extent or a pattern of social participation and integration in community life. Moreover, respect for community is also attached as a sentiment on the part of the general citizens who reside in the community. Kasarda and Janowitz (1974) found that most of the community attachment studies utilized two models. While the “Linear model” discusses the community attachment that weakens when the population and community density decrease, the other model, “Systemic model”, explains that the community attachment increases with length of residence, family ties, and the change of density of population or social backgrounds. In general, the more residents attached to the community, the more residents would be favorable to tourism development (Nepal, 2008). However, some studies reserved this argument (Harrill, 2004; Kaltenborn, Andersen, Nellemann, Bjerke, & Thrane, 2008). The second approach is developed from the “growth machine” theory. In this theory, the tourism industry is viewed as an important force to the region’s economic growth. This approach states that individuals who do not directly receive the economic benefits from tourism industry are not expected to support further tourism expansions or development (Harrill, 2004; Kaltenborn, Andersen, Nellemann, Bjerke, & Thrane, 2008; Oviedo-Garcia, Castellanos-Verdugo, & Martin-Ruiz 2008). “Social exchange” examines the

resource exchanges between individual and groups. If the individual receives more benefits than costs, they will be more likely to be involved in the exchange, and this theory has been proved by several studies about resident perceptions and attitudes toward tourism development (Andriotis & Vauhghan, 2003; Back & Lee, 2005; Perdue, Long, & Yong, 2003; Vong, 2008;). The residents' perceptions of benefits and costs are a key component relating to their attitudes toward tourism developments. The newly passed legalization of casino gambling was applied to the outer islands of Taiwan. Taiwan's government allows the residents on the outer islands to decide whether or not they want to import the casino industry to their hometown via referendum. In other words, the residents' opinions and attitudes are very important in the future development of the casino industry, should Taiwan approve this development. So far, there are also some studies about resident attitudes toward legalized casino gambling held by private organizations or governments; the results are shown in Table 2-5:

Table 2-5 The Survey Results of Legalized Casinos in Penghu

Host/Year	Positive opinion %	Negative opinion %	Neutral %
China Times/1995	36.3	32.2	10.2
TVBS/1996	60.5	27.3	12.2
Huang/1997	50.5	49.5	
United Daily News/1999	30	52	18
RDEC/2000	44.9	38.5	3.9
United Daily News/2001	40	48	12
China Times/2001	41	45	13
United Daily News/2001	45	40	15
Penghu County Government/2001	61.7	24.6	13.7
ETTV	40.94	39.83	
Penghu non-governmental organization/2002	79.8	20	
Penghu County Government/2004 (A local referendum in Penghu county, 21% voting rate)	56.7	43.3	

Source: Huang, 2007

According to these surveys, a majority of Penghu residents agreed to develop the casino gambling industry. The samples of the former studies were limited to Penghu residents. However, the benefits and costs could impact not only directly to the outer islands, but also impact, positively or negatively, Taiwan's Main Island. In this research, I would like to understand the Taiwan citizens' attitudes, no matter if they live on the mainland or outer islands, via a survey method.

## Conclusion

Despite the types of problem gambling screens used, the common finding of prior research is that the number of problem gamblers increased along with the increasing of opening or expanding legal and commercial gambling. In Taiwan, legal gambling has been limited to lottery models. With the prevalence of the lotteries in Taiwan, some psychologists and experts expressed their concerns about the gambling addiction problems brought by the lotteries. Chen, an authoritative psychologist in Taiwan, referenced a foreign study and predicted that, according to the common issue of problem gambling, Taiwan has 460,000 problematic gamblers in the entire nation, where the population is 23 million people. Although government prohibits residents from gambling, there are still some underground casinos operating in areas of Taiwan. As mentioned earlier, some lotteries were terminated because the residents were addicted to gambling in these lotteries. Oei and Gordon (2007) addressed that problem gamblers in Australia contributed to almost one-third of the gaming industry's total revenue. Some social groups even protested that the new gaming legislation would create more addictive gamblers, which would in turn waste social resources. The negative impact created by problem gamblers should be considered before any casinos opened in Taiwan.

## CHAPTER 3

### METHODOLOGY OF THE STUDY

This study is focused on Taiwanese gambling behaviors, perceptions, and attitudes toward the legalization of casino gambling. This chapter contains the research procedures and methods that include the five sections below:

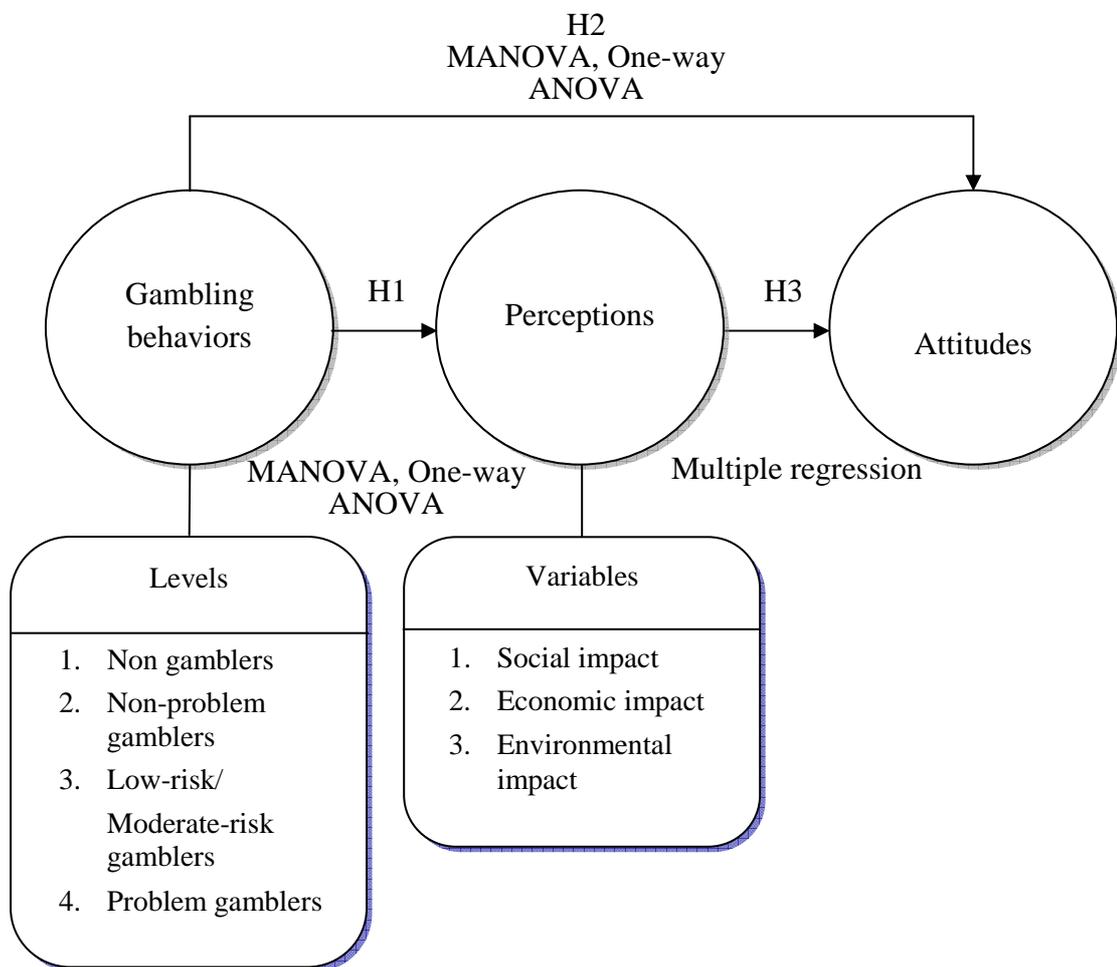
1. Hypotheses Development
2. Survey Design
3. Sampling
4. Data collection
5. Data Analysis Method

#### Hypotheses Development

Records show that the Chinese played dice and cards prior to 300 BC. Today, Taiwan has various lotteries issued by authorized organizations. Since 2002, the Taipei bank has started to issue lotteries in Taiwan. As many people dream to be millionaires, as soon as the lottery promotion came out, they became an instant hit. The general public in Taiwan was very eager to obtain a lottery to try their luck. At the same time, underground casinos and family games never stopped, even when gambling was illegal in Taiwan. The government passed legislation pertaining to the legalization of casinos on the outer islands of Taiwan in January 2009; gambling as an activity may not be so negative today or in the future. However, this is an important

evolution in Taiwanese gambling history. This study attempts to understand Taiwanese gambling behaviors, their perceptions toward the legalized casino gambling industry prior to the opening of casinos in Taiwan, and also to verify Taiwanese attitudes toward the legalization of casino gambling. Below, table 3-1 illustrates the research structure mentioned above:

Table 3-1 Conceptual Framework of the Study



Several studies have surveyed the different perceptions and attitudes toward legalized casino gambling based on demographic differences, such as gender, age, social class, and ethnicity (Abbott & Cramer, 1993; Chhabra, 2007, 2008; Roehl,

1999; Vong, 2009), but there are no studies comparing the various perceptions and attitudes toward the legalization of casino gambling among different types of gamblers. In this research, I will use PGSI to categorize my respondents in different gambler types to include non-gamblers, non-problem gamblers, low-risk and moderate-risk gamblers, and problem gamblers. This study expects to understand the different opinions toward perceptions and attitudes of legalized casino gambling among these four groups of gamblers. Some studies have proved that problem gamblers have an urge to gamble when they are exposed to casino environments (Kushner et al., 2008). They might hold more positive attitudes toward the legalization of casino gambling than other groups. Contrary to former studies, this study intends to understand different types of gamblers' perceptions and attitudes toward the legalization of the casino gambling industry. By understanding the different groups' opinions toward the legalization of casino gambling, I expect the result to prevent gambling problems or minimize the possible negative impact on Taiwan. Moreover, the growth of the gaming industry is now an international trend (Chen, 1994). Taiwan is a rare case in the world in that that would consider conducting perception and attitude research prior to opening casinos. The result could also be a reference to other countries which are keen to develop their casino industry. The hypotheses of this study are listed as follows:

- Hypothesis 1: Across groups of different types of gamblers, there are significant differences in perceptions toward the legalized casino gambling industry.
- Hypothesis 2: Across groups of different types of gamblers, there are significant differences in attitudes toward the legalized casino gambling industry.

