ASSESSING THE LOCAL ECONOMIC IMPACT OF THE
2006 U.S. LPGA KOLON-HANA BANK CHAMPIONSHIP
BY USING INPUT OUTPUT ANALYSIS

BY

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DISSERTATION

Submitted in Partial Fulfillment of the
Requirements for the Degree of

**Doctor of Philosophy
Health, Physical Education, and Recreation**

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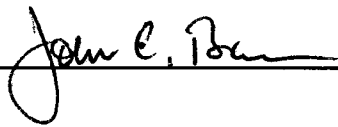_Department_

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DEDICATION

This dissertation is dedicated to my wife, Kyounghwa Chung,

whom I give all glory and credit for all of my ability and accomplishments.

Without her, I would have and be nothing.

All that I am and everything I will become I give thanks to

HER.

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Ultimately, I could not be more thankful than for my beautiful family for their support and sincere for me. Their immeasurable love and encouragement have made me who I am today.

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ABSTRACT

The purpose of this study was to determine the economic impact a local economy received when hosting an sporting event. Using input-output analysis, spectator expenses were assessed. The basis for this study was the 2006 U.S. LPGA KOLON-Hana Bank Championship, an official tournament of U.S. LPGA held on October 27 ~ 29, 2006 at the Mauna Ocean Country Club in Gyeongju, Korea.

Spectator groups visited Gyeongju primarily because of the Championship comprised 90.8 percent of all spectator groups and spent approximately $0.9 million within Gyeongju city for such as goods and services, and they spent an additional $181,609 on the event site. The estimated total expenditures from non-resident spectators were $1,081,124.2.

Total direct economic impact accrued to the Gyeongju economy by the event

totaled $2,443,415. Multipliers were applied to calculate the total indirect economic

impact that amounted to $7,571,836.21. Therefore, the total economic impact incurred by

the Gyeongju economy as a result of the 2006 KOLON-Hana Bank Championship was

$10,015,251.31. This economic activity created the full time equivalent of approximately

616 jobs for Gyeongju residents in addition to the number of full time event organization

employees (73). Direct local income attributed to the 2006 Championship was

$2,443,415. The income multiplier generated through this study was .91 meaning that for

every one dollar spent in Gyeongju city attributed to the event, local income was

increased 91 cents.

For the psychic impact, the mean perception (visibility & awareness) of residents

was 2.99 (sd=.971), whereas it was 3.26 (sd=1.13) for non-residents. A statistically

significant difference of perception between residents and non-residents was found (χ^2 =

10.679, p = .023). Non-residents had a higher mean score for image (3.34) than residents

(3.08). Fifty percent of non-residents answered their perceived image was enhanced by

the event. However, only 36 percent of residents responded that their perceived image

was enhanced by the event. There was also a statistically significant difference found on

perceived image enhancement through the event between resident and non-resident (χ^2 =

9.473, p=.035). Furthermore, perceived value of perception and image for Gyeongju city

was positively correlated with age and household income.

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CHAPTER I

Introduction

Up until the 1980s, hosting major sporting events was thought of as a financial

and administrative burden to the hosting city and country. This view was confirmed by

the loss of £ 692 million ($1.27 billion) incurred by Montreal in the staging of the 1976

summer Olympics. The previous summer Olympics in Munich in 1972 incurred a loss of

£ 178 million ($328 million) (Preuss, 2000). Following these escalating losses, it seemed

as if any host city would have to accept such a financial burden if it were to stage the

Olympic Games or any other major sporting event. However, the 1984 Los Angeles

Olympics changed the economics of major sporting events. These games generated a

surplus of $396 million (Ritchie & Smith, 1991). The financial success of the Los

Angeles Olympics changed the way cities and governments regarded the hosting of major

sporting events. Partly as a result of this, but also because there developed a greater

understanding of the broader economic benefits to a city and country that could result

from the staging of a major sporting event, cities started to compete fiercely to host a

wider range of sporting events (Kasimati, 2003).

From these events, both the consumers and the local industry can benefit. For

most sporting events, there are benefits to the consumers of the goods and services

produced by the event such as entertainment, enjoyment, and satisfaction. However,

benefits to the patrons are small relative to the economic benefits to be gained through

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the sport event related spending incurred for lodging, dining, and additional

entertainment. In other words, sport events create the economic benefits derived by the

local industry, which have become essential for host cities and organizations (Turco &

Navarro, 1993; Gratton, Dobson, & Shibli, 2000).

Recent years have seen a rapid growth of sport of all kinds and in all areas, not

only because of such influences as increased leisure time, but also because of the great

influence of economic dimension. This is true for amateur and professional sport, and

especially for mega sport events (Steiner & Thöni, 1999). In the field of sport, several

events have gained global prominence. Major events including the Olympic Games,

FIFA World Cup, Super Bowl, Master's Golf Open can be distinguished by the

following:

1. The major demand generated by the sport event is, for the most part, not only

   the demand for the event itself but also demand for a range of related services

   such as accommodations, food, transportation, and entertainment (Burns,

   Hatch, & Mules, 1986).

2. Since the highest effects of the impacts are at the time of the event and the

   direct preparation for it, services cannot be produced ahead of time and stored.

   (Steiner & Thöni, 1999).

3. Highest effects of the impacts influence both the level and the distribution of

   benefits received (Steiner & Thöni, 1999).

4. The net impact of redirecting local funds toward sport events is relatively

   small; the major benefits arise from the attraction of new funds from outside

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the region, new money coming into the host economy (Burns, Hatch, & Mules, 1986).

Hosting the major events can encourage wider participation in sport more generally (Crockett, 1994) both through demonstration effects and through wider community access to improved facilities (Humphreys & Plummer, 1995). Another area in which proponents claim long-term benefits accrue to host regions is through the provision of necessary infrastructure for major events, which then remains a legacy for the host region (Jones, 2001). For example, the 1996 Olympic Games were hosted in Atlanta, Georgia from July 19 to August 4, and attracted approximately two million tourists to the metropolitan area. In addition, approximately two billion people watched the games on television during that period. According to the statistics provided by the Atlanta Committee for the Olympic Games (ACOG) (1996, March), this event brought various development opportunities to the host area. Hosting this sporting event provided not only the opportunities to educate people about the Olympic Movement but also the chance for the host community to improve its technology, sport medicine, and communications. The new sport facilities built for the Olympic Games promoted sport activities in the state of Georgia, as well as improved the international reputation of Atlanta. Finally, it harmonized the relationship among different races (ACOG, 1996). The most important aspect was that this sport festival created a $5.1 billion economic impact on the State of Georgia from 1991 to 1997 (Newman, 1999). Compared with the 1992 Barcelona Summer Olympic Games, the impact for the 1996 Olympic Games was significantly larger.

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There are several reasons why the public and private sectors want to host and support sporting events. One consideration for hosting a sporting event is to bring tourism dollars into a region that are expected to have a ripple effect after the event. During the off season or in periods of time when the number of visitors is lower than normal, such attractions provide promotional opportunities and exposure for the community to a specific market. Further, yearly sport events create and stimulate economic activity on an annual basis and thereby provide an impetus for employment opportunities (Turco, 1995).

Countries, regions, and communities can create and host a set of sport events and derive economic benefits from spectator visits. Many communities rely, with varying degrees of dependency, upon the spending associated with such events as an important source of economic activity. Often the total economic impact of an event is measured only in terms of a specific fee a visitor is required to pay such as an entrance or registration fee or ticket purchase. However, ancillary groups also have the possibility of deriving revenue from the event. Such beneficiaries may include owners of local hotels and motels, retail stores, restaurants, and other complementary businesses (Howard & Crompton, 2003).

Since sporting events provide various benefits, many nations have planned to host sport activities with a forecast for substantial financial returns from them. Many developing countries such as Korea, Taiwan, Singapore, and China are willing to host sporting events because these events are good channels to gain notoriety for their countries as well as to help them upgrade to the level of developed countries. In 1988, the Seoul Olympic Games made a profit of $500 million for Korea (Heinemann, 1992).

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During the 2002 FIFA World Cup, there were over three million spectators who attended the matches with ticket sales accounting for approximately $1.2 billion. More than 35 billion viewers watched the matches live on television. Furthermore, 2.2% of GDP ($9 billion) was increased by hosting the 2002 FIFA World Cup for Korea (Parr, 2002). Goldman Sachs Asia (an economic analysis company) has predicted that the 2008 Beijing Olympic Games will increase China's GDP growth by 0.3 percent annually between 2002 and 2008, citing service sectors such as tourism, transportation, information technology services and logistics as the areas for the greatest growth (Micro China, 2001).

North America, especially the United States and Canada, is known as the most developed territory for sport-related industries in the world. The sport-related industry in this area has been enhanced by various international sport competitions: the 1984 and 1996 Summer Olympic Games in the US, the 1988 Winter Olympic Games in Canada, the 1994 FIFA World Cup and 1999 Women's World Cup for soccer and the 2002 Winter Olympic Games in the US. The region also has professional sports, e.g., Major League Baseball (MLB), the National Basketball Association (NBA), the National Football League (NFL), the National Hockey League (NHL), the Professional Golf Association and the Ladies Professional Golf Association, motor racing, and other minor professional sports. Intercollegiate sports (the National Collegiate Athletic Association [NCAA] and the Canadian Intercollegiate Athletic Union [CIAU]), individual participatory sports (fitness clubs and various sport organizations), and other traditional sport events (the New York and Boston Marathons) also exist.

This sport environment creates a large amount of economic activity, including stimulation from sport travel, lodging, food, sport lessons, memberships, sports medicine and therapy, sport equipment, and sport apparel and shoes. According to statistics from the Sport Business Journal, the sports business industry is one of the largest and fastest growing industries in the United States. In 2005, their annual survey estimated the sports business industry to be valued at $213 billion. This figure makes it more than twice the size of the U.S. auto industry and seven times the size of the movie industry (SBJ, 2005).

However, because the costs to host a sport related event are also considerable, many people in both the general public and sport industry have recently focused on the managerial effectiveness of sport-related business. As a result of this increased scrutiny, organizers of sport-related businesses have been asked to increase profits, reduce costs, encourage more sponsors to spend moneys on their activities, and have their events supported by the public (government, lawmakers, and residents). Therefore, it has become necessary for them to demonstrate the economic benefit of these events to the public (Preuss, 2005). By quantifying the economic impact of sport they can demonstrate to government and the commercial sector that sport is good business and an excellent investment. Thus, since the 1990s, more researchers have concentrated on studying the *economic outcomes* that result from sports-related industries (Preuss, 2005; Sanderson, Harris, Russell, & Chase, 2000).

Economic Impact

Economic impact studies on specific events are useful to local sport management professionals and such stakeholders as host cities, local governments, tourism agencies,

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souvenir vendors, and the hotel and restaurant industries. Hence, economic impact studies of sport events are important. Economics can be defined as the social study of the production, distributing, and consumption of wealth (Greenwald, 1983). Sport is just as susceptible to the laws of economics as any other business, government, or nonprofit organization. For example, one way to determine the quantitative value of a sport team to the local community is to study its economic impact. Economic impact can inform decision-makers as to the fiscal effects on the local economy of hosting a team or event (Berrett, 1996).

Howard and Crompton (2003) defined economic impact as the "net economic change in the incomes of host residents that results from spending attributed to a sports event or facility" (p. 105). Turco and Navarro (1993) stated that there are basically two things that contribute to the economic impact of a local community or region, "the first is the degree to which the event stimulates sales by nonresidents. The second is the degree to which residents and local businesses purchase goods and services locally" (p. 18). Increasing either one of these components can increase the event's economic impact on the local economy. In order to assess the economic impact of a sport event, both of these components must be estimated for businesses in the area under study (Turco & Navarro, 1993).

The economic impacts of conducting a sport event are often categorized into (a) primary or direct impact, (b) secondary or indirect impacts. Direct impacts arise from transactions closely related to the event, such as material and labor purchases made when expanding sport facilities or the expenditures for various supplies and services for spectators of the sport event. The indirect or secondary impacts include the chain of

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events that result from the direct effects, including changes in employment levels, gross regional product, factor earnings, and institutional incomes like personal income or government revenues (Crompton, 1999). Induced impacts are caused by employees of impacted businesses spending a portion of their salaries and wages in other businesses in the community. Indirect and induced effects are frequently referred to as secondary impacts (Howard & Compton, 2003). Non-monetary benefits (psychic impact) such as increased awareness and enhanced image of the host community are also considered secondary impacts of a sport event (Turco, 1995).

Considerable debate has ensued over methodological problems in the economic analysis of sport events particularly in the use of economic multipliers, cost benefit analysis, and the evaluation of opportunity cost (Crompton, 1995; Rascher, 2002).

Assessing the economic impact of a sport event to the host community essentially involves estimating what the local economy would be losing if the event in question never occurred. An economic impact assessment model obtains detailed expenditure information from a sample of persons who indicate that their primary reason for visiting the host community is to attend the sporting event. The data collected from the sample is then used to estimate total visitor expenditures. To derive total and indirect economic impact, appropriate multipliers are then used. Economic multipliers reflect the responding of direct visitor expenditures within a given area. Tax revenues received by state and local governments generated by direct and indirect spending attributed to the event are also determined (Kasimati, 2003).

Researchers have recommended that economic impact research be continued to develop and test models to assess economic impact of sport events. Steiner and Thöni

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(1999) mentioned that the research challenge is not only to create and test models that measure sport events' impacts, but to identify methods by which this important information can be collected and processed in a systematic, cost-efficient, and understandable way at local levels and by local personnel.

Context: Gyeongju as Host Location for Sport Events

The main industry of Gyeongju, South Korea is tourism. According to the Department of Sport Industry in Gyeongju, the total tourism revenues reached $7 billion in 2004. This number doubled in comparison to 2001, a year before the 2002 FIFA World Cup Korea/Japan. The sport industry contributes approximately 25% of the total tourism revenues for Gyeongju. Golf related income comprises 37% of the sport industry, including green fee, cart fee, caddie fee, etc. (Gyeongsangbuk-do Provincial Government, 2005). The Department of Sport Industry in Gyeongju reported that about 850,000 golfers visited golf courses in 2004, and 87.6% of all golfers who visited were not residents of Gyeongju. Compared to 2001, the total number of visitors to golf courses on Gyeongju had risen by 67.4% in 2004.

The capacity of Gyeongju to conduct international sport events is directly related to the following features:

1. The significant number of international standard sports facilities including FIFA accredited football stadium, 19 golf courses (10 being operated, 9 being constructed), many Olympic scale sport facilities.

2. Supportive infrastructure that includes public transportation, an international airport, high standards of accommodation and leisure facilities.

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3. Experiencing hosting major sport events such as the National Sport Festival, KPGA and KLPGA tournaments, International Archery Event, etc. (16 international and 37 nationwide sport events hosted in 2005).

4. Because located in the basin and surrounded by mountain ranges, annual average temperature is 45 degrees Fahrenheit so that sport events can be held all year round.

5. A safe and secure environment.

6. A viewing public that is both knowledgeable and interested in sport.

With the above in mind, sport event administrators have chosen Gyeongju as the venue for major events, especially for golf events (U.S. LPGA KOLON-Hana Bank Championship, Korea PGA and LPGA events, Korea Collegiate Golf events). Gyeongju relies heavily upon its image as a major sport event and tourism city. Furthermore, the mayor of the Gyeongju pronounced that Gyeongju will be developed as number one sport-tourism city by 2010 through using sport marketing and hosting sport events (Gyeongsangbuk-do Provincial Government, 2005). Widespread publicity of Gyeongju resulting from its hosting of major sport events ensures that its image as the principal sport district of Korea is promoted both nationally and internationally.

Purpose of the Study

The purpose of this study was to examine the economic impact a local economy received when hosting a sporting event through assessing visitor spending. This study was based on the 2006 KOLON-Hana Bank Championship, an official tournament event of the U.S. Ladies Professional Golf Association (LPGA) that was held October 27 ~ 29,

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2006 at the Mauna Ocean Country Club in Gyeongju, Korea.

Research Questions

This study was conducted on the basis of the following research questions:

1. What were the total, on and off-site estimated expenditures from non-residents who attended the 2006 KOLON-Hana Bank Championship?

2. What were the direct and indirect economic impacts incurred by the Gyeongju economy as a result of the KOLON-Hana Bank Championship?

3. To what extent was the visibility and awareness among spectators of Gyeongju increased through hosting the KOLON-Hana Bank Championship?

4. To what extent was the image of Gyeongju enhanced among spectator through hosting the KOLON-Hana Bank Championship?

Delimitations

1. The geographic boundary for the local economy was defined as Gyeongju (land area = 1,319 square kilometers), located in the south east of Korea. In 2005, the total population of Gyeongju was 337,235.

2. The subjects of this study were adult spectators (over 20 years old) of the 2006 U.S. LPGA KOLON-Hana Bank Championship during 27th through 30th of October held in Gyeongju, Korea.

3. The subjects represented some of the population of the event, KOLON-Hana Bank Championship.

4. Economic impacts were measured only by spending done by nonresidents of the local area while attending the KOLON-Hana Bank Championship.

5. Economic impacts were measured by estimating the amount of total expenditures by nonresidents within the local community.

Limitations

1. Non-response bias or incomplete answers may occur in this study because some subjects did not recall the amount money they spent during the event.

2. The original questionnaire, written in English, was translated into Korean and Japanese and the final results were reported in English. The control of potential translation nuance and vagaries was beyond the scope of this study.

3. The ability to generalize the results to other sporting events and other cities may not be appropriate.

4. The possibility that some selected participants would speak another language other than English, Korean, or Japanese.

Assumptions

1. The event affected the perceived image and awareness of the host city among spectators.

2. The subjects understood the questionnaire items.

3. The subjects responded to the survey independently and truthfully.

Significance of the Study

Economic impact of sport refers to the net change in regional output, earnings and employment that is due to new dollars flowing into the region from outside the region as a result of hosting a sport event or providing a sport activity (Howard & Crompton, 2003). When such an event occurs, its effects extend to the general population and affect employment statistics, income levels, and sales activities. Property values, taxes, public services, and even the quality of life and wealth in an area are also affected. From the point of view of regional economics, the economic impact should be studied because such an analysis provides definitive and empirical evidence for the economic changes which have taken place in the region or community (Shaffer, 1989). Economic impact study is also valuable in demonstrating the worth of sporting events in financial terms for event managers who often use such figures to induce community and local government support.

However, most economic study has been focused on the economic impact of sport franchises, stadiums, and mega sports events such as the Olympic Games. Those were approached through a macroeconomic perspective (Gratton, Dobson, & Shibli, 2000; Haynes, 2001; Humphreys & Plummer, 1995; Kasimati, 2003; Preuss, 2000; Ritchie & Smith, 1991). Few studies were found that assessed economic impact from a microeconomic perspective such as a single golf tournament.

One of the misapplications of economic impact study is that the local circulating money is included for the total economic impact (Crompton, 1995; Howard & Crompton, 2003). This study will be a strengthened economic impact study because the event site is

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isolated 30 miles away from the residential area so that the number of time switchers, casuals, and local residents could be minimized.

Definition of Terms

Casuals: visitors who already have been in the community, attracted by other features, and elected to go to the sport event instead of doing something else (Howard & Crompton, 2003).

Direct Impact: the first round effects of visitor spending that include the money that businesses received from the initial expenditures spent on goods and services in the local economy and paid to employees who live in the community (Howard & Crompton, 2003).

Economic Impact: the net economic change in the incomes of host residents that results from spending attributed to a sports event or facility (Howard & Crompton, 2003).

GDP: stands for Gross Domestic Product. The total value of output produced in the nation during a single year (Li, Hofacre, & Mahony, 2001)

Indirect Impact: the additional rounds of recirculating of the initial visitor's dollars by local businesses and local government (Howard & Crompton, 2003).

Induced Impact: caused by employees of impacted businesses spending a portion of their salaries and wages in other businesses in the community (Howard & Crompton, 2003).

Leakage: the payment for wholesale and retail products and services brought in from outside the local economy plus the profits, interest, rents, and taxes paid outside the local economy (Turco & Navarro, 1993).

Local residents: people who reside in the host city or community.

Multiplier: the number by which the change in an input must be multiplied in order to present us with the resulting change in income (Crompton, 1995).

Non-residents: people who reside outside of the host city or community.

Psychic Impact: non-monetary benefits such as increased awareness and enhanced image of the host community (Turco, 1995) and the emotional and psychological benefits residents perceive they receive by hosting the sport event, even though they do not physically attend the sport event, and are not involved in organizing them (Crompton, 2004).

Time switchers: non-local spectators who may have been planning a visit to the community for a long time, but changed the timing of their visit to coincide with the event (Howard & Crompton, 2003).

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CHAPTER II

REVIEW OF LITERATURE

The Rationale for Economic Impact Study

The purpose of an economic impact analysis is to measure the economic benefits that accrue to a community by hosting an event, such as sporting event (Crompton, 1995). Figure 1 explains the conceptual reasoning for conducting economic impact studies.

Residents of a community supply their city or local economy with funds when they pay taxes. The city council then often uses these funds to subsidize the production of an event or construction of a facility. The facility or event attracts out of town visitors who spend money in the local community both inside and outside the facility they visit. This injection of "new money" creates income and jobs in the community for the residents of the community (Howard & Crompton, 2003). Such an injection completes the virtuous cycle of economic development. The residents of the community are responsible for providing the initial funds, and they receive a return on their investment in the form of new jobs and more household income. It is a kind of symbiotic relationship, one that is mutually benefited to each party.

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Figure 1.

The Conceptual Rationale for Commissioning Economic Impact Studies

FINISH **START**

Inflow of Revenues For Community Residents who pay Taxes → Community Residents Pay Taxes **Outflow of Funds**

Creating Income and Jobs in the Local Community ↑ ↓ Used at the Discretion of the City Council

Who Spend Money in the Local Community That Attract Out-of-Town Visitors Which uses them to Subsidize Development of Recreation Programs, Facilities on Sport Events

Modified from "Financing port. 2nd ed." By Howard, D. R. and Crompton, J. L, 2003, Morgantown, WV: Fitness Information Technology, Inc., p.105.

Input-Output Economic Impact Model

Howard and Crompton (2003) define economic impact relating to sport as "the

net economic change in a host community that results from spending attributed to a sport

event or facility" (p.105). This has been one of the issues debated extensively by sport

economists in the last two decades (Fleming & Toepper, 1990). The debate focuses on

whether or not a community benefits economically (i.e., the net change in the economy of

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the region will be positive) through hosting a sport event or through subsidizing the construction of sports facilities to be used later by professional sport franchises. To understand the arguments on both sides of this debate, sport management researchers have developed a several theories on what economic impact is and how such an impact is measured.

The question of how to accurately measure the size of economic impact of an event or facility on a community is one that economists have examined for more than 200 years. Examinations have included attempts to use various mathematical models to quantify the size of effect, one of which was the input-output model developed by Leontief in the 1930s (Leontief, 1985).

Among the economic impact analysis methods, the input-output approach is one of the most useful research tool to evaluate economic impact. It is a technique for estimating money flow on an industry-by-industry basis in quantitative terms (Pleeter, 1980). Input-output models are constructed in two parts: the input side and the output side (Miller & Blair, 1985). From these two parts, many important economic impact factors can be derived.

Leontief (1986) stated that the practical application of input-output analysis often took the form of comparisons of the implications of several alternative scenarios, each based on a different set of assumptions concerning the level of input coefficients incorporated into various column vectors of the flow and capital coefficient matrices, or a combination of both. Therefore, the I-O table is also known as the transaction table.

Initially, the input side was divided into several categories of intermediate inputs (i.e., agricultural, manufacturing, and service industries) and primary inputs (i.e.,

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payments to households, government revenues especially tax incomes and imported input).

The output side also was separated into various parts. Intermediate outputs (demands), which are symmetrical to the intermediate input industries (agricultural, manufacturing, and service industries) and final output (demands) which are also symmetrical to the primary input sectors (i.e., household consumption, government purchasing, and exports). Each of the above sectors (intermediate inputs/outputs, primary inputs, and final outputs) can be divided into more detailed items to explain the real economic impact situations among different industries in various defined regions.

In order to explain the interrelationship between the input and output sides, a simplified I-O table was developed as follows:

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Table 1

Simplified Input-Output Table

	OUTPUT						
	Intermediate Outputs			*Final Outputs*			*Total Outputs*
	Agr.	Man.	Serv	C	G	E	
INPUT							
Intermediate Inputs	[I]			[II]			
Agr.	X_{11}	X_{12}	X_{13}	C_1	G_1	E_1	X_1
Man.	X_{21}	X_{22}	X_{23}	C_2	G_2	E_2	X_2
Serv.	X_{31}	X_{32}	X_{33}	C_3	G_3	E_3	X_3
Prime Inputs	[III]			[IV]			
P	P_1	P_2	P_3	PC	PG	PE	P
T	T_1	T_2	T_3	TC	TG	TE	T
I	I_1	I_2	I_3	IC	IG	IE	I
Total Inputs	X_1	X_2	X_3	C	G	E	X

Where: **Agr.** = Agricultrual, **Man.**= Manufacturing, **Serv.**= Service industry
   P = Payments to households, **T** = Government revenues, i.e. tax, **I** = Imports
   C = Household consumption, **G** = Government purchasing, **E** = exports

Note. From "Input-output analysis," by Miller, R. E. and Blair, P. D., 1985, Englewood Cliffs, CA: Prentice-Hall, Inc.

The above table shows that resources flow from the input side to the output side, the payments also flow from the output side to the input side.

Intermediated inputs consist of three industries; Agr. (Agricultural), Man. (Manufacturing), and Serv. (Service). This part shows those industries that sell intermediate products for intermediate or final demands (outputs) in a defined economy.

Primary inputs are consisting of three parts; P (resources provided and payments in return to households), T (resources provided and payments in return to government), and I (import). This portion indicates those sectors that provide their primary productivity

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for intermediate or final demands / consumption in a defined economy. Among them, P and T are value added items which show the increasing amount of revenues flowing from different input sectors to households and government sectors.

Intermediated outputs consist of three industries; Agr. (Agricultural), Man. (Manufacturing), and Serv. (Service). This portion indicates those industries that purchase intermediate or final input (products) for immediate outputs (consumption) in a defined economy.

Final outputs consist of three divisions; C (Consumption of households), G (Government expenditure), and E (Export). This portion indicates those sectors that purchase intermediate or final inputs (products) for final outputs (consumption) in a defined economy.

Total outputs include intermediate outputs X_{ij} (where i, j = 1~3, thus $Xij = X_{11}$, X_{12}, through X_{33}) and primary outputs C_i, G_i, and E_i (where i = 1~3, thus $C_i = C_1$, C_2, and C_3, $G_i = G_1$, G_2, and G_3, and $F_i = F_1$, F_2, and F_3). For example, total output of $X_1 = X_{11} + X_{12} + X_{13} + C_1 + G_1 + E_1$.

Total inputs include intermediate inputs X_{ji} (where j, i = 1~3, thus $X_{ji} = X_{11}$, X_{12}, through X_{33}) and primary inputs P_i, T_i, and I_i (where i = 1~3, thus $P_i = P_1$, P_2, and P_3, $T_i = T_1$, T_2, and T_3, and $I_i = I_1$, I_2, and I_3). For example, total input of $X_1 = X_{11} + X_{21} + X_{31} + P_1 + T_1 + I_1$.

[I]: The relationship between Intermediate inputs and Intermediate outputs; this part includes X_{11}, X_{12}, X_{13}, X_{21}, X_{22}, X_{23}, X_{31}, X_{32}, and X_{33}, which indicates the intermediate consumption and production in a defined economy.

[II]: The relationship between Intermediate inputs and Final outputs; this part includes C1, G1, E1, C2, G2, E2, C3, G3, and E3, which shows the final outputs of producing sectors in a defined economy.

[III]: The relationship between Intermediate outputs and Primary inputs: this part includes P1, T1, I1, P2, T2, I2, P3, T3, and I3, which shows resources flow from primary input sector to intermediate output industries.

[IV]: The relationship between Final output and Primary input : this part includes PC, PG, PE, TC, TG, TE, IC, IG, and IE, which indicates resources flow from primary input to final demand.

The general concept of the I-O table is that the total inputs should be equal to the total outputs (Leontief, 1986; Miller & Blair, 1985; Taylor, Einter, Alward, & Siverts, 1993). Therefore, according to the above table, $(\sum X_j) + C + G + E = (\sum X_i) + P + T + I$.

Where $\sum X_i = \sum X_j$, therefore, $C + G + E = P + T + I$, then $C + G + E - I = P + T$. The left side can be deemed as gross regional product, the right side can be deemed as gross regional income. Thus gross regional product can be calculated both by the traditional income allocations approach and by the expenditure approach from input traced through an input-output model transaction table (Leontief, 1986; Taylor, et al., 1993).

The above elements for input and output sides are related to the event that causes impact and can change for different cases. Some cases are not so large, therefore, the number of elements is few. However, some cases related to interregions require more items to calculate the variety in different sectors in detail (Miller & Blair, 1985).

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Technical Coefficient

Another concept oriented from the I-O table is the technical coefficient (Leontief, 1986; Taylor, et al., 1993). According to the previous table (Table 1), the total output of X_1, X_2, and X_3 are generated from section [I] and [II] as follows:

$$X_1 = X_{11} + X_{12} + X_{13} + C_1 + G_1 + E_1;$$

$$X_2 = X_{21} + X_{22} + X_{23} + C_2 + G_2 + E_2;$$

$$X_3 = X_{31} + X_{32} + X_{33} + C_3 + G_3 + E_3.$$

Where items X_{11} through X_{33} are intermediate outputs (demands), and C_1 through E_3 are final outputs (demands), when compared with its total outputs (demands), each part of these intermediate/final demands has a ratio. Let $X_{11}/X_1 = a_{11}$, $X_{12}/X_1 = a_{12}$, ..., $X_{33}/X_3 = a_{33}$, $C_1/X_1 = a_{c1}$, and so on. Therefore, the interrelationship among each output section with a specific input section of the above I-O table (Table 1) can be portrayed as follows:

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Table 2

Input-Output Technical Coefficient Table

	OUTPUT						
	Intermediate Outputs			*Final Outputs*			*Total Outputs*
	Agr.	Man.	Serv.	C	G	E	
INPUT							
Intermediate Inputs	[I]			[II]			
Agr.	$a_{11}X_1$	$a_{12}X_1$	$a_{13}X_1$	$a_{c1}X_1$	$a_{g1}X_1$	$a_{e1}X_1$	X_1
Man.	$a_{21}X_2$	$a_{22}X_2$	$a_{23}X_2$	$a_{c2}X_2$	$a_{g2}X_2$	$a_{e2}X_2$	X_2
Serv.	$a_{31}X_3$	$a_{32}X_3$	$a_{33}X_3$	$a_{c3}X_3$	$a_{g3}X_3$	$a_{e3}X_3$	X_3
Prime Inputs	[III]			[IV]			
P	$a_{p1}P$	$a_{p2}P$	$a_{p3}P$	$a_{pc}P$	$a_{pg}P$	$a_{pe}P$	**P**
T	$a_{t1}T$	$a_{t2}T$	$a_{t3}T$	$a_{tc}T$	$a_{tg}T$	$a_{te}T$	**T**
I	$a_{i1}I$	$a_{i2}I$	$a_{i3}I$	$a_{ic}I$	$a_{ig}I$	$a_{ie}I$	**I**
Total Inputs	X_1	X_2	X_3	**C**	**G**	**E**	**X**

Where: **Agr.** = Agricultrual, **Man.**= Manufacturing, **Serv.**= Service industry
  P = Payments to households, **T** = Government revenues, i.e. tax, **I** = Imports
  C = Household consumption, **G** = Government purchasing, **E** = exports

Note. From "Input-output analysis," by Miller, R. E. and Blair, P. D., 1985, Englewood Cliffs, CA: Prentice-Hall, Inc.

Theoretically, these indicators are the optimum ratios of transactions among intermediate/final output/input sectors and actual output/input of a specific industry. It shows the rates for each industry that are required for a dollar of total input or output in an economy. Therefore, economists named these indicators as "technical coefficients" to express their characteristics. However, because the economic situation may change in an area, these coefficients need to be periodically revised (USDC, 1992).