By using the “Social exchange” theory, several studies have proved that the resident's attitudes toward tourism development are highly correlated to their

perceptions of the benefits and costs. Perdue, Long, and Yong (1995) and Ap (1993) applied the Social exchange theory to tourism research and concluded that the residents' attitudes toward tourism development are related to their perceptions of the economic, social, and environmental effects. The impact of legalized casino gambling is still unknown. The core principle in developing tourism is to maximize the positive benefits and minimize or prevent the negative impacts (Ritchie & Inkari, 2006). Thus, this study will survey resident perceptions toward the legalized casino gambling industry prior to the opening of casinos, and then verify the relationships between the respondents' perceptions and attitudes. Hypothesis 3 of this study is developed as follows:

- Hypothesis 3: There are significant differences between different perceptions toward the casino gambling industry and attitudes toward the legalization of casino gambling.

### Survey Design

There are three main dimensions and demographic questions in the survey questionnaire, which include gambling behavior, perception of legalized gambling, and attitudes toward the legalization of casino gambling. At the end of the survey, there will be a few demographic characteristic questions.

### *Gambling Behavior*

The study will analyze the respondents' gambling behaviors and will assess these behaviors through various measures. The first question will ask if the respondents have gambled in the past 12 months, what kinds of games they have participated in, and where they gambled. Then, this study will categorize the respondents based on

the Problem Gambling Severity Index (PGSI), a subset of CPGI. PGSI consists of nine items, and four answer choices are provided for each item, a score of 0 for each answer indicates “Never,” a score of 1 for each answer indicates “sometimes,” a score of 2 for each answer indicates “most of the time,” and a score of 3 for each answer indicates “almost always.” A score between 0 and 27 points is possible, and further, categorizes the respondents into five groups depending on different risk levels. Respondents who have not gambled in the past 12 months are viewed as non-gamblers; a total score of 0 identifies a “non-problem gambler,” a total score of 1 or 2 is identifies a “low-risk gambler,” a total score that falls between 3-7 identifies a “moderate-risk gambler,” and score of at least 8 identifies a “problem gambler.”

Nine items of PGSI are as follows:

1. Thinking about the past 12 months, how often have you bet more than you could really afford to lose?
2. Thinking about the past 12 months, how often have you needed to gamble with larger amounts of money to get the same feeling of excitement?
3. Thinking about the past 12 months, how often have you gone back another day to try to win back the money you lost?
4. Thinking about the past 12 months, how often have you borrowed money or sold anything to get money to gamble?
5. Thinking about the past 12 months, how often have you felt that you might have a problem with gambling?
6. Thinking about the past 12 months, how often have people criticized your betting or told you that you had a gambling problem, regardless of whether or not you thought it was true?

7. Thinking about the past 12 months, how often have you felt guilty about the way you gamble, or what happens when you gamble?
8. Thinking about the past 12 months, how often has your gambling caused you any health problems, including stress or anxiety?
9. Thinking about the past 12 months, how often has your gambling caused any financial problems for you and your household?

#### *Perception of Legalized Gambling Industry*

This section of the survey measures the respondents' perceptions of the benefits and costs that might be brought by legalized gambling. Based on the literature, this study defines the benefits and costs in areas including gambling problems, bankruptcy, family relationships, prostitution, education, living quality, residents' spirits, tourism promotion, country reputation, living cost, business activities, tourism receipts, government tax revenue, employment opportunities, foreign exchange, volume of visitors, transportation, environment protection, culture protection, and pollution. The items utilized by former studies are listed in Table 3-2 as follows:

Table 3-2 Impact Factors of Gambling Examined in Prior Research

Author/ Year	Topic	Examined Variances
Miller (1995)	An investigation into the probable effects of the legalization of river boat gambling in Pennsylvania	Tax rate/Employment potential/Additional local income and development/Increase in criminal rate/Gambling addiction/Increase property value/Local business and economy
Chang (2002)	A study of the gambling industry with an aspect to the development of the tourism industry on Green Island	This study classified variances into three perspectives including the social, economic, and political aspects.
Powell (2003)	The social impact of riverboat casino gambling; Using objective local indicators to measure changes in the quality of life in a gambling community	Migration rates/Educational attainment/Crime rate/Income/Social service usage/Poverty levels/Divorce rate
Topoleski (2003)	The social and economic impact of Native American casinos	Employment rate/Population/Economic activity/Bankruptcy rates/Violent crime/Auto thefts/Larceny/Welfare recipients/Welfare transfers
Ho (2007)	Benefits and costs of legalized gaming in Penghu as perceived by the Taiwanese people	Economy/Volume of visitors/Job opportunities/City development/Transportation/Life quality/Reduce seasonality/Education/Natural environment/Pollution/Crime rate/Prostitution

According to the former research, three impacts are investigated in this research, including social, economic, and environmental impacts. The items in each area are listed in Table 3-3. In this section of the survey, the respondents will be asked 17 questions about their perceptions regarding the possible impacts created by having a legalized casino industry. A 5-point scale would be applied in the answer sheet, 1 means strongly negative, 2 means negative, 3 means neutral, 4 means positive, and 5 means strongly positive.

Table 3-3 Items Assessing the Legalization of Casino Gambling’s Impact

The variances of perspective of legalized casino gambling	Factors
Social impacts	Gambling addiction/Crime rate/Bankruptcy rate/Family relation/Prostitution/Education system/Life quality/
Economic impacts	Nation’s reputation/Public welfare/Tourism revenue/ Non-gaming business activities/Government tax income/Employment rate/Volume of visitors
Natural impacts	Natural Environment/Culture/Pollution

*Attitudes toward the Legalization of Casino Gambling*

As mentioned in the previous chapter, some studies have already investigated Taiwanese and Penghu residents’ attitudes toward the legalizations of casinos. Most studies were conducted prior to 2004. One of the core purposes of this study is to reinvestigate Taiwanese attitudes toward this new policy. The respondents will be asked 4 questions and express their attitudes toward the policy and their personal will to participate in gambling entertainment. This part of the survey used a 5 point Likert scale. Each scale has a minimum of 1 point (Strongly disagree) and a maximum of 5 points (Strongly agree), and 3 points means Neutral. The four questions are listed as follows:

1. “I support the legalization of casino gambling”
2. “I would gamble at legal casinos in Taiwan”
3. “I would like to visit gambling destinations in Taiwan”
4. “Overall, I think that benefits from legalized casinos would outweigh the costs”

### *Demographic Characteristics*

Finally, the last part of the survey assesses the participants' demographic information, including gender, age, marriage status, education level, occupation, location of residency, monthly income level, and religious beliefs.

### *Sampling*

First, due to time, space, and money constraints, this study was not able to utilize the telephone interview technique. Second, telephone interviews were not feasible as the popularity of telephone scams in Taiwan (Ho, 2007) as well as the sensitivity of the gambling issue was not appropriate to be carried out by phone. The purpose of the online survey was to increase the accuracy and trustworthiness of the answers provided by the respondents. Due to the religious belief in Buddhism, traditional scholar-bureaucrat concepts and the prohibited laws in gaming/gambling were not permitted socially in Taiwan (Chen, 1994). Gamblers in Taiwan might refuse to share their gambling experiences, or even feel uneasy that others might judge them by their answers. This study intends to classify Taiwanese gambling behaviors into four different risk levels of problem gambling. In order to minimize the bias and make participants feel comfortable when answering the survey questions, this survey conducts a Web Survey in Chinese rather than a face-to-face interview or telephone interview. The survey is a self-administered survey based on HyperText Markup Language (HTML) and is delivered to respondents through the Web (Solomon, 2001; Parsons, 2007). With technological improvements, a Web survey becomes a popular technique, and has been well-known for its convenience, short turnaround time, and economic advantages (Cobanoglu, Warde, & Moreo, 2001; Dolnicar, Laesser &

Matus, 2009; Parson, 2007; Schleyer & Forrest, 2000). On the other hand, in order to encourage respondents to answer honestly and make them feel comfortable when answering the PGSI questions, anonymity. The anonymity of Web scales is very useful, especially when it is used on the respondents' behavior (Comley, 2002; Dolnicar, Laesser & Matus, 2009; Patterson & Gojdycz, 2000; You, 2001). The sample population will be selected using the convenience sampling method. Advertisements of the study and a Web link to the questionnaire will be posted on several popular Bulletin Board Systems and gambling related discussion Websites in order to collect diverse samples. There are many popular Bulletin Board System (BBS) in Taiwan, where everyone exchanges information. The average usage rate of BBS in Taiwan is estimated to be 100,000 users per day. For example, PTT, the most popular Bulletin Board Systems in Taiwan, has more than 0.75 millions of members (Chou, 2008). The daily average usage of PPT is approximately 600,000 users per day and the highest record is more than 2 million per day. There are currently no restrictions on who can register to go on the system (Chou, 2008). Based on the current referendum policy, Taiwanese citizens who are at least 18 years of age and have a right to vote in referenda will be invited to answer the questionnaire through advertisements. Those who are younger than 18 years of age will be excluded in this study.