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Multipliers

Economic impact is based on the multiplier concept (Howard & Crompton, 2003; Hefner, 1990; Fleming & Toepper, 1990; Noll & Zimbalist, 1997). The multiplier is the number by which the change in an input must be multiplied in order to generate the resulting change in income (Crompton, 1995). When visitors spend money in a community, their initial direct expenditure stimulates economic activity in the community and creates additional business turnover, personal income, employment, and government revenue. This concept is based on the fact that industries in the community are interdependent, and businesses purchase goods and services from other businesses and establishments in the local community (Howard & Compton, 2003). When visitors spend money in a community, a portion of the direct expenditure then recirculates through the local economy before it diffuses out to pay for basic purchases and supplies outside the community. The portion of the respending that remains in the community is known as the multiplier effect, and the portion that is lost to respending outside the community is termed "leakage" (Turco & Navarro, 1993).

In economic impact studies, the multiplier is an important indicator to evaluate the economic influence generated from an event to a specific region (Shaffer, 1989). In the I-O model, the multiplier concept was created from Leontief. His multiplier formula is known as the "Leontief inverse" (Leontief, 1986; Richardson, 1985; Samuelson, 1970).

The concept of the Leontief inverse can also be conducted by the above I-O table. In Table 1, C_i, G_i, E_i are final output (demands), where $C_i + G_i + E_i = Y_i$. Thus, their equations can be derived to:

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$$X_1 = a_{11}X_1 + a_{12}X_1 + a_{13}X_1 + Y_1, \text{ or } X_1 = X_1 (a_{11} + a_{12} + a_{13}) + Y_1;$$

$$X_2 = a_{21}X_2 + a_{22}X_2 + a_{23}X_2 + Y_2, \text{ or } X_2 = X_2 (a_{21} + a_{22} + a_{23}) + Y_2;$$

$$X_3 = a_{31}X_1 + a_{32}X_1 + a_{33}X_1 + Y_3, \text{ or } X_3 = X_3 (a_{31} + a_{32} + a_{33}) + Y_3;$$

Therefore, the above equations also can be transferred to a matrix as follows:

$$\begin{bmatrix} X_1 \\ X_2 \\ X_3 \end{bmatrix} = \begin{bmatrix} X_1 \\ X_2 \\ X_3 \end{bmatrix} \times \begin{bmatrix} a_{11} & a_{12} & a_{13} \\ a_{21} & a_{22} & a_{23} \\ a_{31} & a_{32} & a_{33} \end{bmatrix} + \begin{bmatrix} Y_1 \\ Y_2 \\ Y_3 \end{bmatrix}$$

Let: $\begin{bmatrix} a_{11} & a_{12} & a_{13} \\ a_{21} & a_{22} & a_{23} \\ a_{31} & a_{32} & a_{33} \end{bmatrix} = [A]; \quad \begin{bmatrix} X_1 \\ X_2 \\ X_3 \end{bmatrix} = X; \quad \begin{bmatrix} Y_1 \\ Y_2 \\ Y_3 \end{bmatrix} = Y$

Then, the above matrix can be changed to formulas:

$$X = X \times [A] + Y$$

$$X \times [I - A]^{-1} = Y$$

$$X = [I - A]^{-1} \times Y$$

Where, $[I - A]^{-1}$ is known as the "Leontief inverse." It is a matrix of powerful

indicators; it shows the direct plus indirect production that must be generated in each

sector of the economy in order for a single sector to deliver one dollar's worth of output

to final demand (Leontief, 1986; Richardson, 1985; Samuelson, 1970).

There are three components that contribute to the overall economic impact of an

initial injection of expenditures by visitors to a community. These three components are

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the direct effects, indirect effect, and induced effects. Direct effects are the first round effects of visitor spending and include the money that businesses that received the initial expenditures spend on goods and services in the local economy and pay employees who live in the community. Indirect effects are the additional rounds of recirculating of the initial visitor's dollars by local businesses and local government. Induced effects are caused by employees of impacted businesses spending a portion of their salaries and wages in other businesses in the community. Indirect and induced effects are frequently referred to as secondary impacts (Howard & Crompton, 2003; Fleming & Toepper, 1990). For example, if a multiplier for a particular industry is 1.45, then for every $1.00 generated by the industry, $.45 of indirect and induced output is generated in the region.

Figure 2 presents a schematic diagram of the multiplier approach based on Liu & Var (1982) and Howard & Crompton (1995). 'Accommodation' is chosen to show how the multiplier concept operates, but should be similarly implemented for 'Food', 'Transport' and 'Game tickets'. The three direct recipients of the injected money, after allowing for leakages, subsequently spend this money in the same four ways, generating the *indirect effect*. Leakages occur because some money could be spent outside the host economy. Moreover, some of the household income could leak out of the economy by the purchase of products from outside, or would not stimulate economic activity because it was invested in savings (Kasimati, 2003).

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Figure 2.

Schematic Diagram of the Multiplier Approach
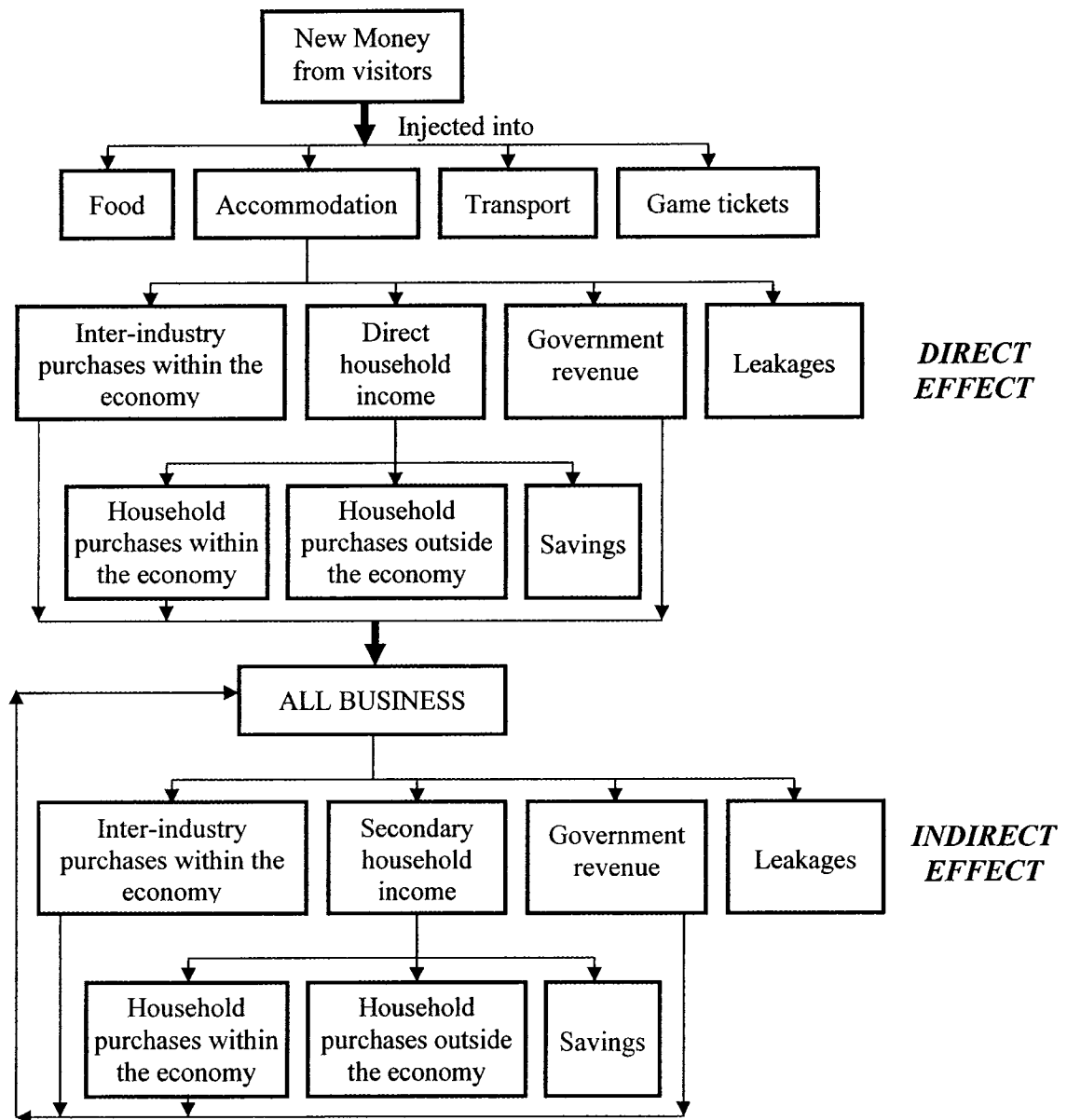
Note. From "Economic aspects and the summer Olympics: A review of related research", by Kasimati, E., 2003, International Journal of Tourism Research, 5, p. 435.

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Psychic Impacts

Non-monetary benefits (psychic impact) are also considered as secondary impact. Psychic impacts are referred to as increased awareness, visibility, enhanced image for the host community, and emotional and psychological benefit residents perceive they receive, even though they do not physically attend sport events, and are not involved in organizing them (Turco, 1995; Crompton, 2004). Sporting events such as the Olympics or FIFA World Cup provide a tangible focus for building community consciousness and social bonding. They are an important part of the collective experience of residents since they tie them together regardless of race, gender, or economic standing. They are one of the few vehicles available for developing a sense of community (Morgan, 1997). For example, if a big company opens in a city, elected officials and business leaders may get excited, but ordinary residents do not because the economic benefits appear intangible and impersonal to them. However, when a sporting event is hosted in that city, a much broader segment of the population becomes excited and identifies with it. A sporting event is an investment in the emotional infrastructure of a community (Crompton, 2004).

Sports are not like other businesses. They are about, "triumphs of the human spirit, community bonding, and family memories. They are about taking a break from the pettiness that divides us. They are about celebrating some of the things that make society whole: competition, victory, redemption" (Morgan, 1997, p. 309). Society has an emotional attachment to sports and receives a psychic income from them. The emotional involvement transposes some people from the dreary routines of their lives to a mode of escapism that enables them to personalize success and feel better about themselves. Life

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is about experiences, and sporting events help create them- albeit vicariously in most

cases (Crompton, 2004, p 50).

Crompton (2004) indicated that the total economic impact is fostered by the

spending of visitors to a host community as well as results from increased community

visibility and enhanced community image from hosting a sporting event. Therefore, the

psychic impact should be included in the total economic impact.

Figure 3.

The Economic Development Paradigm
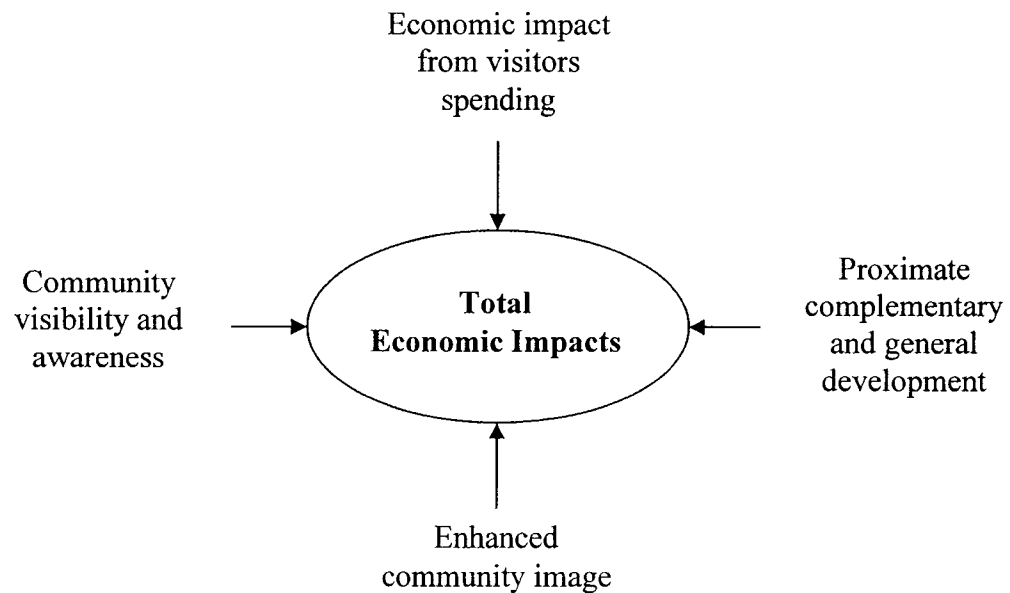
Note. From "Beyond economic impact: An alternative rationale for the public subsidy of
major league sports facilities," by Crompton, J. L., 2004, Journal of Sport
Mangement, 18, p. 54.

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The Application of Economic Impact Analysis

to Sport–Related Industries

In the field of sport, researchers have developed methods to analyze the economic

impact created for a host community. Initially, researchers adopted input-output concepts

to develop research methods for parks and recreation. More recently, these methods have

been applied to analyze sport-related events (Crompton& Howard, 2003; Turco &

Navarro, 1993; Crompton, 1995).

Many researchers around the world pay attention to sport because of the economic

impact potential. Economic impact studies used in the sport industry are similar to other

fields. According to the Australian Bureau of Statistics, Australia generated a total of

$1.4 billion from Olympic-based income in 2000. This included $450 million in export

revenue and broadcast fees of $973 million. Through the Olympic Games, Australia

generated an extra 1.6 million international visitors, spending $3.5 billion. Media

relations and publicity programs generated $2.1 billion and 150,000 new jobs were

created (Haynes, 2001).

By hosting the 2002 FIFA World Cup, for Korea a total of $2.36 billion were

invested and consumed in World Cup-related projects such as stadium construction, the

Korean local organizing committee's operating costs, and consumption expenditure of

foreign tourists. The economic impact on production amounted to approximately $8

billion, $3.7 billion for value added and 245,338 new jobs during the period from 1998 to

2002. Furthermore, the GDP ($9 billion) was increased by 2.2% (Jang, 2004; Parr, 2002).

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Through the 2004 PGA Championship, the Madison, Wisconsin economy generated more than $46 million of direct spending by out-of-state spectators, $9.8 million of in-state spending, and $2.7 million in sales tax revenue. Overall attendance at the event was more than 300,000. The researchers estimated that the total economic contribution from hosting the 2004 PGA Championship was $76.3 million (Winters, 2004).

One of the official US PGA events the '2004 PGA TOUR' was hosted by Jeju Island in Korea. According to the ministry of Culture and Tourism, the total economic impact of that event was $56 million including $35 million from worldwide media exposure and $7 million in tourism revenue (Chang, 2005).

In a study done by Wilson (2003), the LPGA Corning Classic golf tournament generated a total economic impact on the local economy of $22.4 million which had doubled in the past five years. This event generated $3.5 million in value from spectator purchases based on approximately 40,000 spectators spending an average of $87 each, and approximately $400,000 in value from 24,700 hours of adult volunteer time.

Turco & Kelsey (1992) pointed out the many benefits of an economic impact study to the host community: (1) demonstrates importance of the event; (2) assists in attracting sponsorship; (3) helps gain tax support; (4) provides market profile; (5) enhances department image; (6) raises employee morale; and (7) assists community economic planning (p. 6).

Turco & Kelsey (1992) also developed steps to conduct an assessment as follows: (1) determine the scope of study; (2) determine sample size; (3) develop a data collection

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strategy; (4) collect data; (5) compute direct economic impact; and (6) apply appropriate multipliers to calculate total economic impact (p. 39).

Scope of the study

The scope of an economic impact study is dependent on many variables. Turco & Kelsey (1992) suggested that the economic impact researcher ask themselves what type of information they are after, how much time, money and human resources are available and how will the information be used and by whom. It is essential to clearly chart the project so that factors during the investigation do not control the results but that the study objectives are achieved.

Sample size

The goal is to survey as few people as are necessary to secure accurate results (Howard & Crompton, 2003). According to Hair, Tatham, Anderson, & Black (1998), large numbers are not always required. The minimum size sample of nonresident visitors will vary according to the precision level and statistical power the researcher seeks, and the method used to select respondents. They mentioned that it is incorrect to assume that a substantially larger sample is needed for larger events. Provided the number of participants to an event is not extremely small, size will have little impact upon the number of responses required to achieve reasonable precision (Hair, Tatham, Anderson, & Black, 1998).

Table 3 shows the general relationship between sample size and level of accuracy for different sized event when a random sampling procedure is used. The table indicates

that for an event with 5,000 participants, a sample of 370 will give results accurate to within ±5 %, whereas an event with 500,000 participants requires a sample of only 400 to provide results that also are accurate to within ±5 % (Crompton, 1999).

Table 3

Sample Size and Level of Accuracy

Number of Participants / Visitors	Percentage Error Rate (±)				
	1 %	2 %	3 %	4 %	5 %
1,000	*	*	*	385	286
2,000	*	*	714	476	333
3,000	*	1,364	811	517	353
4,000	*	1,538	870	541	364
5,000	*	1,667	909	556	370
10,000	5,000	2,000	1,000	588	385
20,000	6,667	2,222	1,053	606	392
25,000	7,143	2,273	1,064	610	394
50,000	8,333	2,381	1,087	617	397
100,000	9,091	2,439	1,099	621	398
500,000	9,804	2,488	1,101	625	400

Note. From "Measuring the Economic Impact of Visitors to Sports Tournaments and Special Events ", by Crompton, J. L. 1999, National Recreation and Park Association, p. 43.

An error of ±5 percent means that if 50 percent of those surveyed say they would have visited a community in the next three months if they had not come at this time for this event, then the "true" percentage could be as low as 45 percent or as high as 55 percent if all out-of-town visitors to the event had been surveyed. It is important to recognize that this five percent error limit refers to a maximum absolute percentage error (Crompton, 1999). For example, if 30 percent responded affirmatively to this question

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and a five percent error limit was used, the maximum range of tolerance is from 25 percent to 35 percent.

The smaller the error range, the more reliable the survey results (Hair, Tatham, Anderson, & Black (1998). It is likely that an error range of 5 percent is acceptable for most economic impact studies conducted on a sport event. Therefore, a sample of only a few hundred nonresident visitors may be used to calculate the total economic impact when the sample is randomly selected (Crompton, 1999).

Data collection strategy

The most common form of probability sampling used in economic impact studies is systematic sampling among probability samples (Crompton, 1999; Howard & Crompton, 2003; Turco & Kelsey, 1992). This involves selecting every n[th] person (every 5th, 10th, 20th) who enters or leaves the event site. This is feasible only at events that have controlled access points. It is not feasible in contexts where the site is unfenced and people can enter indiscriminately from anywhere on the perimeter.

Although probability sampling methods are preferred because they ensure a more accurate representation, there are many situations in which such methods are not feasible. Common examples are events located at sites that have an open perimeter without controlled access and egress points. In these contexts, there are no alternatives to using a non-probability, convenience sample. As the name implies, a convenience sample is selected on the basis of convenience or accessibility (Crompton 1999).

Visitors are intercepted by interviewers at points around the site (Central Location Intercept Sampling). An effort should be made to introduce as much randomness as

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possible into the process by instructing interviewers to intercept every n^{th} person passing them. Nevertheless, there are some visitors who may never pass an interviewer point while others may pass multiple interviewer points on multiple occasions, so visitors' chances of being selected for the sample are not equal and are not known, thus, the survey's results may be unrepresentative, and this has to be accepted as a limitation of the study (Crompton, 1999).

Direct economic impact computation

Crompton (1999) pointed out that accurate estimates of economic impact are greatly dependent upon reasonable accurate counts of visitors to the events. Furthermore, Compton, Lee, and Shuster (2001) insisted that local residents, time-switchers, and casuals should be excluded from measures of economic impact since their expenditures would have occurred without the sport event, so income generated by their expenditures should not be attributed to an event. Time switchers are non-local spectators who may have been planning a visit to the community for a long time, but changed the timing of their visit to coincide with the event. Casuals are visitors who already have been in the community, attracted by other features, and elected to go to the sport event instead of doing something else (Howard & Crompton, 2003). It was found that in five of the sixteen studies examined, time-switchers and casuals accounted for almost one-third of all visitors (Crompton, 1999). Therefore, Crompton (1999) asserted that if research failed to differentiate these group members from out-of-town visitors, who were attracted by the events, the economic impact associated with the events would be overestimated.

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Direct expenditures encompass the initial expenditures within a local economy that arise as a result of the operation of the special event. These are the expenditures that are attributable to the event's existence and they are therefore a direct measure of the impact of the event's operations on the economy (Turco & Kelsey, 1992).

There are various types of expenditures associated with an event that create economic impact. These types of expenditures are broken down into identifiable categories to help in the aggregation and analysis of the expenditures. An event creates many different types of expenditures that may include the following: (1) direct expenditures of the event organization, (2) spectator expenditures inside of the event site, and (3) spectator expenditures outside the event site within the local economy.

According to Howard & Crompton (2003), most sporting event organizations operate much like any other commercial business in that it requires inputs of labor and materials from other businesses in order to sustain operations. The event will most likely employ people, build structures, and purchase goods and services in order to operate. Each dollar spent by the organization for labor or goods and services results in a dollar of wages or revenue for someone else. Direct expenditures of the event organization may be determined through an analysis of a balance sheet and budget statement as well as through analysis of various accounting records, and through interviews with selected event financial officers. Wang & Irwin (1993) indicated that there are typically three types of direct expenditures associated with the organization and implementation of a sporting event: (1) salaries, wages, and benefits; (2) purchases of goods and services; and (3) capital expenditures. Each type of expenditure should be categorized into local and

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non-local expenditures, of which only local expenditures should be used in evaluating the economic impact.

To calculate direct economic impact, the estimates for visitor group expenditure from the sample are first summed across each expenditure category. Sample expenditures by category are totaled (total sample direct expenditures). Second, the percentage of visitors who indicated their primary reason for visiting the community was to attend the event is multiplied by the total event attendance to arrive at the total number of primary visitors. Total primary visitor figures are then multiplied by total sample direct expenditures to derive the event's direct economic impact.

Total direct economic impact is the sum of the total direct operating expenditure, the total direct nonresidents on-site spending, and the total direct nonresidents off-site spending.

Multipliers

Input-output models measure the interdependencies among economic activities within a given geographic area. The distinguishing characteristic of the input-output method of estimating the multiplier is it provides estimates of the direct and indirect impact of visitor spending on the output or sales of each industry in the local economy. This provides a more precise calculation of the regional visitor multiplier as a weighted average of the multipliers for each local industry where visitors purchase goods and services. The input-output method of estimating the multiplier analyzes the interindustry relationships of all purchases and sales within a designated economy (BOK, 2004).

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In the past, it was not feasible for local agency managers to calculate with reasonable accuracy the multiplier effect of visitor expenditures in a community (Crompton, 1999). To do this, trained economists had to be hired to construct an input-output model which could examine relationships within the local economy both between businesses, and between businesses and final consumers. This requires the collection of large amounts of data from local industries and is a complex, laborious, and expensive process. In recent years, this situation has changed with the widespread availability of IMPLAN or RIMS II (USDC, 1992). IMPLAN or RIMS II is an input-output modeling system that builds its accounts with secondary data collected from a multitude of federal government agencies. It calculates economic impact by using multipliers suited for designated local areas.

Interindustry Analysis method has been widely used to calculate the economic impacts in Korea. Input-output analysis is also referred as interindustry analysis in Korea. Every five or six years, the Bank of Korea (BOK) has published the multiplier tables for executing an interindustry analysis dating back to 1964. The BOK provides information from 404 different industrial sectors in multiplier tables (BOK, 2004).

The researcher can calculate ten different measures of economic impact, but only three of these are commonly used. They are personal income (production inducement), value added, and employment inducement. According to Crompton (1999), these three are the most appropriate for sport related economic impact studies, since they best fit the conceptual rationale for undertaking economic impact studies that were previously described in Figure 1.

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Problems with Economic Impact Studies

In a 1989 study, Shaffer pointed out problems with misuse and the occurrence of estimating errors. The misuses include interchanging output, income, and employment multipliers; double counting for the economic impact; researchers counting the changes in input supply firms more than once; confusing a multiplier with turnover; and transferring multiplier estimates from one locale to another.

It has been well documented that the major concern with economic impact studies in sport is the use of improper multipliers that inflate overall impacts (Howard & Crompton, 2003; Noll & Zimbalist, 1997; Wang, 1997; Wang & Irwin, 1993). As a result, the use of economic impact studies as political tools has been highly scrutinized and the credibility of economic impact studies has been questioned. Sales and income impacts are both measured in dollar amounts and are often confused. A sales multiplier measures the direct, indirect, and induced effect of an extra unit of visitor spending on the economic activity within the host community. Income multipliers measure the direct, indirect, and induced effects of an extra unit of visitor spending on the changes that result in the level of household income in the host community. Sales multipliers are frequently three or more times larger than household income multipliers; therefore, they generate larger figures of total impact (Howard & Crompton, 1995). Compton (1995) believes that using sales multipliers is not pragmatic, rather constituents should focus on the impact that sales have on household income and employment. Residents, therefore, should be interested in how much extra income the community will receive as a result of expenditures made by visitors, and sales should be of little interest because they do not affect standard of living. He then states that if researchers do not clearly define the

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multiplier being utilized, then there is the possibility that there will be inflated results, and inaccurate conclusions will be drawn from the data. The recent technology of input-output software models can be utilized to generate accurate multipliers that estimate economic impacts, hence the credibility, reliability, and validity of the results can be significantly improved. These models use countywide commercial and industrial information to generate multipliers that are specific to the inter-industry relationships in that local community (Donnelly, Vaske, DeRuiter, & Loomies, 1998).

Many researchers feel that economic impact studies should only include expenditures of visitors that reside outside the community being examined. They argue that expenditures by residents in a community do not contribute to an event's economic impact because these expenditures simply represent a recycling or displacement of money that already exists in the community. If residents had not spent money on or during the event, they would have spent it during the present time or at some point in the future on other goods or services in the community (Howard & Crompton, 2003). Other researchers, however, argue that resident expenditures should be included because they believe events retain money in the community that may have otherwise been spent elsewhere, or the event generated resident spending above normal levels (Getz, 1991).

Quite often, the terms "economic impact" and "economic benefit" are mistakenly used interchangeably. Economic benefit is based on the theory that any dollar flowing into a local economy from outside of the local economy provides a benefit to the locality. Benefit is measured by how many new dollars enter an area's economy due to the presence of a league, team, event or sport venue. Economic impact is the economic benefit minus the associated costs (Rascher, 2002). That is, if a sport event created $20

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million in economic benefit (new dollars flowing into the local economy), but $5 million is spent in organizing costs that are all paid to a firm in another locale, the total economic impact is $15 million.

Crompton (1995), Rascher (2002), and Kasimati (2003) advised that researchers avoid the following situations in conducting economic impact studies of sporting events.

1. Inclusion of local spectators;

2. Failure to exclude "time-switchers" and "casuals";

3. Use of "fudged" multiplier coefficients;

4. Claiming total instead of marginal economic benefits;

5. Confusion of turnover and multiplier;

6. Omission of opportunity costs (opportunity costs are the benefits that would be forthcoming if the public resources committed to sport facilities were redirected to other public services);

7. Measurement of benefits only, omitting costs; and

8. Omission of psychic impact.

They emphasized that the above situations may raise arguments and reduce the accuracy of the reported economic impact figures.

Economic impact studies can be extremely complex and can best be described as an "inexact science." They vary in their methods, designs, analyses, and results (Howard & Crompton, 2003). Crompton (1995) quotes an executive from a major consultant firm, "You pick five different consultants, you'll get five different numbers" (p.16). Despite the criticisms of economic impact studies and their acknowledged abuses, the measurement of economic impact from sport events and facilities using an input-output

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model provides useful information for the policy makers in a community (Hefner, 1990; Reid & FitzGibbon, 1991).

Conducting an economic impact study is important because it becomes a useful tool to evaluate a community's development both economically and socially (Lee, 2001). Communities need to assess the economic impact of an existing event in order to decide if funding to that activity should continue (GoldMan & Nakazawa, 1997). Many cities that have not possessed a globally acknowledged tourism product have attempted to take a short cut towards global recognition through hosting sport events (Jones, 2001). Economic impact studies are important tools for planning and policy development. They can help indicate new market opportunities and benchmarks one's efforts in attracting and maintaining community events (Seigfried & Zimbalist, 2000). Economic impact study can also be used to focus one's efforts on activities or events that provide the greatest economic return. (Preuss, 2005).

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CHAPTER III

METHODOLOGY

The present study was designed to examine the economic impact a local economy receives when hosting a sporting event through assessing spectator expenses by using input-output analysis. This study was based on the 2006 U.S. LPGA KOLON-Hana Bank Championship, an official tournament event of the U.S. Ladies Professional Golf Association (LPGA) that was held on October 27 ~ 29, 2006 at the Mauna Ocean Country Club in Gyeongju, Korea. Achieving this purpose required response to the following research questions: (1) What were the total, on and off site estimated expenditures from non-residents who attend the 2006 KOLON-Hana Bank Championship? (2) What were the direct and indirect economic impacts incurred by the Gyeongju economy as a result of the KOLON-Hana Bank Championship? (3) To what extent was the visibility and awareness among spectators of Gyeongju increased through hosting the KOLON-Hana Bank Championship? (4) To what extent was the image of Gyeongju enhanced among spectator through hosting the KOLON-Hana Bank Championship?

This chapter describes the research methods that was used in this study to respond to the aforementioned questions. It has been organized in the following manner; (1) the setting, (2) population and sample, (3) instrumentation, (4) content validity, (5) procedure for data collection, and (6) data analysis.

The Setting

The Mauna Ocean Country Club was added in 2005 to the existing 172 private golf courses in Korea. The Mauna Ocean Country Club was selected as Korea's best golf course in 2005, and it was ranked as one of the top 100 private courses in the world in 2005. Furthermore, this course was the only place where U.S. LPGA competition was held in Korea.

The KOLON-Hana Bank Championship, the official U.S. LPGA competition, was the first competition after the title, sponsors, and event site were changed from CJ Nine Bridge Classic that was held for the first time on Jeju Island in Korea in 2002. This competition was considered a major competition with awards (prize money) ranking at fifth place among the official US LPGA Tournaments. Thus, it was safe to say that this was a top competition for the Mauna Ocean Country Club and also the Korean golf history.

According to the previous four events' statistics published by Jeju Provincial Government in 2005, over 20,000 spectators visited the CJ Nine Bridge Classic with hopes of seeing the top golfers in person during the competition period. Therefore, it can be said that approximately the same number of spectators would visit in Gyeongju to see this event, 2006 U.S. LPGA KOLON-Hana Bank Championship. The participating players for this tournament were comprised of U.S. LPGA Top 60 Earners and Korea LPGA Top 20 Earners, along with others who were recommended by the sponsors.

One of the common problems with economic impact analysis is the inclusion of local money recirculating (Crompton, 1995; Crompton, Lee, Shuster, 2001; Howard & Crompton, 2003). Expenditures by those who reside in the community do not contribute

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to an event's economic impact because these expenditures represent a recycling of money that was already in the local economy. Resident spending does not contribute to new economic growth, only a transfer of resources between sectors of the local economy. Thus, expenditures associated with the event by local residents merely represent switched spending, which offers no net economic stimulus to the community. Hence, it should not be included when estimating economic impact (Crompton, 1995; Crompton, Lee, Shuster, 2001; Howard & Crompton, 2003).

This study was intended to be a strengthened economic impact study, because the event site was isolated 30 miles away from the residential area so that the number of time switchers, casuals, and local residents were minimized. Most visitors were coming to the event site to witness the event as spectators. Since the event site was surrounded by mountains and sea, visitors were required to spend money on transportation to reach the event site along with lodging and meal expenses. This income represented new money to the local economy because it came from beyond the Gyeongju economy.

The unique setting of Gyeongju created an ideal opportunity to study economic impact. Therefore, the 2006 KOLON-Hana Bank Championship was selected for this study to assess the economic impact generated for the local economy by a professional women's golf tournament.

Economic impact analysis of this event allows a more comprehensive assessment of how the golf industry affects a regional economy, beyond its direct impacts (gross revenues or sales). Additional impacts (indirect, induced, and psychic) can be estimated as these revenues filter out or multiply through the local economy. This occurs as businesses purchase inputs and pay their employees, and as owner and employee

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households spend their earnings from those businesses. Output, value added, income and jobs are basic units for measuring economic activity (Stevens, Hodges, & Mulkey, 2005). Estimating the size of these economic indicators makes it possible to evaluate and compare the impact of the 2006 KOLON-Hana Bank Championship Golf Tournament to the whole economy and other industries or sectors within that economy.