## Data Collection

This study categorized all respondents into four gambling types, including non-gamblers, non-problem gamblers, low-risk and moderate-risk gamblers, and problem gamblers by using the PGSI. The questionnaire was designed based on prior research, and distributed via the Internet. Respondents were recruited by the Bulletin Board Systems and gambling related discussion Websites. A pre-test was conducted from June 2<sup>nd</sup>-5<sup>th</sup>, 2009. The results showed some gambling behaviors occurred at lottery stalls, so a choice of lottery stalls was added in the second question in the behavior section. A formal Web-survey was distributed from June 5<sup>th</sup> to June 15<sup>th</sup>, 2009. The total number of surveys collected was 877. After filtering out surveys with missing data, 722 survey questionnaires were considered valid. The validity rate of the survey questionnaire was 82.33%. According to the results of conducting the PGSI screen, the total number of non-gamblers was 252, accounting for 34.9% of the sample, the total number of non-problem gambler was 152, 21.3%, the total number of low risk gambler was 149, 20.6%, the total number of moderate risk gambler was 123, 17.0%, and the total number of problem gambler was 44, accounting for 6.1% of the sample. The frequency and percentage of each gambler type is shown in Table 3-4:

Table 3-4 Sampling Distribution Chart

Gambler type	Frequency	Percent
Non-gambler	252	34.9%
Non-problem gambler	154	21.3%
Low risk gambler	149	20.6%
Moderate gambler	123	17.0%
Problem gambler	44	6.1%
Total	722	100%

#### Data Analysis Method

The data analysis will examine the hypotheses and categorize the residents' demographic features. The responses with missing data would be omitted, and only complete answered data will be selected. The Statistical Package for Social Science, SPSS, will be used to analyze the data.

#### *Reliability*

In order to obtain the internal consistency of each identified element and to ensure the structure and dimensions of perception and attitude was not affected by external noise, a reliability analysis using Cronbach's alpha test was adopted. The computation of Cronbach's coefficient alpha, a measure of internal consistency, was used for scale purification, and also this technique is considered the most commonly accepted measure of reliability (Churchill, 1979).

#### *Descriptive Analysis*

To analyze demographic characteristics, gender, age, material status, education level, occupation, location of residency, monthly income, and religious beliefs were

selected as the factors of the samples. This research applied descriptive statistics to determine the distribution status and respondents' basic information. In addition, this research divides respondents into five groups, which are non-gamblers, non-problem gamblers, low-risk gamblers, moderate-risk gamblers, and problem gamblers, using PGSI. This research will show the number of each group and the percentage of each group of the sample.

#### *MANOVA/One-way ANOVA*

The one-way MANOVA will be utilized to investigate the different types of respondents (non-gamblers, non-problem gamblers, low-risk gamblers, moderate-risk gamblers, and problem gamblers) and their perceptions toward legalized casino gambling (social, economic and environmental impacts). In addition, one-way MANOVA was used to examine how different types of gamblers (non-gamblers, non-problem gamblers, low-risk gamblers, moderate-risk gamblers, and problem gamblers) related to the respondents' attitudes toward the legalization of casino gambling. Moreover, if there is a significant difference between gambling behaviors and perceptions toward the legalized casino gambling industry or the attitudes toward the legalization of casino gambling, a one-way ANOVA will be conducted to verify the details of the influences by each factor.

#### *Multiple Regression*

Multiple regression is a statistical technique that allows us to predict linear relationships between three or more variables. It also states the extent to which a variable can be predicted or explained by one or more of other variable (Brace, Kemp, & Snelgar, 2000). This research defines the attitudes toward the legalized casino gambling industry as the dependent variable, while the perceptions toward the

legalization of casino gambling as the independent variable, and use multiple regression analysis to determine the relationship between those two dimensions.

## CHAPTER 4

### FINDINGS AND ANALYSIS

This chapter exhibits the survey findings from 722 respondents who complete the online survey. Moreover, this chapter examines the three hypotheses regarding current gambling behavior and opinions about legalization. The first section presents the description of the sample characteristics; the second section describes the overall survey results. Finally, the three hypotheses are tested in the last section.

#### Respondents' Profiles

A total of 877 responses were collected over a two-week period from June 4th to June 17th, 2009. Due to missing data, 155 survey questionnaires were omitted prior to data coding. As a result, there were 722 responses coded in total for the data analysis. Table 4-1 shows a profile of the respondents' profiles with regards to their demographic characteristics. As the table shows, the distribution of the test sampling was mainly contributed by females, 54.8%, while the 18-27 years-of-age bracket represented 55.2%. 82.7% of the sample was single. 65.7% of the sampling was college/university educated. The many on the sample work for the service industry. Most of the samples live in the North, 38.9%, which contributed to 28.3% of the total sample. The survey also shows that 52.4% of the sample had no religious beliefs.

Table 4-1 Profile of the Participants

Profile of participants (722 respondents in total)		
Demographics	Number	Percentage (%)
<b>Gender</b>	722	100%
Male	326	45.2%
Female	396	54.8%
<b>Age</b>	722	100%
18-27	399	55.2%
28-37	248	4.5%
38-47	42	5.8%
48-57	26	3.6%
58-67	7	0.9%
<b>Marital Status</b>	722	100%
Single	597	82.7%
Married(No child)	40	5.5%
Married (Have a child/children)	73	10.1%
Divorced/Separated	10	1.4%
Widowed	2	0.3%
<b>Education Level</b>	722	100%
Below high school	11	1.5%
High school graduate	62	8.6%
College/University graduate	474	65.7%
Master degree or higher	175	24.2%
<b>Occupation</b>	722	100%
Student	224	31.0%
Farming and Fishing	2	0.3%
Soldier/Government Employee/Teacher	67	9.3%
Blue collar	50	6.9%
Service industry in general	281	38.9%
None (retired/homemaker)	10	1.4%
Unemployed	35	4.8%
Others	53	7.3%

Table 4-1 (Continued) Profile of the Participants

Profile of participants (722 respondents in total)			
Demographics		Number	Percentage (%)
<b>Location of residency</b>		722	100%
	North	424	58.7%
	Central	117	16.2%
	South	156	21.6%
	East	10	1.4%
	Outer Islands	15	2.1%
<b>Monthly Income</b>		722	100%
	Below NTD10,000	204	28.3%
	NTD10,001-20,000	58	8.0%
	NTD20,001- NTD 30,000	139	19.3%
	NTD30,001-NTD40,000	143	19.8%
	NTD40,001- NTD50,000	94	13.0%
	NTD50,001 or more	84	11.6%
<b>Religious beliefs</b>		722	100%
	None	378	52.4%
	Buddhism	170	23.5%
	Taoism	111	15.4%
	Yit Kuan Tao	12	1.7%
	Islam	0	0%
	Catholicism	6	0.8%
	Christianity	42	5.8%
	Others	3	0.4%

Overall, most of the former studies conducted telephone interviews to estimate prevalence of problem gamblers. However, there are some reasons for this study uses of the Web-based survey technique rather than telephone interviews. On the other hand, the data provided by Taiwan's census of is fairly outdated (10 years old). As a result, the findings of this study may not match the distribution of Taiwanese and

therefore it may not be used as a study to focus on the distribution of problem gamblers in Taiwan. This study aims at non-gamblers and different gambler types' perceptions of legalized casino gambling and their attitudes toward the legalization of casino gambling.

### *Gambling Behavior*

There were 12 questions designed to understand and categorize the respondents' gambling behaviors and types. The result of the questions are analyzed and discussed as follows:

The first step is to categorize the respondents into gamblers or non-gamblers, if the respondent answers "Yes" (1), indicating that he/she is a gambler, they are introduced to the next 11 questions; if the respondent answer "No" (2), indicating that he/she is a non-gambler, the system takes the respondents to the demographic characteristics questions. Of the total 722 respondents, 65.1% (470 out of 722) have participated in some kind of gambling activities with actual money in the past 12 months; 34.9% of the respondents have no gambling experience with actual money in the past 12 months and are defined as non-gamblers in this study.

The second question asked the respondents the kind of games they have gambled in the past 12 months and also tried to help respondents recall their gambling experience in the past 12 months. The question was designed as a multiple response question, which means the respondents could choose more than one answer. Table 4-2 shows frequencies of the games that the respondents have participated in the past 12 months. Of the total 470 respondents who have gambled with actual money in the past 12 months, 69.6% have played the lottery, which is considered the most popular game among the respondents, 55.6% played Ma Jiang, 44.0% played poker games, 13.6% played dice, 11.3% bought sports lottery, 3.4% played Mark Six, and 5.7% stated that

they participated other kinds of gambling in the past 12 month. Among those respondents who answered “Other,” some of them stated they have played slot machines, roulette, Chinese chess, or lottery scratch ticket games, etc.

Table 4-2 Gaming Types and Participation Rate Distribution Chart

	Responses		Percentage of Cases (%)
	Number	Percent (%)	
Ma Jiang	266	27.7	56.6
Lottery	327	37.1	69.6
Dice	64	6.7	13.6
Mark Six	16	1.7	3.4
Sports lottery	53	5.5	11.3
Poker	207	21.6	44.0
Others	27	2.8	5.7
Total	960	100	204.3

Question 3 was designed as a multiple response question; the respondents were allowed to choose more than one answer. The purpose of this question is to understand which venues the respondents who have gambled in the past 12 months have visited. The frequency of each venue is shown in Table 4-3. The most common gambling venue is at the respondents’ homes or at friends’/relatives’ homes; 82.3% (387 out of 470) of the respondents who have gambled chose this venue. Followed by the lottery stall, 72.6% (341 out of 470) stated that they have bought lottery tickets in the past 12 months. There are some respondents who stated that they have gambling experiences in foreign countries, 10.2% have been to Las Vegas, while 7.7% have been to Macau, and 1.9% have been to Korea. 4.7% of the respondents shared that they have gambled at underground casinos in the past 12 months. However, there are

also 4.7% of the respondents stated they gambled at other venues, such as Vietnam, Malaysia, New York, Australia, Seattle, Atlantic City, gambled online, or at the dorm.

Table 4-3 Gambling Venue and Participation Distribution Chart

	Responses		Percentage of Cases (%)
	Number	Percent (%)	
At home or at friends'/relatives' places	387	44.7	82.3
Underground casinos	22	2.5	4.7
Lottery Stall	341	39.4	72.6
Las Vegas	48	5.5	10.2
Macau	36	4.2	7.7
Korea	9	1.0	1.9
Others	22	2.5	4.7
Total	865	100	184.0

According to answers to questions 2 and 3, the most common gambling behaviors for the participants were to purchase lottery tickets and playing mahjong and poker. The venues of the gambling often take place at the lottery stall, participants' own homes, or at their friends/relatives' houses. Hua (2003) discussed the popularity of lottery stalls coupled with the over-marketing of the lottery games by the media in Taiwan might have brought unnecessary negative impacts on Taiwanese society as a whole. In addition, both playing mahjong and poker are the two most common leisure activities for Taiwanese.

This study has taken PGSI for reference and the duration of the survey was twelve months, which includes the Chinese New Year, therefore the percentage of gambling behavior has increased as a result. Moreover, this survey was posted on the

major gambling discussion boards and sites, which might have resulted in the samples being prone to playing the lottery, mahjong, and poker.

The nine scored items (Problem Gambling Severity Index, PGSI) are designed by the Canadian Centre on Substance Abuse, which is a screen for testing the severity of problem gambling. A four scale level was applied to these nine scored items, including “Never=0,” “Sometimes=1,” “Most of the time=2,” and “Almost always=3.” The respondent whose total score on those nine items is 0 is identified as non-problem gambler, 1 to 2 is categorized as a low-risk gambler, 3 to 7 is seen as a moderate-risk gambler, and those who score 8 or higher are identified as problem gamblers.

Of the total 772 valid responses, 470 respondents (65.1%) answered that they have participated in some form of gambling activities, and 252 (34.9%) respondents answered that they did not gamble in the past 12 months. Those 252 respondents who did not gamble are identified as non-gambler. Of the total 722 respondents, 32.8% were identified as non-problem gamblers (N=154), 21.3% were low-risk gamblers (N=149), 20.6% were moderate-risk gamblers (N=123), and 6.1% were identified as problem gamblers (N=44).

There are a total of 44 problematic gamblers in the sample, which constitutes 6.1% of the total sample; this percentage is higher than former prevalence studies. The inference of this study is such that first, Tsao (2002) pointed out the advantage of using an online survey: the survey is not restricted by geographical differences and the participants could provide sincere answers anonymously in the comfort of their own homes or wherever they choose to. Second, this survey was posted onto various gambling discussion board and Web sites, which could result in more honest answers provided by different levels of gamblers. The results of the online survey as well as

posting the survey onto the gambling discussion boards have increased the participation of problematic gamblers, which contributes to 6.1% of the sample.

## Survey Results

### *Perceptions toward the Legalized Casino Gambling Industry*

This dimension consisted of the social, economic, and environmental impacts, with 17 questions in total. A reliability analysis was conducted to see the internal consistency of these items. Nunnally (1978) suggested that the reliability level of each construct should exceed the critical value of 0.7. The aggregated dimension of perception had a Cronbach reliability score of 0.852, which means the results of the survey were highly reliable.

The Cronbach's  $\alpha$  of the social, economic, and environmental sections were 0.780, 0.812, and 0.632 respectively, which mean the reliabilities were all acceptable. In the social impact section of the assessed survey, the respondents' perception toward the legalized casino gambling industry on seven different aspects, which included gambling addiction, crime rate, bankruptcy rate, family relationship, prostitution, education level, and life quality. In this section, the respondents considered that the legalized casino industry will affect the social aspect negatively in general (mean= -0.511). In those seven questions, the crime rate receives the lowest negative value, which has a mean score of -0.658. Of the total respondents, 65.5% were concerned that the legalized casino industry will lead an increase of the crime rate, followed by the family relationship, which is also expected to be affected adversely, with a mean score of -0.626. Of the total respondents, 61.3% agreed that the legalized casino industry will pose a threat on family relationships. Prostitution is

also an area of concern, with a mean score of -0.613. Of the total respondents, 59.3% were concerned with issues related to prostitution resulting from the legalization of casino gambling. The mean score of various factors are summarized in table 4-4 below.

Table 4-4 Respondents' Perceptions toward Social Impact

How will the legalized casino industry affect the following aspects of life in Taiwan? (Strongly negative impact (-2) ,Strongly positive impact (+2))	
Social impact	Mean
Gambling addiction	-0.493
Crime rate	-0.658
Bankruptcy rate	-0.551
Family relationship	-0.626
Prostitution	-0.614
Education level	-0.413
Life quality	-0.224
Overall	-0.257

Currently there are no studies pertaining to the attitudes of Taiwanese citizens toward the impact of casino gambling on Taiwanese society as a whole; however, Chang (2005) completed a survey on the residents of Green Island, one of the outer islands of Taiwan, to study the citizens' attitudes toward casinos. The study illustrates the fact that overall, people believe that establishing casinos would bring a negative impact on society. Ho (2007) conducted a study on Penghu and Taipei, the capital city of Taiwan, and found similar results to those found in Green Island. The Taiwanese government forbids gambling in an effort to prevent people from developing gambling problems and the high social cost associated with gambling (Ho, 2007).

However, gambling activities never cease to exist. In fact, underground gambling activities were fairly active with the support of organized gangsters along with the media; casino gambling is perceived as a sin or usually associated with crime in the minds of the Taiwanese citizens.

The economic aspect consists of public welfare, Taiwan's reputation, tourism revenue, non-gaming business, government tax income, employment rate, and the volume of visitors. For these 7 questions, using a 5-point scale, (2= strongly positive, -2= strong negative), the mean score is 0.885, which indicates that overall, the respondents showed positive attitudes toward legalized casino gambling impact on the economy.

Table 4-5 illustrates that the legalized casino industry will bring positive benefits to Taiwan's economy. Of those seven factors, tourism revenue has the highest mean score of 1.223, which means respondents expect the legalized casino industry to benefit tourism revenue. Among the total respondents, the majority agree that the legalized casino industry will affect tourism revenue favorably, in which 89.2% of the total respondents indicated the legalized casino industry will positively or strongly positively benefit tourism revenue. The total respondents answered that the legalized casino industry will help increase the volume of visitors to Taiwan, with the mean score of 1.114, 54.4%, and 30.5% say that the legalized casino industry will strongly benefit the volume of visitors. The factor which has the third highest mean score is the government tax income, with a mean score of 1.107. A majority of the respondents (83.6%) showed a convinced attitude toward the benefits brought by legalized casino gambling, 51.2% of the total responses answered positive impacts, and 32.4% answered strongly positive.

Table 4-5 Respondents' Perceptions toward Economic Impacts.

How will the legalized casino industry affect the following aspects of life in Taiwan? (Strongly negative impact (-2), Strongly positive impact (+2))	
Economic impact	Mean
Public welfare	0.490
Reputation of Taiwan	0.780
Tourism revenue	1.223
Non-gaming business activities	0.568
Government tax income	1.107
Employment rate	0.913
Volume of visitors	1.114
Overall	0.885

The economic aspect is comprised of three sub-aspects: natural environment, culture, and pollution. A 5-point scale was applied to these three questions, (2= strongly positive, -2= strong negative). Table 4-6 shows that the mean score of the overall environmental impact is -0.410, which indicates that overall, the respondents show negative attitudes toward the affects of legalized casino gambling on the environment. Moreover, pollution has a mean score of -0.501, which has the lowest negative value compared to another two aspects. Among the total respondents, more than half think that the legalized casino industry will negatively impact pollution (13.3% negative impact, 42.1% strongly negative impact). Another sub-aspect is the natural environment which has a mean score of -0.493, in which 53.7% of the respondents think that the legalized casino industry will affect the natural environment for the worse (13.9% strongly negative, 39.8% negative). Regarding the cultural aspect, the mean score is -0.234, which means that the legalized casino industry will negatively affect the culture; of the total respondents, 36.1% answered negative impact and 8.7% answered strongly negative.

Table 4-6 Respondents' Perceptions toward Environmental Impact

How will legalized casino industry affect the following aspects of life in Taiwan? (Strongly negative impact (-2) ,Strongly positive impact (+2))	
Environmental impact	Mean
Natural environment	-0.493
Culture	-0.234
Pollution	-0.501
Overall	-0.410

*Summary of Perception Results*

The respondents' perceptions of the legalized casino industry are positive only in its economic impact with a mean score of 0.885. The respondents think that the legalized casino industry could benefit Taiwan and the top three positive factors are tourism revenue, volume of visitors, and government tax income. Overall, the total respondents expect the legalized casino industry will negatively impact Taiwan both environmentally and socially. The top three negative factors in the perception dimension are crime rate, family relationships, and prostitution. Ho (2007) studied Taipei and Penghu residents' attitudes toward the establishment of casinos; in general, people believe such establishments would affect society and the environment negatively. Participants believe that the casinos were able to stimulate the economy and have a positive impact on job creation. The result of the study and the characteristics of the samples matched, and this study will be discussed in detail in the following sections regarding the different attitudes among various gambling types.