Population and Sample

The target population for this study was people who attended the KOLON-Hana Bank Championship as spectators during any of the event days, October 27th through October 29th, 2006 in Gyeongju, Korea. The specific size of the target population could not be specified. However, according to the Jeju Provincial Government publication (2005), the average number of spectators for the CJ Nine Bridge Classic (the predecessor of this 2006 KOLON-Hana Bank Championship) for the last four years was 20,000. In this regard, the target population for this study was anticipated to be 20,000 spectators who visited the Mauna Ocean Country Club during the three day event.

The sample was limited to people who attended the event as spectators. When determining sample size, 392 individuals are required within ± 5 % error rate when the total population is 20,000 (Crompton, 1999). According to Hair, Tatham, Anderson, & Black (1998), the smaller the error range, the more reliable the survey results. Previous research has indicated the an error range of five percent is acceptable for most economic impact studies on sport events, which means that a sample of 392 non-resident spectators could be used to calculate the total economic impact for this event (Crompton, 1999).

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A questionnaire was modified (Appendix D) from an adaptation of several questionnaires used in compatible research. Winters (2004) designed a questionnaire to examine the economic contribution of the 2004 PGA Championship to the Wisconsin economy. Another similar questionnaire was developed by Milnthorp (2002) to assess the economic impact of the 2002 Saskatchewan Winter Games on the local economy. The Motor Industry Association (2003) developed and used a questionnaire to measure the local economic impact of the 2000 Formula 1 British Grand Prix.

The questionnaire for this study contained 15 primary questions. Questions 1 though 8 directly determined the spectators' place of residence, primary purpose for visiting Gyeongju, visitor unit size, local accommodations, and the number of nights spectators stayed in Gyeongju. Questions 9 and 10 dealt with the spectators' direct expenditures. Spectators spending behavior off the event site was queried for each of the following expenditure categories: lodging, meals, transportation, groceries, liquor stores, shopping, entertainment, and sightseeing. For on-site expenditures, admissions, food, beverages, and souvenirs was determined or ascertained. Questions 11 and 12 assessed the psychic impact for residents based on their perceptions. For example, "compared to before you attended in this event, to what extent has the image and awareness of the city been enhanced through this event?" The last three questions, 13 through 15, addressed the demographic information of the spectators including gender, age, and annual household income.

According to the Jeju Provincial Government (2005), almost 20 % of the past attendees in the CJ Nine Bridge Classic have been non-residents of Korea, with a

majority from Japan. In this study, therefore, three different versions of the questionnaire was used; Korean, English, and Japanese. Initially, the questionnaire for this study was developed in English for the purpose of reporting. However, the 2006 KOLON-Hana Bank Championship was held in Gyeongju, Korea and the majority of spectators were non-English speakers. Therefore, the initial items developed in English was translated into Korean and Japanese.

One of the major concerns in cross-cultural studies is whether the questionnaires in different languages are equivalent (Hansen & Fouad, 1984). One method that can be used to assess the quality of the translation is to apply a back-translation procedure (Sinaiko & Brislin, 1973). Therefore, to assess the quality of translation in this study, a back-translation was applied. The procedures for conducting a back-translation of the generated items were as follows: The initial items were translated from English to Korean and Japanese and back-translated into English by different individuals who were fluent in both Korean and English, and Japanese and English. The back-translation committees included professors, a sport marketer, and doctoral students majoring in communication and TESL (Teaching English as a Second Language) at the University of New Mexico (See Appendix A). After translating the questionnaire, a meeting was held to evaluate the outcomes of the translation between the researcher and expert panels. The translated items was compared and corrections that both agree to was made. The corrections likely involved the choice of words and the clarity of the sentences. The translated and modified items then were back-translated into English by the panel of experts.

An assumption in posing expenditure questions in the future tense was that spectators would underestimate their actual spending behavior. Survey questions asked

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during entering interviews alleviated only the issue of on-site spectator expenditure projections. Conducting a spectator survey through receipt gate substantially increased the percentage of survey spectator responses. They had enough time to complete survey during the event (Crompton, 1999).

Content Validity

The questionnaires that were used for the present study have been shown to be psychometrically sound instruments based on validation studies in various settings (Getz, 1991). Prior to using the questionnaires, it was critical to address validity issues of the questionnaires. Since the questionnaires have been developed in different economic impact contexts, the researcher made slight modifications to each questionnaire for the present study.

The content validity of the original data collection instruments, or the degree that they measured what they were intended to measure, was verified by a panel of experts who possess a substantial amount of knowledge and research experience in the field of sport marketing and economic impact study to ensure the validity of each of the constructs (See Appendix A). The panel of experts consisted of five professors (two of them in the U.S. and the other three in Korea) and one sport marketer working in a sport marketing company in Korea. First, the panel of experts was provided with detailed information about the fundamental purpose and overall design of the study to assist them in making improvement decision. After that, the panel of experts was asked to carefully review each of the questionnaires to determine whether the individual items adequately represented the domains of the underlying constructs in terms of wording, clarity, format,

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and adequacy. In other words, the panel of experts was asked to conduct a structured review of each of the questionnaires to ensure content relevance and content representativeness (Chatterji, 2003).

Since the origin of the sample group was not limited to Koreans, the questionnaires were translated from English into Korean and Japanese. In order to establish evidence of content-based validity, the questionnaires needed to be translated by Korean and Japanese experts who possessed an extensive background in English and academic research. Once the questionnaires had been translated into Korean and Japanese, the same questionnaires were translated back into English by other Korean and Japanese experts who also possessed an extensive background in English and academic research. The purpose of this process was to see if there were any disagreements on the underlying constructs that could influence the translation process. Questionnaires were not deemed acceptable for use until it was determined that they maintained the same meaning. In other words, the translated questionnaires were regarded as representative of the original questionnaires.

Procedures for Data Collection

A pencil and paper questionnaire was used to assess the economic impact on the local economy through the 2006 KOLON-Hana Bank Championship. The sample must be at least 392 non-resident spectators attending the event. In this study, the systematic sampling method among the probability sampling techniques was used because it ensures more accurate representation (Nardi, 2006). The sample was collected during the three

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event days although the required number of samples for this study would be collected before the event ends.

Spectators were intercepted by the researcher on the event site during the three days of the event. The researcher intercepted every 10th person passing him in front of the receipt gate of the Mauna Ocean Country Club, which was located in between the Club house and the first hole. This was the only way to get into the event site for the spectators, so all visitors had an equal chance of being selected for the sample. This technique was feasible for this event since access points were controlled and the site was fenced so that people could not enter or exit indiscriminately from anywhere on the perimeter.

The spectators were asked to complete the questionnaire during the event, and to put the completed questionnaire in the designated boxes which were placed by the researcher in front of the score board and 4 differenent places in the Club house. The spectators were helped by 10 different surveyors who gave information about the purpose of this study, how to complete questionnaire, and where to put it after completion. The surveyors were educated with same training by the researcher a day before the first day of event. The researcher gave guidelines and information to surveyors including the purpose of this study, procedure of data collection, how to approach subjects, and attitude for subjects. The researcher was the only person to control counting every 10th person among spectators. If the 10th person the researcher counts was a child or youth, then he/she was not approached, but if an adult was part of the group, then the adult was approached. If the group did not include any adults, then the researcher skipped to the next adult after them. The counting had to be approximate, rather than exact, at times when the flow of

the crowd was heavy or fast. However, the purpose of the counting was to create a reasonably random, uniform interval.

Data Analysis

The Statistical Package for the Social Sciences (SPSS, v12.0) was used by the researcher to analyze the data gathered. A descriptive statistics approach was adopted for this study providing the total frequency per question, standard deviations, variances, means, and ranges. The questions on the survey instruments were coded to specifications for use and entered into SPSS, v12.0. All the statistical significance levels were set at alpha level .05. Only data compiled from survey respondents who indicated that their primary reason for visiting Gyeongju was to attend the 2006 KOLON-Hana Bank Championship was used to estimate direct expenditures and total economic impact.

To estimate the total expenditure from non-resident spectators, the percentage of non-resident spectators was calculated by the collected samples which occupied the portion of total population. Total population could be determined by how many tickets were sold. For example, the percentage of non-resident spectators occupying 90 % in the collected samples could by applied in the total population. It was considered as 90% of total spectators were non-residents of Gyeongju.

Three preliminary calculations were necessary to determine total direct economic impact of the KOLON-Hana Bank Championship. These calculations adjusted direct expenditure figures to account for expenditure leakage outside the local economy. The sum of the preliminary direct economic impact calculations yielded the total direct economic impact of the 2006 KOLON-Hana Bank Championship.

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Expenditures resulting from spectators were determined by applying categorical

average expenditures per spectator group to the number of spectator groups who made

purchases within the category. The preliminary calculations follow:

1. Total direct KOLON-Hana Bank Championship operating expenditure impact =

   the event operating expenditures – the event operating expenditure leakage (prize

   money, expenditure wages for nonresident employees) (Crompton, 1995).

2. Total spectator group on-site expenditures = the event attendance $\times$ percent of

   sample who spent money on-site $\div$ mean spectators group size $\div$ mean event

   visits made by the sample size $\times$ mean expenditures (Turco & Kelsey, 1992).

3. Total spectator group off-site expenditures = the event attendance $\times$ percent of

   sample who spent money off-site $\div$ mean spectators group size $\div$ mean event

   visits made by sample $\times$ mean expenditures (Turco & Kelsey, 1992).

4. Total direct economic impact of KOLON-Hana Bank Championship = Total

   direct KOLON-Hana Bank Championship operating expenditure + Total

   spectator group on-site expenditures + Total spectator group off-site expenditures

   (Crompton, 1995; Turco & Kelsey, 1992).

In order to calculate indirect impact, the multipliers should be applied to

spectators' expenditures in each category. The Interindustry Analysis (input-output)

model produced three measures of the economic impact to the Gyeongju economy: (1)

the amount of economic activity or sales in Gyeongju directly attributed to the event; (2)

the amount of value added (impact for GDP growth) by the event; and (3) the amount of

employment inducement by the event (Bank of Korea, 2004). Output multipliers for each

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expenditure category, derived from an Interindustry Analysis multiplier table provided by the Bank of Korea (2004) were applied to the appropriate direct economic impact figures to achieve total economic impact. The use of a multiplier is warranted since once a visitor to a local community spends money in a tourism sector, a portion of the initial dollar amount stays within the community for further spending before it is leaked out of the economy. The total indirect economic impact is derived by subtracting direct impact from the total impact figure (Crompton, 1999).

To measure the psychic impact, Chi-square test were used. Chi-square test c be employed with frequencies that are divided into any number of categories. The only requirement for the appropriate use of the Chi-square test is that the frequencies be independent of each other (Kuzma, 1998).

Descriptive statistics such as frequencies, percentages, sums, and means were also executed to analyze the demographic information.

CHAPTER IV

RESULTS

The purpose of this study was to determine the economic impact a local economy

received when hosting an international sporting event. Using input-output analysis

spectator expenses were assessed. The basis for the study was the 2006 U.S. LPGA

KOLON-Hana Bank Championship. The event was an official tournament event of the

U.S. Ladies Professional Golf Association (LPGA) that was held on October 27 ~ 29,

2006 at the Mauna Ocean Country Club in Gyeongju, Korea. This study involved

assessing the extent to which direct expenditures resulting from the 2006 U.S. LPGA

KOLON-Hana Bank Championship were kept within and/or leaked outside the

designated local economy, the city of Gyeongju. The data collection required responses

to the following research questions: (1) What were the total estimated expenditures from

non-residents who attended the 2006 KOLON-Hana Bank Championship? (2) What were

the direct and indirect economic impacts incurred by the Gyeongju economy as a result of

the KOLON-Hana Bank Championship? (3) To what extent was the visibility and

awareness among spectators of Gyeongju increased through hosting the KOLON-Hana

Bank Championship? (4) To what extent was the image of Gyeongju enhanced among

spectators who attended the KOLON-Hana Bank Championship? A survey of spectators

at the 2006 KOLON-Hana Bank Championship was conducted during the three day event.

This chapter contains an analysis of the data interspersed with a discussion of

pertinent findings. Statistical analyses were performed on data obtained from survey

respondents. The data are presented in four categories: (1) direct expenditures expensed

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on and off event site, (2) direct impact on local economy, (3) indirect economic impact using the input-output analysis (Interindustry Analysis) economic model, and (4) psychic impact.

Content Validity

Since the questionnaires used in this study were developed in different economic impact contexts and slight modifications were made for three different questionnaires (English, Korean, and Japanese), content validity was a concern. The content validity of the questionnaires was verified using a panel of experts. The panel members were asked to review each of the questionnaires carefully to determine whether the individual items adequately represent the domains of the constructs. All of the experts agreed that the original questionnaires modified by the researcher were acceptable for use in data collection. A separate panel of experts utilized for the translation and back-translation processes determined that the questionnaires were acceptable for use in the event.

Demographic Information of Event Spectators

The necessary sample size was 392 valid responses to meet the ±5 % error rate for a total population of 20,000 (Crompton, 1999). According to the event organizers, the total population of the event was 18,300 meaning 385 valid samples were required to be within a ±5 % error rate (Crompton, 1999). A total of 494 usable completed surveys were obtained during the three day event.

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Gender

Approximately 65.4 percent (n=323) of the respondents were male, whereas 34.6 percent (n=171) were female. Figure 4 shows the depiction of respondents by gender.

Figure 4.

Gender Distribution of Respondents
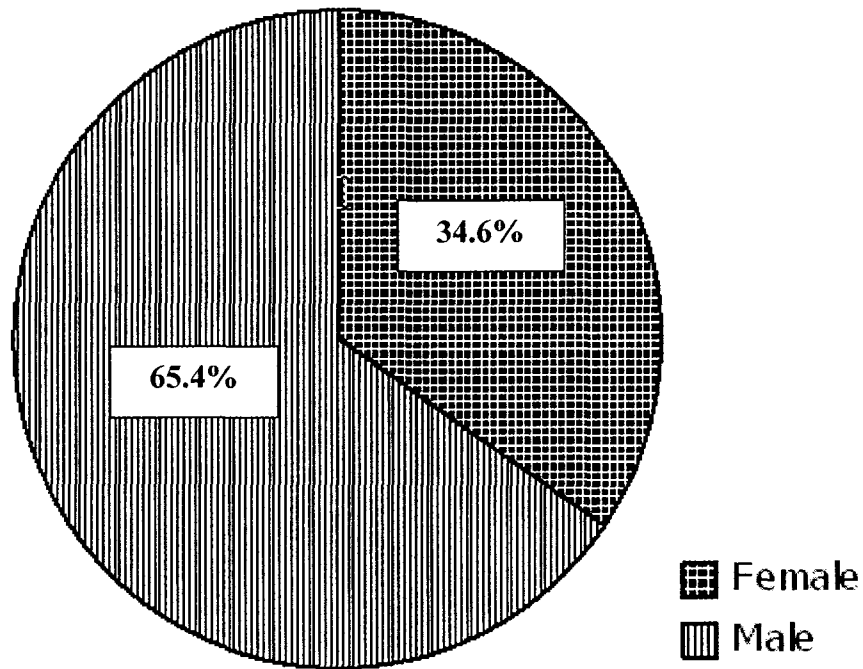
Age

The age distribution of the respondents was categorized into six groups: 1) 20 to 29 years old (n=19), 2) 30 to 39 (n=76), 3) 40 to 49 (n=212), 4) 50 to 59 (n=161), 5) 60 to 69 (n=24), and 6) 70 years old and over (n=2). The largest group (43%) of the respondents indicated their age group to be 40 to 49 years old, followed by the age group of 50 to 59 (32.6%). The age groups of 20 to 29 (3.8 percent), 60 to 69 (4.9 percent), and

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70 and over were the smallest groups of respondents by age. Out of six groups, 75.5

percent of the respondents were from 40 to 59 years old. The results of the descriptive

statistics regarding age are presented in Figure 5.