### *The Attitude toward the Legalization of Casino Gambling*

This dimension consisted of 6 questions, using a 5-point scale with 1 meaning “Strongly Disagree” and 5 meaning “Strongly Agree,” and was applied to those 4 items. The overall attitude dimension has a high reliability with a Cronbach’s  $\alpha$  score of 0.899, which indicated the reliability was acceptable. Table 4-7 presents the central tendency of the 4 questions of the attitude dimension.

Question 3, I would like to visit gambling destinations in Taiwan, has a mean score of 3.386. Of the total respondents, 37.3% agreed and 17.6% strongly agreed that he/she would like to visit a gambling destination in Taiwan. Only 23.2% disagreed or strongly disagreed with Question 3. Question 1 has a mean score of 3.270. Of the total respondents, less than half of the respondents, 34.2%, agreed and 12.3% strongly agreed with the legalization of casino gambling, with 30.1% having neutral attitudes toward the legalization. Ho (2007) conducted a survey by using convenience sampling; within the total valid responses, 24.5% never heard about the legalization of casino gambling, which means there are still Taiwanese who are unfamiliar with the new legalization. This could be a reason why 30.1% answered neutral on this question. Question 4 has a mean score of 3.173 with 29.5% agreeing, 14.0% strongly agreeing, 17.2% disagreeing, and 11.5 strongly disagreeing that the benefits of the legalized casino industry would outweigh costs. Question 2 has a mean score of 3.080, with 14.1% strongly agreeing, 28.4% agreeing, 25.5% neutral, 15.4% disagreeing, and 16.6% strongly disagreeing with that he/she would gamble at legalized casinos in Taiwan.

Table 4-7 Attitudes toward Casino Gambling

The attitudes toward the legalization of casino gambling (Strongly agree =5 ,Strongly disagree=1)	
Attitude (5=Strongly agree, 1= Strongly disagree)	Mean
I support the legalization of casino gambling	3.270
I would gamble at legal casinos in Taiwan	3.080
I would like to visit gambling destinations in Taiwan	3.386
Overall, I think that benefits from legalized casinos would outweigh the costs	3.173

Therefore, of the total respondents, the attitudes toward the legalization of casino gambling tend to be positive. However, there are more than 20% of the respondents who answered neutral for each question, which means that there are still some respondents holding conservative attitudes or lacking sufficient knowledge or information about the legalization of casino gambling. This study further compares the different mean scores among various ethnic characteristics and attitudes. The results show that a positive attitude exists in the minds of different ethnics. With the exception of married couples, married with child/children, housekeepers, and retirees; these groups lead a relatively stable life and thus are concerned with the potential negative impacts (Ho, 2007). Hypothesis 2 will be further discussed along with the different attitudes among various gamblers and their attitudes toward the development of the gaming industry.

## Hypothesis Testing

- Hypothesis 1: Across groups of different types of gamblers, there are significant differences in perceptions toward the legalized casino gambling industry.

With regard to the testing of Hypothesis 1, MANOVA, a One-way ANOVA and Duncan Post Hoc Test were conducted to examine the relationships between types of gamblers and their perceptions toward legalized casino gambling in three aspects including 17 items.

First of all, this research applied the multivariate analysis of variance (MANOVA) to test the differences in the perceptions of legalized casino gambling across four different groups, including non-gamblers, non-problem gamblers, low-risk and moderate gamblers, and problem gamblers. If the score of Wilk's  $\Lambda$  is lower than 0.05, it means that there are significant differences in the perception dimension across these 5 groups. A one-way ANOVA will then be conducted to examine the differences in means across the dimensions with dimensional scores.

As shown in Table 4-8, the multivariate analysis of variance was compiled to determine if there are significant differences in perceptions among various gambling behaviors. Scores for all five groups were analyzed simultaneously. The MANOVA with Wilk's  $\Lambda$  set at 0.05 indicated that there are significant differences for all five types of gambling behaviors. The resulting F ratio of 6.166 was found to be significant at the 0.000 level. To determine which variables make up critical differences statistically in the perception dimension, ANOVA and the Duncan Post Hoc Test were then used. The ANOVA indicated that statistical significant differences occurred in all three variables, including social, economic, and environmental impacts, at the significant level of 0.05. The Duncan finding again showed that the mean scores of low-risk or moderate-risk gamblers (-0.386), low and

problem gamblers (-0.442) were significantly higher than non-gamblers (-0.640) in the variable of social impact. Regarding the economic impact, the mean scores of the low-risk and moderate-risk gamblers (1.014), problem gamblers (0.974), and non-problem gamblers (0.917) were significantly higher than non-gamblers (0.710). There were also significantly dissimilar results in the variable of environmental impact; the mean scores of the problem gamblers (-0.212), low- risk and moderate-risk gamblers (-0.240) were considerably higher than non-problem gamblers (-0.470) and non-gamblers (-0.590).

Thus, the results of the MANOVA, one-way ANOVA, and the Duncan Test have clearly supported Hypothesis 1.

Table 4-8 The Results of MANOVA and the One-way ANOVA for Hypothesis 1

Behavior	Gambler type				Duncan Post Hoc Test
	Wilk's $\Lambda$ Test		One-way ANOVA		
	F-value	P-value	F-value	P-value	
Social	6.166	<b>0.000</b>	6.360	<b>0.000</b>	3,4>1
Economic			13.106	<b>0.000</b>	3, 4, 2>1
Environmental			11.054	<b>0.000</b>	4, 3>2, 1

1=Non-gambler, 2=Non-problem gambler, 3=Low risk and Moderate gambler,

4=Problem gambler

Table 4-9 Mean Scores of Each Group's Perception of the Impact of Gambling

Type	Social	Economic	Environmental
Non-gambler(1)	-0.640	0.710	-0.590
Non-problem gambler(2)	-0.542	0.917	-0.470
Low/Moderate risk gambler(3)	-0.386	1.104	-0.240
Problem gambler(4)	-0.442	0.970	-0.212

- Hypothesis 2: Across groups of different types of gamblers, there are significant differences in attitudes toward the legalized casino gambling industry.

As shown in Table 4-10, in the beginning, the multivariate analysis of variance was conducted to determine if there are significant differences in attitudes among assorted gambling behaviors. Scores for all five groups were analyzed simultaneously. The MANOVA with Wilk's  $\Lambda$  set at 0.05 indicated that there are significant differences for all five types of gambling behaviors taken together. The resulting F ratio of 8.912 was found to be significant at the 0.000 level with a value lower than .05 to show that there are significant differences in attitudes among the five groups. To determine which variable differences were statistically significant in the attitude dimension, ANOVA and the Duncan Post Hoc Test were conducted. The ANOVA test found that statistically significance in all four variables. The Duncan Post Hoc Test was then conducted to further explain the levels of differences among those four groups, see table 4-10.

Table 4-10 The Result of MANOVA and the One-way ANOVA for Hypothesis 1

Behavior	Gambler type				Duncan Post Hoc Test
	Wilk's $\Lambda$ Test		One-way ANOVA		
	F-value	P-value	F-value	P-value	
The legalization	8.912	<b>0.000</b>	21.346	<b>0.000</b>	4,3>2>1
Gamble			30.463	<b>0.000</b>	4, 3>2>1
Visit			29.064	<b>0.000</b>	4, 3>2>1
Benefits > Costs			16.264	<b>0.000</b>	4, 3, 2>1

1=Non-gambler, 2=Non-problem gambler, 3=Low risk and Moderate risk gambler,  
4=Problem gambler

- “I support the legalization of casino gambling:”

In this variable, the Duncan finding again showed that the mean scores of problem gamblers (3.363) and low-risk and moderate-risk gamblers (3.592) were significantly higher than non-problem gamblers; the mean score of non-problem gamblers (3.247) was higher than non-gamblers (2.873). The mean score of each group's responses is listed in Table 4-11:

Table 4-11 The Results of the Duncan Post Hoc Test for “Support the Legalization”

type	N	Subset for alpha = .05		
		1	2	3
1	252	2.8730		
2	154		3.2468	
3	272			3.5919
4	44			3.6364
Sig.		1.000	1.000	.761

1=Non-gambler, 2=Non-problem gambler, 3=Low risk and Moderate risk gambler,  
4=Problem gambler

- “I would gamble at legal casinos in Taiwan:”

In this variable, the Duncan finding again showed that the mean scores of the problem gamblers (3.636), low-risk, and moderate-risk gamblers (3.496) were significantly higher than non-problem gamblers (3.078) and non-gamblers (2.536); and non-problem gamblers (3.078) were significantly higher than non-gamblers (2.536). The mean score of each group’s responses are listed in Table 4-12:

Table 4-12 The Result of the Duncan Post Hoc Test for “Gamble at Legal Casinos”

type	N	Subset for alpha = .05		
		1	2	3
1	252	2.5357		
2	154		3.0779	
3	272			3.4963
4	44			3.6364
Sig.		1.000	1.000	.397

1=Non-gambler, 2=Non-problem gambler, 3=Low risk and Moderate risk gambler, 4=Problem gambler

- “I would like to visit gambling destinations in Taiwan:”

In this variable, the Duncan finding again showed that the mean scores of problem gamblers (3.864), low-risk and moderate-risk gamblers (3.765) were significantly higher than non-problem gamblers (3.422) and non-gamblers (2.873); and non-problem gamblers (3.422) were significantly higher than non-gamblers (2.873). The mean score of each group’s responses are listed in Table 4-13:

Table 4-13 The Result of Duncan Post Hoc Test for “Visit Gambling Destinations”

type	N	Subset for alpha = .05		
		1	2	3
1	252	2.8730		
2	154		3.4221	
3	272			3.7647
4	44			3.8636
Sig.		1.000	1.000	.527

1=Non-gambler, 2=Non-problem gambler, 3=Low risk and Moderate risk gambler,  
4=Problem gambler

- “Overall, I think that benefits from legalized casinos would outweigh the costs:”

In this variable, the Duncan finding again showed that the mean scores of problem gamblers (3.500), low-risk and moderate gamblers (3.467) and non-problem gamblers (3.201) were significantly higher than non-gamblers (2.782). The mean score of each group’s responses are listed in Table 4-14:

Table 4-14 The Results of Duncan Post Hoc Test for “the Benefits Outweigh the Costs”

type	N	Subset for alpha = .05	
		1	2
1	252	2.7817	
2	154		3.2013
3	272		3.4669
4	44		3.5000
Sig.		1.000	.076

1=Non-gambler, 2=Non-problem gambler, 3=Low risk and Moderate risk gambler,  
4=Problem gambler

Thus, the results of MANOVA, one-way ANOVA, and the Duncan Test support Hypothesis 2. Ho (2007) surveyed a total of 453 residents from Penghu and Taipei. Ho's study compared the different attitudes toward the legalization of casino gambling by different demographic characteristics. The results showed that males, people who have casino gambling experiences, and residents who were aware of the legalization were more positive about the legalization of casino gambling. Nevertheless, according to the results of Hypothesis 3, this study further explains that non-gamblers were conservative on the participation or supporting of the legislatures, with fairly negative perceptions, while gamblers have more positive attitudes. Furthermore, high-risk gamblers are more willing to support the relating legislation, and were willing to participate in the gambling activities. Overall, the aggregate belief was that the positive benefits would outweigh the costs. Hsu (1998) and Stitt, Nichols and Giacomassi (2005) have mentioned the willingness of participation in gambling behaviors, for example, people who have visited casino destinations or perceive benefits from gambling had more positive perceptions toward gambling; the results match the finding of this study.

- Hypothesis 3: There are significant differences between different perceptions toward the casino gambling industry and attitudes toward the legalization of casino gambling.

Multiple regression is a statistical method conducted to establish the relationship between independent (predictor) variables and dependent variables. Multiple regression establishes the effectiveness of a set of independent variables in explaining a proportion of variance in a dependent variable through a significance test of  $R^2$ . By comparing the beta weights, multiple regression determines which independent variables are the strongest predictors of the dependent variables (Cohen & Cohen,

1983). In general, multiple regression is performed to answer questions, such as “How well a set of variables is able to predict a particular outcome,” “Which variable is the best predictor of an outcome,” and “Is a particular predictor variable still able to predict an outcome when the effects of another variable are controlled for” (Pallant, 2005). In this study, the independent variables are  $X_1$  = social impact,  $X_2$  = economic impact, and  $X_3$  = environmental impact; and dependent variables ( $Y$ ) = attitude toward the legalization of casino gambling. The results are presented as follows:

- Regression model: The attitude toward the legalization of casino gambling

The result of Model 1 is showed in Table 4-15. The formula of the multiple regression model is stated as:

$$Y = 2.676 + 0.151 X_1 + 0.480 X_2 + 0.179 X_3$$

Where  $y$  = The attitude toward the legalization of casino gambling

$X_1$  = Social impact

$X_2$  = Economic impact

$X_3$  = Environmental impact

The findings of the multiple regression have a positively significant relationship to social impact ( $\beta=0.151$ ,  $t= 4.198$ ,  $p<0.05$ ), economic impact ( $\beta=0.480$ ,  $t= 15.582$ ,  $p<0.05$ ), and environmental impact ( $\beta=0.179$ ,  $t= 4.994$ ,  $p<0.05$ ) associated with the legalization of casino gambling. The more positive perceptions in social, economic, and environmental aspects that respondents perceive, the more the respondents showed their willingness to support the legalization of casino gambling.

Table 4-15 The Result of Multiple Regression of the Attitude toward the Legalization of Casino Gambling

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Co-linearity Statistics		R	R <sup>2</sup>	Adj. R	F	Sig.
	B	Std. Error				Beta	Tolerance					
(Constant)	2.676	0.070		38.20	.00			.658	.433	.431	182.549	.00
Social impact	0.232	0.055	0.151	4.19	.00	.499	2.006					
Economic impact	0.873	0.056	0.480	15.58	.00	.722	1.384					
Environmental impact	0.250	0.050	0.179	4.99	.00	.609	1.642					

Predictors: Social impact, Economic impact, and Environmental impact

Dependent Variable: The attitude toward the legalization of casino gambling

Thus, as the results of regression models, social impact, economic impact, and environmental are the strongest variables affecting the dependent variables in most of the model, the results of multiple regression partially support and accept hypothesis 3. At the current level, Taiwanese have different opinions toward the development of the casino tourism business. Supporters emphasize economic development, while the proponents worry about the negative impacts that the casino would bring to society. Chang's (2002) study mentioned that the residents on Green Island, an outer island of Taiwan, also hold a conflicting opinion. On one hand, the residents would like to boost the economy, but also worry the negative impacts that would result. But Chang (2002) found that economic concerns are the priority for the Green Island residents. This study has also found that the mean score of participants in different areas show a

positive attitude toward casinos, which could be concluded that whether on Green Island or Taiwan, the development of the economy is a crucial factor for the residents.

## CHAPTER 5

### CONCLUSION AND RECOMMENDATIONS

#### Conclusion

The legalization of casino gambling has become a popular topic around the world today (Chhabra, 2007; Dimanche & Speyrer, 1996; Rose, 1999). For economic benefits, many local governments have expanded their gambling businesses and in some countries, such as Taiwan and Singapore, are starting their plans to enter this industry. Although there are some successful cases in cities with gambling businesses, such as Las Vegas and Macau, the overall impacts from legalized casinos are still controversial (Chhabra, 2007; Pizam & Pokela, 1985; Stitt, Nichols & Giaocopassi, 2000). Proponents worry that the negative impacts on both moral and health grounds, especially in the area of the growing number of issues related to gambling and the possibility of increasing the number of pathological gamblers.

Legislators in Taiwan have been debating the legalization of casino gambling for more than 20 years (Ho, 2007; Xie, 2002). After a long debate, the legalization of casino gambling, which is also called the “Outlying Islands Development Act,” was finally approved in 2009. During the legalization process, Taiwan’s government allowed local residents to decide whether or not to develop the casino industry via a referendum. At the same time, some municipal governments on Taiwan’s Main Island are eager to receive the economic benefits from legal casinos. Generally speaking, Taiwan has prohibited gambling behavior throughout its ninety-eight years of history, and Taiwan is considered a virgin island for casino gaming development (Tsai & Gu,

2005). The referendum about the legalization of casino gambling in Penghu will be held in 2009. The supporters expect the legalization of casinos will bring positive economic benefits and create revenue from taxes and fees. On the other hand, the proponents are still concerned with the potential negative economic and social impact. Taiwan is a prospective gaming market, but the residents might be lacking enough information or knowledge to decide their future objectively. This study anticipates to provide some recommendations to the governments when they participate in the policy making process in order to maximize the benefits and minimize the costs resulting from the gaming industry.

The prevalence of problem gamblers has been found in many countries with legalized gambling. Some studies estimated that up to 5% of the general adult population experience problem gambling, and more than 60% of adult populations participate in some kind of gambling activities recreationally at the level just below problem gambling (Ellenbogen, Gupta, & Derevensky, 2007; Fong & Ozorio, 2005; Gill, Grande, & Taylor, 2006; Olason, Sigurdardottir, & Smari, 2006; Ursua & Uribe Larrea, 1998; Volberg, 1996; Welte, Barnes, Tidwell, & Hoffman, 2008; Wood, Griffiths, Derevensky, & Gupta, 2002). The enormous costs of problem gambling have also been discussed in some former studies (Berns, 1998; Turner et al., 2005). With the awareness of gambling problems, more and more problem gambling studies have been conducted to understand the causes and factors behinds problem gamblers. For example, Kushner et al. (2007) evaluated the urge to gamble in a simulated gambling environment, the results indicated that the urge to gamble is triggered by gambling-relevant cues. Some other studies discuss the barriers to help-seeking for gambling problems or the factors introduced to gambling problems (Pulford et al., 2009; Turner et al., 2008). Taiwan's legalization of casinos depends on the results of

the referendum. It is a democratic legalization, but could also be risky. In Taiwan, while gambling is illegal by law, underground casinos can be found everywhere on the island (Tsai & Gu, 2005). The huge sales of lotteries could also be an indicator that Taiwanese are eager to gamble. It is critical to understand and record current Taiwanese gambling types, perceptions, and attitudes toward this new gambling attraction prior to the opening of casinos. Prior to the referendum, this study designed three hypotheses, surveyed respondents, five groups based on PGSI, via questionnaire, and finally examined them using statistic technology. The findings of the three hypotheses are showed as follows:

1. There are significant differences in perceptions toward the legalized casino gambling industry across non-gamblers, non-problem gamblers, low-risk gamblers, moderate gamblers, and problem gamblers.