Figure 5

Age of the Respondents
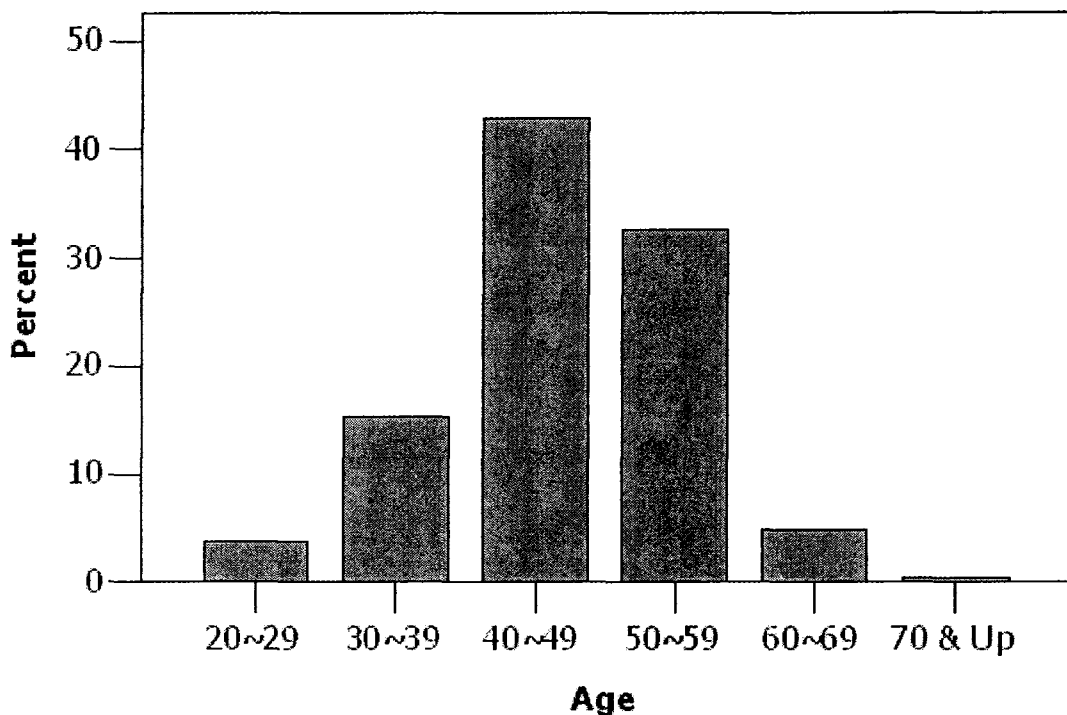
Annual Household Income

Respondents were asked to report their approximate annual household income.

The distribution of the annual income was categorized into six groups: 1) Under $30,000

(n=12), 2) $ 30,000 to $39,999 (n= 29), 3) $40,000 to $49,999 (n=82), 4) $50,000 to

$59,999 (n=68), 5) $60,000 to $69,999 (n=92), and 6) Over $70,000 (n=211). With

regard to annual household income, the category most frequently chosen by respondents

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was over $70,000 (42.7 percent) followed by $60,000 to $69,999 (18.6%), and $40,000 to

$49,999 (16.6 percent). Only 2.4 percent of the respondents reported their annual

household income was under $30,000. Figure 6 shows the distribution of annual

household income among the event spectators.

Figure 6.

Annual Household Income
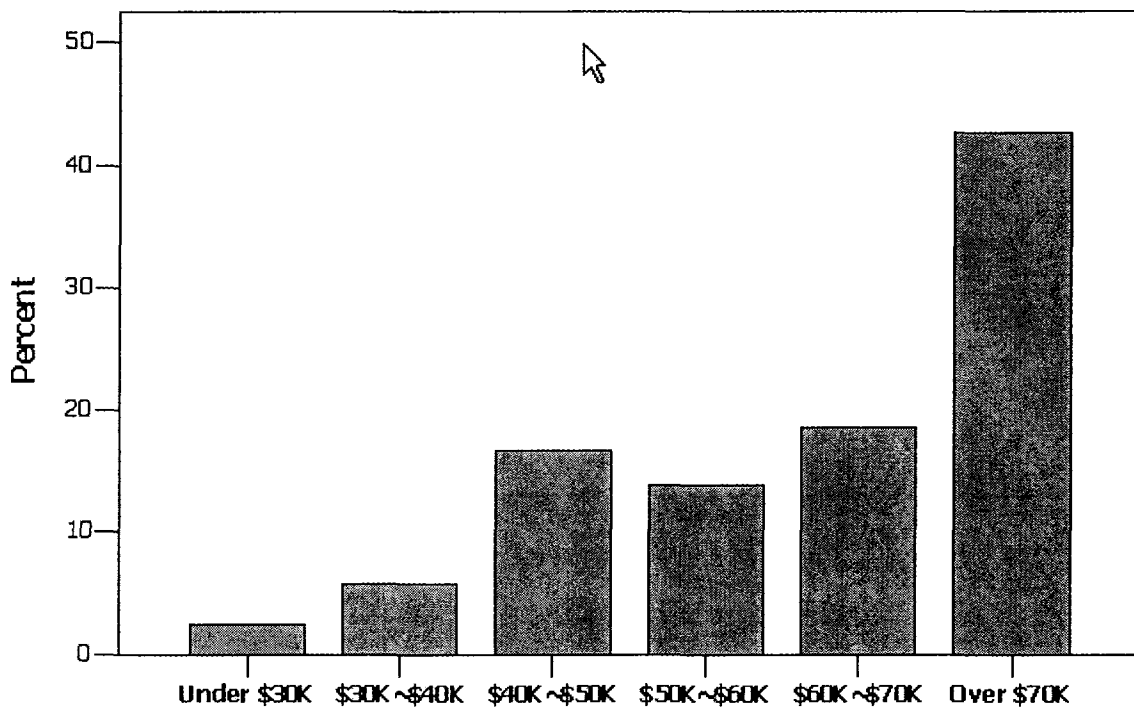
Characteristics of Event Spectators

The majority of respondents (85.4%) reported that they were non-residents, while

14.6 percent (n=72) identified as residents of the local area. The number in the average

spectator group was 3.42. Over 63 percent of non-residents reported that their residing

province was Kyoungsang-Do, which is the closest city to the event site. Only 1.4 percent

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of non-residents were from foreign countries (U.S.A = 4, Japan =2). Table 4 shows the

distribution of residing area for non-resident respondents.

Table 4

The Origin of Non-residents

Province	Frequency	Percent
Seoul	45	10.7 %
Kyounggi-Do	52	12.3 %
Kangwon-Do	8	1.9 %
Choongchung-Do	24	5.7 %
Kyoungsan-Do	269	63.7 %
Jeolla-Do	18	4.3 %
Other Countries	6	1.4 %
TOTAL	422	100.0 %

Approximately 90.8 percent of the non-resident spectator group visited Gyeongju

city to attend the 2006 Championship (n=383), while 9.2 percent of the groups (n=39)

visited the city of Gyeongju for other reasons. Table 5 illustrated the primary reason for

visiting the city of Gyeongju.

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Table 5

Primary Reason for Visiting the City of Gyeongju

Reason	Frequency	Percent
Attend the Event	383	90.8 %
Visit Friend/Relatives	11	2.6 %
Vacation (tourism)	14	3.3 %
Business	7	1.7 %
Conference/Convention	5	1.2 %
Play Golf	1	0.2 %
Manage player	1	0.2 %
TOTAL	422	100.0 %

Based on survey results, it is estimated that 4,858 spectator groups visited the city of Gyeongju to attend the 2006 U.S. LPGA KOLON-Hana Bank Championship, out of the total 5350 spectator groups. This number of groups was derived by applying the survey results for "primary reason for visitation" and "average group size" to the total attendance figure of 18,300. The event spectator groups averaged 3.42 persons in size and comprised nearly 40 percent of the survey population.

Because the event was held over three days, the spectators could attend up to three days. According to the survey results, over 54 percent of the respondents (n=229) attended one day of the event, followed by two days at 28.7 percent (n=121) and 17.1% attended all three days. (see Table 6)

Table 6

Number of Attending days of Spectators

Day	Frequency	Percent
One Day	229	54.3 %
Two Days	121	28.7 %
Three Days	72	17.1 %
TOTAL	422	100.0 %

Since over half of the survey respondents attended the event for one day, almost

two thirds of spectators (74.4 percent) stayed less than three days in the host city (average

of 2.4 days). On the other hand, 2 percent of respondents (n=9) reported that they stayed

7 days. The primary accommodation place according to respondents was hotel/motel/inn

(n=121) followed by home of family/friend (n=28), and condo (n=24).

The transportation to attend the event site for over 91 percent of the spectators

was their own car (n=385). Less than 10 percent of spectators used other means of

transportation including plane (n=17), train (n=10), and bus (n=8).

Direct Economic Impact

Direct expenditure impacts encompass the initial expenditures within Gyeongju

city that arise as a result of hosting the 2006 U.S LPGA KOLON-Hana Bank

Championship. These are the expenditures that are attributable to the event's existence,

and are therefore a direct measure of the impact of the event operations on the local

economy (Crompton, 1999; Smith, 2000; Matheson, 2002). Based upon responses to the

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survey, calculations were made for the direct expenditures attendees made off and on event site during the event days. Then measures of the direct impact were calculated for: (1) event spectators spending off the event site, (2) event spectators spending on site, and (3) organizational spending to conduct the event.

Direct Sample Expenditures

A total of 422 non-residents responded to questions in 13 categories regarding how much they spent during the event days that they attended. The direct expenditure of non-residents was calculated only for spectators whose primary purpose to visit was to attend the 2006 Championship (n=383). Casuals, time-switchers, and commuters were excluded from calculating direct sample expenditures. The money spent according to respondents was divided into two groups, money spent off event site and money spent on event site. The categories for off site were (1) Lodging, (2) Transportation, (3) Meals, (4) Grocery/liquor, (5) Shopping, (6) Entertainment, (7) Sightseeing, and (8) All others. For the expenditures made on the event site, five categories were provided to respondents: (1) Admission, (2) Food, (3) Beverages, (4) Souvenirs, and (5) All others.

The total amount of money spent off event site by the respondents (n=383) was about $140,174. On average, $332 were spent by each respondent. On the event site, 383 participants reported a total of $24,412 spent, with a mean expenditure of $57.85. Table 7 and 8 show the distribution of expenditures made for each category according to the respondents.

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Table 7

Direct Off Site Expenditures by Survey Respondents

Category	Mean	Total
Lodging	$93.946	$39,645.00
Transportation	$102.559	$43,280.00
Meal	$53.965	$22,773.50
Grocery/liquor	$10.757	$4,538.00
Shopping	$10.753	$12,050.00
Entertainment	$28.555	$12,097.50
Sightseeing	$28.667	$1,250.00
All others	$2.962	$4,539.50
TOTAL		**$140,173.50***

* The exchange currency rate from Korean Won to American Dollar was 1000 to 1 effective on October 30th, 2006.

Table 8

Direct On Site Expenditures by Survey Respondents

Category	Mean	Total
Admission	$36.469	$15,390.00
Food	$13.848	$5,884.00
Beverages	$2.341	$988.00
Souvenirs	$4.905	$2,070.00
All others	$0.284	$120.00
TOTAL		**$24,412.00***

* The exchange currency rate from Korean Won to American Dollar was 1000 to 1 effective on October 30th, 2006.

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Direct Spectator Group Expenditure Impacts

The direct expenditures resulting from spectators were determined by applying

categorical average expenditures per spectator group to the number of spectator groups

who made purchases within the category. For illustrative purposes, Table 9 provides an

example of the calculations used to determine spectator group spending totals for lodging

from the survey data.

The spectator total (18,300) was multiplied by the percent of the survey sample

that spent money for lodging (44.2 percent). The product (8088.6) was then divided by

the sample mean group size of those who spent money for lodging (4.26). This total

(1898.7) was divided by the sample mean number for visits made by those who spent

money on lodging (2.06) to determine the total number of groups that spent money for

accommodations (921.7). Lastly, this figure was multiplied by the sample mean lodging

expenditure ($222.72) to determine the total event spectator group spending for lodging

($205,2888.64). The other direct spectator group expenditure for each category was

calculated using the same method.

Table 9

Example of Calculations to Determine Spectator Group Spending by Category

Procedures for Calculation	Calculations
Total attendance of KOLON-Hana Bank Championship	18,300
Percent of sample who spent for Lodging	x 0.442
	8088.6
Mean group size of sample who spent for Lodging	÷ 4.26
	1898.7
Mean event visit of sample who spent for Lodging	÷ 2.06
	921.7
Mean Lodging expenditure from sample	x 222,724.7
Total Lodging expenditures	205,288,642.2
Total Lodging Expenditures for Event Spectators	**$205,288.64***

* The exchange currency rate from Korean Won to American Dollar was 1000 to 1 effective on October 30th, 2006.

Table 10 illustrates the expenditures on the event site of the spectator groups who visited the city of Gyeongju primarily to attend the 2006 Championship. These expenditures were derived from a question on the survey which asked non-resident spectators about their spending behavior while in Gyeongju city for such things as lodging, transportation, meals, grocery/liquor, shopping, entertainment, sightseeing, and others.

As shown in Table 10, event spectator groups to the 2006 Championship spent approximately $908,806.00 in the city of Gyeongju primarily for such goods and services

as lodging, meals, grocery/liquor, shopping, entertainment, sightseeing, and others. This money is attributed as direct economic impact from the event because these expenditures were made by non-residents who visited Gyeongju city primarily to attend the Championship. These expenditures would not have occurred were it not for hosting the 2006 U.S. LPGA KOLON-Hana Bank Championship.

Table 10

The 2006 U.S. LPGA KOLON-Hana Bank Championship Spectator Group Spending in the City of Gyeongju by Category

Category	Mean	Range	Total*
Lodging	$222.725	$1 ~ $1,500	$205,288.642
Transportation	$103.789	$1 ~ $2,000	$337,719.027
Meal	$81.626	$1 ~ $500	$149,632.005
Grocery/liquor	$31.745	$1 ~ $200	$27,753.436
Shopping	$79.614	$1 ~ $250	$29,403.248
Entertainment	$150.625	$1 ~ $800	$58,134.458
Sightseeing	$122.197	$1 ~ $450	$91,761.073
All others	$65.789	$1 ~ $120	$9,114.108
TOTAL	**$332.20**		**$908,806.00****

* Total is based on category mean as applied to the total number of non-resident spectator groups which spent money for the category of goods and services.

** The exchange currency rate from Korean Won to American Dollar was 1000 to 1 effective on October 30th, 2006.

Figure 7 reveals the percentage of total spectator group expenditures in the city of

Gyeongju by category. Approximately, 31 percent of spectator group spending in

Gyeongju city was for transportation; 28.3 percent for lodging and 16.2 percent for meals.

National averages for tourist spending indicate a slightly different distribution. According

to a study of Korean tourism status by Yang (2006), transportation was the major area of

the tourist spending (24.9 percent) followed by meal (24.1 percent). Only 7.5 percent of

spectator spending was for lodging, in Yang's study.

Figure 7

Percentage of Total Spectator Group Spending Off the Event Site By Category
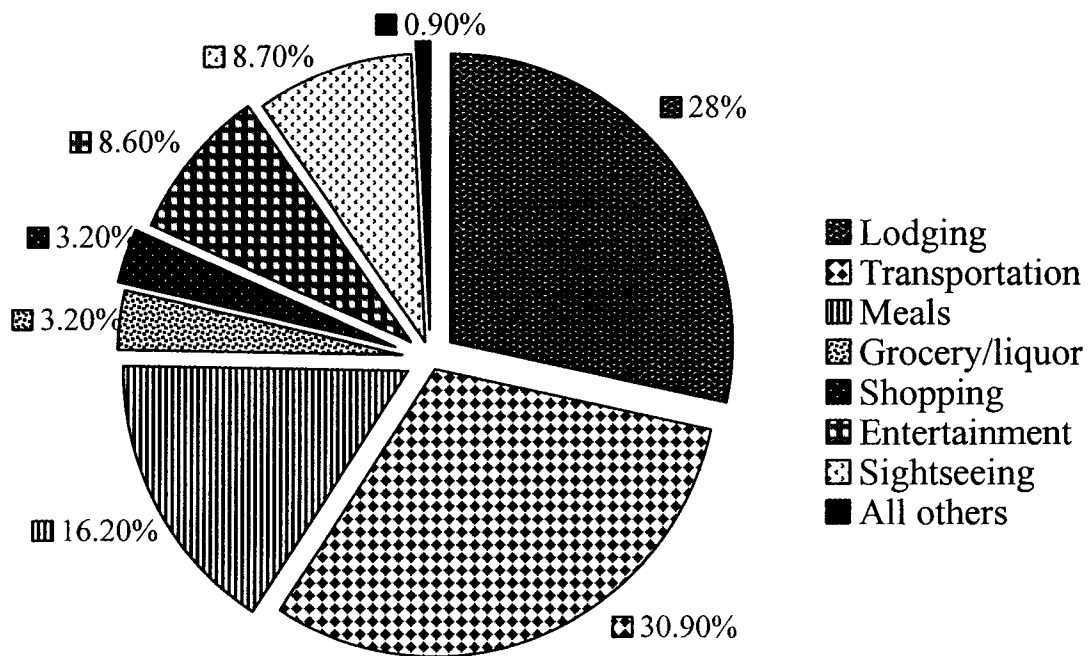
For the on-site expenditures, the calculation process was the same as off-site

expenditures. Categorical average expenditures per spectator group were applied to the

number of spectator groups who made purchases on the event site. The categories for on-

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site expenditures were composed of: (1) Admission, (2) Food, (3) Beverages, (4)

Souvenirs, and (5) All others. Table 11 shows the total spectator group spending on the

event site by category. Most expenditures on-site were for admission, comprising 63

percent of the total spending. The category of food comprised approximately 24 percent,

while the other categories comprised only 13 percent of the total spectator group

spending made on the event site. Figure 8 shows a detailed description of spectator

spending on the event site by category.