Based on the review of former literature, the perception of the legalized casino gambling industry consisted of three variables, including social impact, economic impact, and environmental impact. Non-gamblers are mostly negative toward gambling addictions, crime rates, bankruptcy rates, family relationships, prostitution, educational system, life quality, living expenses, natural environment, culture, and pollution. Overall, the mean scores of non-gamblers were lower than respondents who were identified as gamblers. Non-gamblers are more conservative or cautious toward the potential benefits or costs resulting from legalized casino gambling. Identified with non-gamblers, non-problem gamblers' answers were mostly similar to non-gamblers; they expected that legalized casinos could benefit Taiwan's reputation, public welfare, tourism revenue, non-gaming business activities, government tax income, employment rate, and volume of visitors. In general, gamblers with lower risk or moderate risk and problem gamblers showed more favorable perceptions

toward most items, which means that they are more aggressive toward the benefits and less guarded than non-gamblers and non-problem gamblers regarding the potential costs. An interesting finding in this hypothesis is that problem gamblers show stronger negative perceptions toward the bankruptcy rate factor than other gambler types. The mean score of problem gamblers is lower than the other four groups. To identify the severity of gambling problems, there were some questions about their financial losses or changes, if there were any, due to their gambling problems.

Those problem gamblers might already have some difficulties or financial issues, so they were more sensitive to the bankruptcy rate. However, at the same time, problem gamblers also showed a higher mean score in government income which means they expect the legalized casinos could benefit the government in tax income.

2. There are significant differences in attitudes toward the legalized casino gambling industry across non-gamblers, non-problem gamblers, low-risk gamblers, moderate gamblers, and problem gamblers.

As mentioned in the literature review, prior research conducted by governments or private companies showed that overall, the residents on the outer island tend to agree with the legalization of casino gambling. Ho (2007) further compared the differences between residents on the outer islands and on Taiwan's Main Island toward the legalization of casino gambling, the results showed that there was no significant difference between those two groups. In order to have a deep understanding of the respondents' attitudes toward the legalization of casino gambling, a total of six questions were designed in this dimension. Compared to the results of this study, no significant results show the difference between whether or not the gamblers or non-gamblers agree with the legalization of casino gambling. The results

also shows that while non-gamblers were still refusing to participate in gambling activities, even at legal casinos, gamblers tend to have a more positive attitude that they would like to gamble at legal casinos in Taiwan. The findings indicates that even with legalized casino gambling, non-gamblers are still not willing to participate in gambling, but current gamblers are more willing to try the new legal attractions, especially those current gamblers with some level of risk and problem gamblers. One finding that should be noted by the government is that non-problem gamblers refuse to visit gaming destinations in Taiwan. Non-gamblers were the only group that had the negative attitudes (mean score of 2.536) on this factor. Once the outer islands are positioned to be a gaming destination, those non-gamblers would not likely visit the scenic spots on the island. In conclusion, according to the results from the survey, non-gamblers and gamblers hold different opinions and attitudes on legalized casinos. Non-gamblers were more conservative even when they showed positive attitudes on some issues. From an individual participation perspective, non-gamblers do not wish to be associated with any gambling activities; even visiting gaming designation is considered taboo for them. With the severity level increasing, the attitudes were more active on developing the casino industry. Higher severity levels represent stronger demands and eagerness for the new gaming attractions.

3. There are significant relationships between different perceptions toward the legalized casino gambling industry and attitudes toward the legalization of casino gambling.

This study conducted a multiple regression analysis to examine the relationship between residents' perceptions and attitudes toward legalized casino developments. Social exchange theory has been frequently used in tourism research as a theoretical framework when developing a relationship between residents' perceptions and

attitudes toward tourism developments (Andereck et al., 2005; Perdue, Long, & Allen, 1990; Wang & Pfister, 2008). Social exchange theory posits that residents who perceive themselves as beneficiaries from tourism development are likely to have positive attitudes toward tourism developments, while those residents who perceive themselves as incurring costs or losses are likely to have negative attitudes toward tourism development (Chhabra & Gursoy, 2007; McGehee & Andereck, 2004). In addition, Social exchange theory has been endorsed to some extent by the literature (Chhabra, 2009; Hsu, 2000; Lee & Back, 2006; Stitt et al., 2005).

This study found that social exchange theory could be applied to gaming development, and formulated relationships based on the results of the multiple regression. The formulas show that resident perceptions of social, economic, and environmental aspects could affect their attitudes toward gaming development. The more benefits that residents perceive, the more positive attitudes they show toward gaming developments. The results of the model show the economic impact is the most significant predictor of residents' overall support level; this result is identified with Lee and Back's (2006) research findings. Lee and Back (2006) found the economic benefits are the most significant predictors of residents' support in South Korea. Thus, according to the statistical results, the study would like to provide some recommendations to Taiwanese government and for further research.

## Recommendations

Through the referendum, people who like or are already addicted to gambling are likely to support the legalization, and consequently, problem gambling would become more serious and prevalent. Prior to the opening of any legal casinos in Taiwan, the study could provide some recommendations to the Taiwanese government based on the finding of the questionnaires.

### *For the Taiwanese Government*

1. Conduct the prevalence study of problem gamblers: Some foreign studies have already found that ethnic Chinese have a higher potential to develop gambling problems. Although gambling is currently not legal in Taiwan, the Taiwanese still gamble and some underground casinos never ceased to exist. As the results show, there have been some gamblers with some risk level and even problem gamblers currently existing in Taiwan. Moreover, as mentioned earlier, problem gamblers may have an urge to gamble when they are exposed to gambling environments. Therefore, it is very important to understand the severity and prevalence of problem gamblers before legalizing casinos. After the establishment of tourism casinos, rules and regulations regarding the proper control and monitoring of problem gamblers must be set up to effectively manage and lower any possible damages.
2. Provide channels to assist problem gamblers: The government should provide some assistance to gamblers who have gambling problems. Currently, there is not much research on problem gamblers in Taiwan. We lack information and knowledge about Taiwanese problem gamblers. However, according to foreign studies, Chinese are not willing to seek help if they have a gambling problem. Most of them like to keep their gambling problem a secret, limited to

their families (Blaszczynski, Huynh, Dumlao, & Farrell, 1998, Liang, 2007; Scull & Woolcock, 2005). Thus, the Taiwanese government should not only provide mental or medical cures to problem gamblers, but also educate or assist problem gamblers' family members or relatives on how to deal with the problems.

3. The referendum results: Many countries around the world have already developed the casino gambling industry, despite research indicating that the prevalence of problem gamblers would increase along with the establishment of casino or gambling machines. As mentioned in the literature review, when the Australian government first decided to set up casinos, the government's sole purpose was to create a revenue stream tax. If the Taiwan government does not really understand the casino gambling industry and decides to leave the fate of this industry in the hands of the Taiwanese citizens, this might result in a situation in which the country would develop this industry based on demand and not on what the country really needs. As a consequence, problem gamblers would create a social burden for the country, thus, it is vital for the government to have industry experts evaluate the viability of this industry first, and then decide on the country's policies relating to the casino gaming sector. Tsia and Gu (2005) also suggested that the Taiwanese government should form a government-endorsed "gaming development commission." The commission should consist of government officials, scholars, investment bankers, social workers, religious representatives, and potential investors to construct a long-term plan of gaming development and monitor the benefit and cost changes.

4. Venue: Tsia and Gu (2005) recommended that the casinos should be legalized in Penghu only rather than all of Taiwan. Experts position Penghu as the only location to test the market reaction and the impact of the industry on the country's social and economic fronts. If the casino is proved to provide benefits far exceeding the costs, the government might want to consider opening up the casino industry on the Taiwan main island gradually. However, if the costs outweigh the benefits, then legalization could be revoked. According to the results of the survey, respondents were concerned with the social impact of legalized casinos on Taiwan's Main Island. The result again supports Tsia's and Gu's recommendation in 2005.
5. Complementary measures: According to cases in foreign countries, the establishment of casinos could bring positive or negative economic, social, and environmental effects to a country. As stated in the survey, all types of gamblers believe the opening of casinos would bring positive outcomes to the local market. This study recommends that the government carry out a proper plan with complementary measures to maximize the benefits and minimize the costs brought by the casino industry. First, the casino business around the world has been used to stimulate the economy, but at the same time, the industry would bring negative impacts to the local market. According to the reactions of various ethnicities, all respondents worry about the possible adverse impacts brought by the casino industry. However, foreign studies show that there is no direct correlation between the establishment of casinos and the security of a society. As long as the local government has a proper plan in place with complementary measures set up, the opening of casinos might just benefit the economy as a whole. In addition, the government should

strictly enforce the laws relating to casinos to ensure the safety of the citizens. Take the Taiwan Lottery for example; one of the reasons why the society was unrest was because the government authorities did not strictly enforce the laws. Second, from the environmental perspective, Penghu could be the first location for legalized casinos. But according to the questionnaire, non-gamblers are not willing to visit gaming designations once it is developed as a gambling destination. Las Vegas is a city well known for its casinos, but the municipal government also offers other attractions, such as the Liberace Museum, the dancing fountain at Bellagio, the Hoover Dam, and Red Rock Canyon. The Las Vegas Convention and Visitors Authority has not only created Las Vegas as a casino attraction site, but also provides a variety of tourist attractions. This study suggests that the Taiwan government organize official destination marketing organizations to integrate Penghu's local natural and human resources as well as the to be newly developed casinos to attract tourists from around the world. Also, the government should pay attention to the environmental protection and pollution issues when establishing the casino industry. The government should set out clear rules and regulations relating to the protection of the environment, and might want to consider planning a business district. The government may also want to ask the investors to build green hotels rather than traditional buildings to ensure that the casino industry has a minimal impact on pollution and the local environment.