Table 11

The 2006 U.S. LPGA KOLON-Hana Bank Championship Spectator Group Spending On

the Event Site by Category

| Category	Mean	Range	Total*
Admission (Ticket)	$37.45	$1 ~ $50	$120,760.665
Food	$23.099	$1 ~ $120	$39,886.773
Beverages	$7.659	$1 ~ $50	$7,226.874
Souvenirs	$42.245	$1 ~ $130	$12,055.521
All others	$40.000	$1 ~ $100	$1,679.238
TOTAL	**$58.542**		**$181,609.071****

* Totals based on category mean as applied to the total number of non-resident spectator
  groups which spent money on-site for category goods and services.

** The exchange currency rate from Korean Won to American Dollar was 1000 to 1
  effective on October 30th, 2006.

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Figure 8

Percent of Spectator Spending On Event Site by Category

- ▓ Admission
- ⊠ Food
- ▤ Beverages
- ▦ Souvenirs
- ■ All others
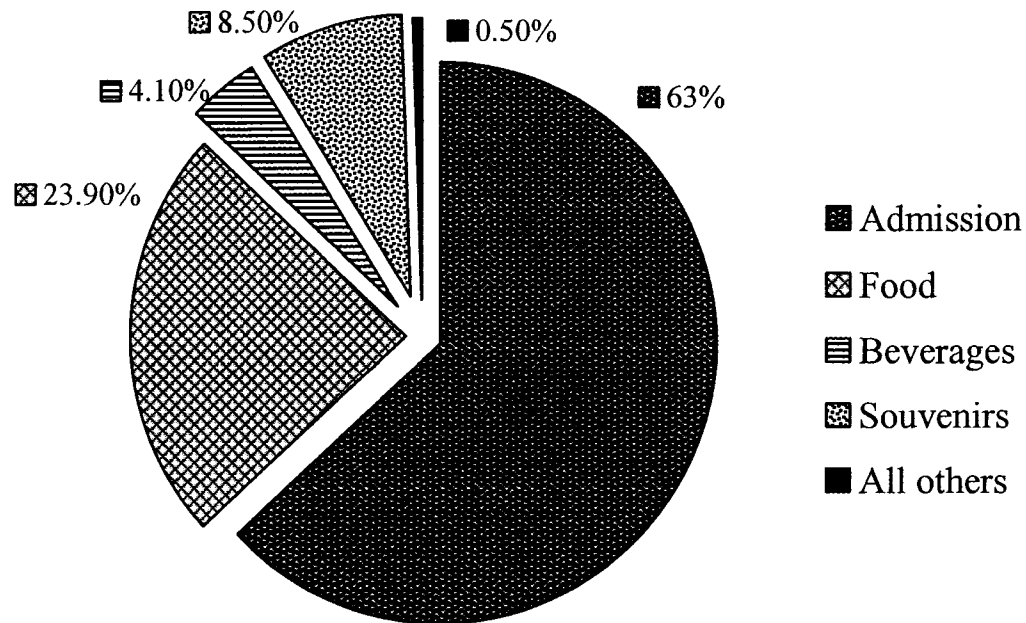
Direct Organization Expenditure Impact

The direct organizational expenditure impact of the Championship on the local

economy was determined by subtracting the event operating expenditure leakage (items

such as prize money and wages for non-resident employees) from the total event

operating expenditures. According to the internal budget statement of the organizing

body, the total operating cost was about $4.3 million. This cost included event prize

money, wages for employees, usage fees for the golf course, invitation fee for LPGA

players, goods and supplies for the event, etc. All costs were considered as leakage

because the money spent for each category did not stay in the city of Gyeongju with the

exception of wages for local employees, usage fees for the golf course, hotel fees for

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players, and goods and supplies including money spent making the stage and decorating the event site.

The event prize money was about $1,350,000. This was divided based upon player's scores in the tournament. A total of 70 players participated in the 2006 U.S. LPGA KOLON-Hana Bank Championship. Every player received some portion of prize money, with the exception of two players. One player gave up participating in the event due to her physical condition and the other one withdrew in the first round. Approximately 15 percent of the total prize money went to the event champion and the remainder of the money was divided based on player ranking as a result of their scores in the tournament. The percent range in prize money awarded was 0.22 percent ($2,962) to 15 percent ($202,500). All of the players who received prize money were considered non-residents of Gyeongju city. Therefore, all prize money was regarded as leakage that should be taken out of the calculations for the direct organizational expenditure impact.

Regarding those who worked the 2006 Championship, 803 people comprised three types of employment; (1) event-time employment, (2) supporters from sponsors (KOLON and Hana Bank) and (3) volunteers. Typically, event-time employment involves the largest number of people. Before the event, people were hired for a variety of functions including admission, information services, parking, event assistance, and/or spectator guidance. The event-time employees amounted to a cumulative total of 700 for the three event days. All were hired from the local area. The total amount of wages reported for this group was $85,000. This money was added to calculate the direct organizational expenditure impact on the city of Gyeongju because employees were hired from the local area.

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The number of people supported by the event sponsors was reported to be 73. Supporters handled managing and operating welcome parties and the Pro-Am event, along with the main event. They were full-time paid employees including the salaries, wages, and benefits from their company (KOLON and Hana Bank). Extra salaries and wages were not paid to employees working the event. The last type of employment category was non-paid volunteers with 30 people, consisting mainly of students majoring in golf or sport. Primarily, they assisted event-time employees and supporters.

The event organization paid $380,000 to Mauna-Ocean Country Club for the use of the golf course, carts, and facilities for the events. This money was also considered non-leakage money, and as such was included in the direct expenditure impact of the 2006 Championship on the local economy.

Another expenditure related to organizing the event was the hotel fees provided for players. All players stayed at the hotel located in the city of Gyeongju during the event. The cost for the player's hotel stay was $420,000, and this amount was added to the direct organizational expenditure impacts. Table 12 shows a detailed depiction of the expenditures from the event organization for organizing, operating, and managing the 2006 U.S. LPGA KOLON-Hana Bank Championship.

The total direct operating expenditure impact of the 2006 Championship was $1,353,000. The total was calculated by subtracting the event operating expenditure leakage ($2,970,000), including prize money and wages for non-resident employees from the total event operating expenditures ($4,323,000). Approximately 31.3 percent of the total operating expenditures were spent locally.

Table 12

Description of the Operating Expenditures

Category	Leakage**	Amount
Prize money	O	$1,350,000
Invitation fees		
Players	O	$600,000
Hotel for players	X	$420,000
Others	O	$400,000
Golf course using fee	X	$380,000
Wages & Salary		
Event-time employee	X	$85,000
Guards	O	$72,000
Equipment rental	X	$125,000
Professional service	O	$150,000
Supplies	X	$220,000
Goods	O	$62,000
Printing	O	$66,000
Surtax		
Local	X	$123,000
Non-local	O	$270,000
Total Operating Expenditures		**$4,323,000***
Total Leakage		**$2,970,000**
Total Direct Operating Expenditure Impact		**$1,353,000**

* The exchange currency rate from Korean Won to American Dollar was 1000 to 1 effective on October 30th, 2006.

** O indicates leakage and X indicates non-leakage money.

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The total direct economic impact of the 2006 U.S. LPGA KOLON-Hana Bank

Championship totaled $2,443,415.10 (See Table 13). This figure is the sum of the total

direct operating expenditures and total spectator group expenditures. By hosting the 2006

Championship, the city of Gyeongju reaped a significant economic impact. The economic

impact would not have been realized by Gyeongju city if the city had not hosted the event.

Table 13

Total Direct Economic Impact on Local Area

	Direct Expenditures	Percent
Total Operating Expenditure	$1,353,000.00	55.5%
Total On-site Expenditure	$181,609.10	7.5%
Total Off-site Expenditure	$908,806.00	37.0%
TOTAL	$2,443,415.10	100.0%

Indirect Economic Impact

The indirect economic impact was calculated by using multipliers. The output or

sales, income, value added, and employment multipliers were derived from the

Interindustry Analysis (input-output) multiplier table provided by the Bank of Korea

(2004). By applying the appropriate direct economic impact figures the indirect economic

impact on the local economy was calculated. The Interindustry Analysis (input-output)

model produced four measures of the economic impact to the Gyeongju economy

including: (1) the amount of economic activity or sales in Gyeongju directly attributed to

the event, (2) the amount of economic impact on personal income, (3) the amount of value added by the event, and (4) the amount of employment inducement by the event. The total economic impact was derived by calculating the sum of the direct expenditure impact and indirect impact.

Table 14 shows sales, income, value added, and employment multipliers for each category. The indirect economic impact was calculated using the multiplier for each category of direct spectator group expenditure. For illustrative purposes, Table 15 shows how the indirect impact on sales was obtained. Direct spectator group expenditure made off the event site was multiplied by each sales multiplier to get an indirect impact on sales. Approximately $2.1 million in sales was generated through the 2006 U.S. LPGA KOLON-Hana Bank Championship in the city of Gyeongju. Table 16 shows the Input Output analysis of indirect economic impact on Gyeongju city attributed to the 2006 event by using the Interindustry multiplier table.

Table 14

Multipliers for Each Category

Off-site Category	Sales Multiplier	Income Multiplier	Value Added Multiplier	Employment Multiplier
Lodging	2.354655	0.162783	0.837217	49.983100
Transportation	2.329192	0.371102	0.628898	19.453000
Meal	2.554003	0.196146	0.803854	35.885200
Grocery/liquor	1.739934	0.092143	0.907857	46.547300
Shopping	1.739934	0.092143	0.907857	46.547300
Entertainment	2.178279	0.123554	0.876446	40.166000
Sightseeing	2.178279	0.123554	0.876446	40.166000
All others	3.280617	0.301041	0.698959	32.069500

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On-site Category	Sales Multiplier	Income Multiplier	Value Added Multiplier	Employment Multiplier
Admission	2.178279	0.123554	0.876446	40.166000
Food	2.554003	0.196146	0.803854	35.885200
Beverages	2.554003	0.196146	0.803854	35.885200
Souvenirs	1.739934	0.092143	0.907857	46.547300
All others	3.280617	0.301041	0.698959	32.069500

Operation Category	Sales Multiplier	Income Multiplier	Value Added Multiplier	Employment Multiplier
Players' Hotel	2.354655	0.162783	0.837217	49.983100
Course usage fee	2.178279	0.123554	0.876446	40.166000
Equipment rental	3.060496	0.459216	0.540784	10.084900
Supplies	2.956551	0.383425	0.616575	14.824200

Table 15

Example of Calculations to Determine Indirect Impact on Sales for Off-site Category

Off-site Category	Sales Multiplier		Direct expenditure		Indirect Impact on Sales
Lodging	2.354655	X	$205,288.642	=	$483,383.9273
Transportation	2.329192	X	$337,719.027	=	$786,612.4559
Meal	2.554003	X	$149,632.005	=	$382,160.5897
Grocery/liquor	1.739934	X	$27,753.436	=	$48,289.14691
Shopping	1.739934	X	$29,403.248	=	$51,159.71091
Entertainment	2.178279	X	$58,134.458	=	$126,633.0690
Sightseeing	2.178279	X	$91,761.073	=	$199,882.2277
All others	3.280617	X	$9,114.108	=	$29,899.89764
Total					**$2,108,021.03**

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Table 16

Input Output Analysis of Indirect Economic Impact on the City of Gyeongju Attributed to the 2006 U.S. LPGA KOLON-Hana Bank Championship

Off-Site	Sales Impact	Income Impact	Value Added	Indirect Impact	Employment
Lodging	$483,383.9273	$31,905.09946	$164,092.6365	$657,504.79	49.983100
Transportation	$786,612.4559	$125,328.2064	$212,390.8206	$1,124,331.48	19.453000
Meal	$382,160.5897	$29,349.71925	$120,282.2858	$531,792.59	35.885200
Grocery/liquor	$48,289.14691	$2,557.284853	$25,196.15115	$76,042.58	46.547300
Shopping	$51,159.71091	$2,709.30348	$26,693.94452	$80,562.96	46.547300
Entertainment	$126,633.0690	$7,182.744824	$50,951.71318	$184,767.53	40.166000
Sightseeing	$199,882.2277	$11,337.44761	$80,423.62539	$291,643.30	40.166000
All others	$29,899.89764	$2,743.720186	$6,370.387814	$39,014.01	32.069500
Sub Total	**$2,108,021.03**	**$213,113.53**	**$686,401.56**	**$2,985,659.24**	**310.8174**
On-Site	Sales Impact	Income Impact	Value Added	Indirect Impact	Employment
Admission	$263,050.4206	$14,920.4632	$105,840.2018	$383,811.09	40.166000
Food	$101,870.9379	$7,823.630977	$32,063.14202	$141,757.71	35.885200
Beverages	$18,457.45788	$1,417.522428	$5,809.351572	$25,684.33	35.885200
Souvenirs	$20,975.81088	$1,110.831872	$10,944.68913	$33,031.33	46.547300
All others	$5,508.93673	$505.5194868	$1,173.718513	$7,188.17	32.069500
Sub Total	**$409,863.56**	**$25,777.97**	**$155,831.10**	**$591,472.63**	**190.5532**
Operation	Sales Impact	Income Impact	Value Added	Indirect Impact	Employment
Players' Hotel	$988,955.1	$68,368.86	$351,631.14	$1,408,955.10	49.983100
Course usage fee	$827,746.02	$46,950.52	$333,049.48	$1,207,746.02	40.166000
Equipment rental	$382,562.00	$57,402.00	$67,598.00	$507,562.00	10.084900
Supplies	$650,441.22	$84,353.5	$135,646.5	$870,441.22	14.824200
Sub Total	**$2,849,704.34**	**$257,074.88**	**$887,925.12**	**$3,994,704.34**	**115.0582**
TOTAL	**$5,367,588.93**	**$495,966.37**	**$1,730,157.79**	**$7,571,836.21**	**616.4288**

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As shown in Table 16, the total direct expenditures made by spectators on and off the event site and event organization produced a total indirect impact of $7,571,836.20. The total economic impact on the local economy resulting from the 2006 Championship was a product of the sum of direct impact and indirect impact, totaling $10,015,251.31 ($2,443,415.10 + $7,571,836.21).

According to the results of the indirect economic impact calculation on employment, the 2006 event's total economic activity created the full time equivalent of approximately 616 jobs for Gyeongju residents. Added to the number of full time employees of the event organization (n=73), the 2006 Championship was responsible for 689 jobs locally. The jobs included construction, merchandise and food service, jobs related to the transportation and accommodations, golf course maintenance crews, maintenance staffing, as well as temporary hires. Because many jobs associated with the event were not full-time, actual employment figures may have been higher.

Direct local income (direct expenditure made by spectator groups) attributed to the 2006 U.S. LPGA KOLON-Hana Bank Championship totaled $2,443,415.10 as shown in Table 13. The total local income impact was $2,226,124.16 generated from the sum of the indirect income effect ($495,966.37) and value added ($1,730,157.79). The income multiplier was the ratio of total income to direct income. This means that for every one dollar spent in Gyeongju city attributed to the event, the local income was increased 91 cents (2,226,124.16 ÷ 2,443,415.10 = .91).

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Psychic Impact

According to Turco (1995) and Crompton (2004), psychic impacts are non-

monetary benefits residents perceive they receive by hosting the sport event. A Chi-

square test was performed to measure the psychic impact of residents with regards to the

2006 U.S. LPGA KOLON-Hana Bank Championship. The test was also intended to

compare the perception and image differences between residents and non-residents.