### *For Further Research*

Because of the limitations, the findings of the study are restricted. The first suggestion for further studies would be to conduct a nationwide problem gambling survey. Due to the economic and time constraints, this study was delimited to the sampling method; the results of this study cannot be applied to estimate the prevalence of problem gamblers in Taiwan before the opening of casinos, it would be desirable to survey the prevalence of problem gamblers and compare the changes after the opening of the casinos. Secondly, Ho (2007) found people who have experienced visiting a casino destination around the world show a more positive attitude toward all impacts from legalized casinos than those who had no legal casino experience. Based on the findings of this study, non-gamblers were more cautious toward the potential costs of legalized casinos and conservative toward the potential benefits. Further studies are recommended to compare the changes of non-gamblers' perceptions before and after the opening of casinos. Third, this study is a one-shot only study and the data was collected prior to the opening of the casinos. Further study can explore the relationship between gambling behavior and religious beliefs. Govoni (1995) stated that religious groups can have negative views of gambling activities, thus, membership in a religious group could influence a person's attitude towards gambling. On the contrary, some Taiwanese gamblers would go to temples and pray to the Gods for the lottery winning numbers. It will be very interesting for further study to examine the relationship between Buddhism and its impact on Taiwanese gamblers.

## Limitations

The first limitation of this study is the sample. The survey questionnaire was distributed via the Internet and the samples were collected from the Bulletin Board Systems and gambling related discussion Web sites. By conducting the Web-survey, there were some disadvantages along with advantages. TWNIC (2006), Taiwan Network Information Center, issued a report which showed a total of 14.76 million Taiwanese use the Internet, which accounts for 65.07% of the population in Taiwan. However, this sampling might neglect the groups in Taiwan who do not use Internet. On the other hand, the census data in Taiwan is not complete and the last census which was conducted 10 years ago might not represent the current population distribution in Taiwan. Due to these two reasons, the survey might not be able to represent the whole population of Taiwan.

The second limitation is the sampling period. This study was conducted prior to the opening of the casinos, which was a one-time study. Along with the opening of the casinos in the future, the residents' attitudes and perceptions could be affected and varied with the changes of their society. So the result of this study could only best explain the residents' attitudes and perceptions before the casinos opening.

The last limitation is the language differences. The questionnaire was distributed in Chinese. When the PGSI screen was translated from English to Chinese and the results were translated to English, it may generate some misinterpretations. This study has tried several methods to minimize bias, such as conducting pre-tests and hiring editors.

## APPENDIX

### Survey Questionnaire

Instructions: Please complete the following questions to reflect your opinions as accurately as possible and to answer factual questions to the best of your knowledge.

Your information will be kept strictly confidential.

#### Part A. Perceptions toward the legalized casino industry

The Taiwan government has recently approved a plan for establishing casinos on the outlying island of Taiwan. In your opinion, how will the legalized casino industry affect the following aspects of life in Taiwan?	Strongly Negative	Negative	Neutral	Positive	Strongly positive
	2	1	0	-1	-2
1. Gambling addiction	<input type="checkbox"/>				
2. Crime rate	<input type="checkbox"/>				
3. Bankruptcy rate	<input type="checkbox"/>				
4. Family relationships	<input type="checkbox"/>				
5. Prostitution	<input type="checkbox"/>				
6. Education System	<input type="checkbox"/>				
7. Life quality	<input type="checkbox"/>				
8. Reputation of Taiwan	<input type="checkbox"/>				
9. Public welfare	<input type="checkbox"/>				
10. Tourism revenue	<input type="checkbox"/>				
11. Non-gaming business activities	<input type="checkbox"/>				
12. Government tax income	<input type="checkbox"/>				
13. Employment rate	<input type="checkbox"/>				
14. Volume of visitors	<input type="checkbox"/>				
15. Natural environment	<input type="checkbox"/>				
16. Culture	<input type="checkbox"/>				
17. Pollution	<input type="checkbox"/>				

Part B. Attitudes toward legalization of casino gambling

In the following questions, we would like to know your attitude toward the legalization of developing casinos in Taiwan. Please indicate your answer for each of the question below. 5 means Strongly Agree, 4 means Agree, 3 means Neutral, 2 means Disagree, and 1 means Strongly Disagree.	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
	5	4	3	2	1
1. I support the legalization of casino gambling	<input type="checkbox"/>				
2. I would gamble at legal casinos in Taiwan	<input type="checkbox"/>				
3. I would like to visit gambling destinations	<input type="checkbox"/>				
4. Overall, I think that benefits from legalized casinos would outweigh the costs	<input type="checkbox"/>				

Part C. Gambling Behavior

In the following two parts, we would like to understand your gambling behaviors and demographic characteristics. All responses will be kept in strict confidentiality and your identity will never be associated with your answers. Please feel free to answer the following questions.

1. Have you participated in any kinds of gambling with actual money in the past 12 months (Ma-Jiang, lottery, casino gambling...etc.)?  
 (1) Yes  (2) Never (If never, please skip to part D)
2. Please indicate which of the following games you have played during the past 12 months (Multiple answers are acceptable).  
 (1) Ma Jiang  (2) Lottery  (3) Dice  (4) Mark Six  (5) Sports lottery  
 (6) Poker  (7) Others: \_\_\_\_\_

3. Please indicate which of the following venues you have gambled at during the past 12 months (Multiple answers are acceptable).
- (1) At home or at friends'/relatives' homes  (2) Underground casinos
- (3) Lottery stalls  (4) Las Vegas  (5) Macau  (6) Korea
- (7) Others: \_\_\_\_\_
4. Thinking about the past 12 months, how often have you ever bet more than you could really afford to lose?
- (1) Never  (2) Sometimes  (3) Most of the time  (4) Almost always
5. Thinking about the past 12 months, how often have you needed to gamble with larger amounts of money to get the same feeling of excitement?
- (1) Never  (2) Sometimes  (3) Most of the time  (4) Almost always
6. Thinking about the past 12 months, how often have you gone back another day to try to win back the money you lost?
- (1) Never  (2) Sometimes  (3) Most of the time  (4) Almost always
7. Thinking about the past 12 months, how often have you borrowed money or sold anything to get money to gamble?
- (1) Never  (2) Sometimes  (3) Most of the time  (4) Almost always
8. Thinking about the past 12 months, how often have you felt that you might have a problem with gambling?
- (1) Never  (2) Sometimes  (3) Most of the time  (4) Almost always
9. Thinking about the past 12 months, how often have people criticized your betting or told you that you had a gambling problem, regardless of whether or not you thought it was true?
- (1) Never  (2) Sometimes  (3) Most of the time  (4) Almost always

10. Thinking about the past 12 months, how often have you felt guilty about the way you gamble, or what happens when you gamble?

(1) Never  (2) Sometimes  (3) Most of the time  (4) Almost always

11. Thinking about the past 12 months, how often has your gambling caused you any health problems, including stress or anxiety?

(1) Never  (2) Sometimes  (3) Most of the time  (4) Almost always

12. Thinking about the past 12 months, how often has your gambling caused any financial problems for you and your household?

(1) Never  (2) Sometimes  (3) Most of the time  (4) Almost always

Part D. Socio-economic and Demographic profile

**1. Gender:**

(1) Male

(2) Female

**2. Age:**

\_\_\_\_\_ years old.

**3. Marital status:**

(1) Single

(2) Married (No child)

(3) Married (Have a child/children)

(4) Divorced/Separated

(5) Widowed

**4. Education Level:**

(1) Below high school

(2) High school graduate

(3) College/University graduate

(4) Master degree or higher

**5. Occupation:**

(1) Student

(2) Farming and Fishing

(3) Soldier/Government Employee/ Teacher

(4) Blue collar

(5) Service industry in general

(6) none (retired/homemaker)

(7) unemployed

(8) Others \_\_\_\_\_

**6. Location of residency:**

(1) North

(2) Central

(3) South

(4) East

(5) Outer islands

**7. Monthly Income:**

(1) Below NTD10,000

(2) NTD10,001-20,000

(3) NTD20,001-  
NTD 30,000

(4) NTD30,001-  
NTD40,000

(5) NTD40,001-  
NTD50,000

(6) NTD50,001 or more

**8. Religious beliefs:**

(1) None

(2) Buddhism

(3) Taoism

(4) Yit Kuan Tao

(5) Islam

(6) Catholicism

(7) Christianity

(8) Others\_\_\_\_\_

Thank you for your co-operation and time in answering these questions. If you have gambling problems, here are two organizations in Taiwan that might be helpful to you.

SOS 救命網 [http://www.sos.org.tw/lifeline-02.asp?ser\\_no=112](http://www.sos.org.tw/lifeline-02.asp?ser_no=112)

書田精神科 <http://www.urology-info.com.tw/service06.htm>

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VITA

Graduate College  
University of Nevada, Las Vegas

Che Hao Chang

Local Address:

7800 S Rainbow Blvd,  
Las Vegas, Nevada 89139

Degree:

Bachelor of Arts, Tourism Management, 2004  
Shih Chien University

Thesis Title: Taiwanese Gambling Behaviors, Perceptions, and Attitudes

Thesis Examination Committee:

Chairperson, Dr. Kathryn LaTour, Ph. D.  
Committee Member, Dr. Billy Bai, Ph. D.  
Committee Member, Dr. Bo Bernhard, Ph. D.  
Graduate Faculty Representative, Michael S. LaTour, Ph. D.