A total of 494 samples were collected and approximately 15 percent of them were

residents (n=72) of the city of Gyeongju, while 85 percent of them were non-residents

(n=422). Both residents and non-residents were asked if their perception (visibility &

awareness) of Gyeongju had been improved through the event as compared to before

visiting the event site. On a 5 point Likert scale, the mean perception for residents was

2.99 with a standard deviation of .971, whereas a mean of 3.26 with a standard deviation

of 1.13 was attributed to non-residents (See Table 17). Results showed a significant

difference statistically (χ^2 = 10.679). More than 50 percent of non-residents responded

that their perception (visibility & awareness) of Gyeongju was improved very much or to

a great extent through the event, when compared to before the event. Although only 36

percent of residents recognized that the perception of Gyeongju was improved due to the

event. In other words, the non-residents perception (visibility & awareness) of the event

was more positive than the residents.

The question asking how much the image of Gyeongju had been enhanced

compared to before the event resulted in similar perceptions. Half of the non-residents

perceived that the image of Gyeongju had improved much or to a great extent through the

event compared to before the event. Whereas approximately 36 percent of residents said

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the image was enhanced much or to a great extent through the event. The mean for image among residents was 3.08 with a standard deviation of 1.00, and 3.34 with a standard deviation of 1.07 for non-residents (See Table 17). Results also showed there was a statistically significant difference of perceived image enhancement through the event between the residents and non-residents (χ^2 = 9.473, p=.035). Table 18 and 19 provide the results of the Chi-square test for the perception and image of the hosting city as perceived by residents and non-residents.

There was no statistically significant difference between perceived perception (visibility & awareness) by gender among residents and non residents. For the residents' perception on age and household income, it was not statistically significant but there was statistical difference between perception and age (χ^2 = 37.890, p=.002) and income (χ^2 = 32.575, p=.038) for non-residents. Older people reported a higher perception for image than younger people. In age group of 60~69, 77.8 percent responded that the perception of Gyeongju was improved much or great extent through the event whereas only 27.8 percent of 20~29 aged group did. People in the higher household income category tended to have a better perception of the city due to the event than people who reported a lower household income. Only 25 percent of people whose household income was less than $30,000 responded that their perception of city was increased much or to a great extent through the event, as compared to 54.5 percent of people whose household income was more than $70,000.

The result for perceived image of Gyeongju city through the event had the same pattern as the results for perception (visibility and awareness) of Gyeongju city. No statistical significance was found on image when analyzed by gender, age, and household

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income from the residents. Similar results were found for image and Gender of respondent for non-residents. However, non-residents who were older and had higher household income reported a more positive image of Gyeongju city through the event compared to before the event than those who were younger and had less household income. The result of the Chi-square test for image vs. age was $\chi^2 = 31.357$, p=.012 and for image vs. household income was $\chi^2 = 36.642$, p=.013.

Table 17

Mean of Perception and Image on Residency

Residency		Perception (Visibility & awareness)	Image
Yes	Mean	2.99	3.08
	N	72	72
	Std. Deviation	.971	1.004
No	Mean	3.26	3.34
	N	422	422
	Std. Deviation	1.131	1.070
Total	Mean	3.22	3.30
	N	494	494
	Std. Deviation	1.112	1.064

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Table 18

Chi-square Test of Perception on Residency

		Residency of Gyeongju City		Total
		Yes	No	
Perception Improved	Not at all	5 (6.9%)	40 (9.5%)	45 (9.1%)
	Little	18 (25%)	68 (16.1%)	86 (17.4%)
	Somewhat	23 (31.9%)	99 (23.5%)	122 (24.7%)
	Much	25 (34.7%)	174 (41.2%)	199 (40.3%)
	Great Extent	1 (1.4%)	41 (9.7%)	42 (8.5%)
	Total	72 (100.0%)	422 (100.0%)	494 (100.0%)
	Chi-square (χ^2)		10.679	
	p		.023	

Table 19

Chi-square Test of Image on Residency

		Residency of Gyeongju City		Total
		Yes	No	
Image Improved	Not at all	5 (6.9%)	27 (6.4%)	32 (6.5%)
	Little	14 (19.4%)	64 (15.2%)	78 (15.8%)
	Somewhat	27 (37.5%)	120 (28.4%)	147 (29.8%)
	Much	22 (30.6%)	162 (38.4%)	184 (37.2%)
	Great Extent	4 (5.6%)	49 (11.6%)	53 (10.7%)
	Total	72 (100.0%)	422 (100.0%)	494 (100.0%)
	Chi-square (χ^2)		9.473	
	p		.035	

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Summary

The 2006 Championship spectators residing outside of Gyeongju city represented 85.4 percent of the survey population. Approximately 65 percent of spectators were male and 35 percent of them were female. Forty three percent of the survey population was in the age group of 40~49 and almost the same percentage of the total survey population responded that their annual household income was over $70,000. More than 54 percent of non-resident respondents attended the event for one day. Almost two thirds of the survey population stayed less than 3 days in Gyeongju at the average of 2.4 days. Most widely used way of transportation to access the event site for over 91 percent of the survey respondents was their own car. Less than 10 percent reported using other means of transportation such as plane, train, or bus.

Spectator groups who visited Gyeongju city primarily because of the 2006 Championship comprised 90.8 percent of all spectator groups and spent just under $1 million within Gyeongju city for such goods and services as lodging, meals, transportation, and retail items. The event spectator groups spent an additional $181,609 on the event site. In response to this study's first research question, estimated total expenditures from non-resident spectators was $1,081,124.2. The Championship organization spent $4,323,000 to conduct the event of which $1,353,000 was spent locally (31.3%).

Research question number two asked, "What are the direct and indirect economic impacts incurred by the Gyeongju economy as a result of the KOLON-Hana Bank Championship?" Total direct economic impact accrued to the Gyeongju economy by the event totaled $2,443,415. Multipliers for each category were applied to calculate the total

indirect economic impact that amounted to $7,571,836.21. Therefore, the total economic impact incurred by the Gyeongju economy as a result of the 2006 KOLON-Hana Bank Championship was $10,015,251.31.

This economic activity created the full time equivalent of approximately 616 jobs for Gyeongju residents in addition to the number of full time event organization employees (73). Direct local income attributed to the 2006 Championship was $2,443,415. The income multiplier generated through this study was .91 meaning that for every one dollar spent in Gyeongju city attributed to the event, local income was increased 91 cents.

Research questions 3 and 4 asked how much the perception and image of Gyeongju increased and was enhanced through the event. The mean perception of residents was 2.99 with a .971 standard deviation, whereas a mean of 3.26 with a standard deviation of 1.13 was found for non-residents. A statistically significant difference of perception between residents and non-residents was found ($\chi^2 = 10.679$, p = .023). Non-residents had a higher mean score for image (3.34) than residents (3.08). Fifty percent of non-residents answered that their perceived image was enhanced by the event. However, only 36 percent of residents responded that their perceived image was enhanced by the event. There was also a statistically significant difference found on perceived image enhancement through the event between resident and non-resident ($\chi^2 = 9.473$, p=.035). Furthermore, perceived value of perception and image for Gyeongju city was positively correlated with age and household income. Spectators who were older and had a higher household income reported a more positive perception of the image of Gyeongju city based on the event as compared to before the event.

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CHAPTER V

DISCUSSION AND RECOMMENDATIONS

This chapter consists of three sections. First, the procedures utilized for the study are summarized. Next, the principle findings from this study are summarized and discussed from both theoretical and practical perspectives. Finally, recommendations to both scholars and practitioners interested in economic impact studies are provided.

Summary of the Study Procedures

The purpose of this study was to examine the economic impact a local economy received when hosting an international sporting event. For the 2006 U.S. LPGA KOLON-Hana Bank Championship spectator expenses were assessed using input-output analysis. Achievement of the intended purpose required responses to the following research questions: (1) What were the total, on and off site estimated expenditures from non-residents who attended the 2006 KOLON-Hana Bank Championship? (2) What direct and indirect economic impact was incurred by the Gyeongju economy as a result of hosting the Championship? (3) To what extent was the visibility and awareness of Gyeongju affected due to the 2006 Championship? (4) To what extent was the image of Gyeongju enhanced, according to spectators, by hosting the 2006 Championship?

A questionnaire was used to assess the amount of money spectators spent directly related to their attendance at the event, and to measure the psychic impact resulting from the 2006 U.S. LPGA KOLON-Hana Bank Championship. A survey of spectators chosen randomly was conducted to collect the data. A total of 494 usable responses were

collected at the event site during three event days. Data analysis was then conducted to establish an estimate of the direct expenditures made by all spectators during the three day event. To calculate the indirect impact resulting from the event, multipliers were applied to the direct expenditures. The Interindustry Analysis (input-output) multiplier table provided by the Bank of Korea was used in calculating the indirect impact resulting from the event. Data analysis using SPSS (v. 12.0) was then conducted to determine the psychic impact for residents. Descriptive statistics and chi square tests were utilized to determine the effect that the event had on the perception (awareness and visibility) and perceived image among spectators. Similarly, the perception (awareness and visibility) and perceived image differences between residents and non-residents were analyzed.

Discussion of Principle Findings

The methods for studying economic impact have been evolving for the past two centuries. Scientific economic impact analysis techniques, such as input-output analysis and computerized models (e.g., IMPAN or RIMS II) have recently been developed to offer definitive evidence of the economic changes that take place in a region or community due to hosting an event (Crompton, 1999; Leontifef, 1986; Taylor, Einter, Alward, & Siverts, 1993).

Modern studies have been conducted to determine the economic impact on a community from areas such as construction, recreation, tourism, transportation, and other fields. The field of sport is no exception. Sporting events, facilities and professional sport franchises can bring a variety of benefits to a local community. Determining the economic impact of a sport event is of great value to both public and private groups.

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Increases in the employment opportunities, residents' earnings, governmental income, and consumption of meals, lodging, transportation services, and amusement related items are of particular interest (Li, Hofacre, & Mahony, 2001; Howard & Crompton, 2003). This economic gain may be the deciding factor in future resource-allocation decisions concerning the event. Most sport event directors and marketers consider it extremely important to know the local economic impact that accrues for the host community.

Many scholars have shown that a host community receives benefits not only economically from a sporting event (Turco & Navarro, 1993; Steiner & Thöni, 1999; Sanderson, Harris, Russell, & Chase, 2000; Gratton, Dobson & Shibli, 2000; Parr, 2002; Jang, 2004; SBJ, 2005; Preuss, 2005) but also psychologically (Turco, 1995; Morgan 1997; Crompton, 2004). The results of this study support this contention. Therefore, this study contributes to the growing body of research that can be used to assist sport event organizers, government officials, and politicians in understanding the importance of the economic impact that results from specific sport events.

This study primarily investigated the economic impact a local economy received when hosting a sporting event. The major findings include: (1) total expenditure made by spectators who attended the 2006 U.S. LPGA KOLON-Hana Bank Championship, (2) direct and indirect economic impacts incurred by the Gyeongju economy as a result of the 2006 Championship, and (3) psychic impact measured as visibility and awareness, as well as the image of Gyeongju city among spectators who attended the event. Based on the findings and the theoretical foundation from the literature, the following discussion addresses the four research questions that guided the study.

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Research Question 1: Total estimated expenditures from non-residents

The city of Gyeongju directly received $1,090,415.10 from the expenditures of all

spectator groups. The majority of event spectators (90.8%) who visited Gyeongju city

because of the 2006 Championship were responsible for spending $908,806.00 for goods

and services such as lodging, meals, and retail items. The biggest category of spectator

expenditure made off event site was transportation (30.9 %). The category of

transportation included the cost for airplane or train tickets, rental car, parking, gas or taxi.

The primary travel mode to get to the event site was spectators' own car (91.2 %). Since

most spectators (63.7%) came from Kyoungsang-Do (one of eight provinces, where the

host city is located), their transportation expenditure was mainly for gas. The average gas

price on October, 2006 was about $5.47 per gallon in Korea. The spectator groups spent

an additional $181,609.10 on the event site for tickets, food and beverage, and souvenirs.

The admission fee was the biggest category (63 %) of spectator spending made on the

event site followed by food (23.9 %).

This expenditure made on and off event site is attributed as direct economic

impact from the event because these expenditures were made by non-residents who

visited Gyeongju city primarily to attend the Championship. These expenditures would

not have occurred were it not for hosting the 2006 U.S. LPGA KOLON-Hana Bank

Championship. A discussion of these findings will be presented in the following section.

Research Question 2: Direct and indirect economic impacts

Direct expenditures attributed to the event that remained locally were utilized

with the specific multipliers from the Input-Output Analysis Table (produced by the Bank

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of Korea) to determine the indirect impact for categories such as sales, income, value added, and employment. The input-output analysis multipliers applied to the total direct expenditure ($2,443,415.10) produced a total indirect impact of $7,571,836.21. The total economic impact generated by hosting the 2006 U.S. LPGA KOLON-Hana Bank Championship was $10,015,251.31. This total represents the sum of both the direct and indirect economic impact. However, the input-output analysis used for this study was based on 2004 industry data. According to the National Statistical Office of Korea (2007), the average composite index of economy indicators in 2004 was 119.36, whereas it was 133.1 in October, 2006, the time the event was held. The increase from 2004 to 2006 was 11.51%. Therefore, the economic impact figures were 11.51% lower than the actual 2006 values since the multiplier table used in this study was reflective of 2004 Korean economic values.

This economic activity created the full time equivalent of approximately 616 jobs for Gyeongju residents in addition to the number of full time employees of the event organization (n=73). The total local income impact was $2,226,124.16. The income multiplier, which was the ratio of total income to direct income, for the 2006 Championship was .91. This means that for every one dollar spent in Gyeongju city attributed to the event, the local income increased 91 cents.

The most significant expenditures associated with spectator groups were those related to the purchase of tickets, transportation, hospitality, souvenirs and accommodations. The economic impact resulted from new money being introduced into the local economy that was directly attributable to the event. Also, the business sectors associated with travel, hospitality, and the manufacturing of sport and recreational goods

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were stimulated with the added interest generated by the event publicity. This event

publicity is important not only to the host city but also to the host organization (LPGA).

According to the study done by Yang (2006), the city of Gyeongju is the second largest

tourism city in Korea. Tourism provides the main stream of new money during a sporting

event. It is important to the city in that the event publicity attracts more tourists, and

therefore more new money into the local economy.

A well-planned tourism strategy can leverage post-event tourism, because it is not

just a new sport facility that motivates thousands of tourists to visit the city after the event.

Media coverage of the 2006 Championship stressed positive attributes and popularized

the city in the minds of event spectators from around the globe. Such publicity can

awaken tourists' desires to visit the city of Gyeongju in the future. As event publicity

increases, the host organization (LPGA) is also a recipient of economic impact in the

regards to enhanced commercial value and brand image. Sport organizations use such

events to increase their commercial value, while sponsors use them to improve their

brand image (Shin & Turco, 2005). Improved commercial value and image for sport

organizations is one of the main revenue streams resulting in a significant increase in

sponsorship and broadcasting rights. In Korea, the KFA (Korea Football Association) is

still enjoying the commercial benefits earned by hosting the 2002 FIFA World Cup. For

example, corporate sponsors increased by 50 percent between 2001 and 2007 (KFA,

2007).

Research Question 3 & 4: Psychic impact

Crompton (2004) has found that total economic impact results from visitor spending in a host community as well as from increased community visibility, awareness and enhanced community image due to hosting a sporting event. Sporting events provide a tangible focus of the collective experience of residence since they tie them together regardless of gender or economic standing. Sporting events are one of the few vehicles available for developing a sense of community (Moregan, 1997). Therefore, psychic impact should be considered an important part of the total economic impact for sport events.

A chi-square test done with responses from the 5 point Likert scale was used to measure the image and perception (visibility & awareness) of Gyeongju city. Non-residents perceived the visibility and awareness of the host city more favorably (M=3.26) than did residents (M=2.99). Similarly, non-residents perceived the host city's image had been improved due to the event (M=3.34). The results showed a significant difference in the image (χ^2=9.473, p=.035) and perceived visibility and awareness (χ^2=10.679, p=.023) of Gyeongju city received due to attendance at the 2006 Championship between residents and non-residents. Based on these results, the conclusion drawn was that non-residents are most likely to have a positive perception toward the host city, given non-residents willingly came to the event site from up to 500 miles away bearing more expense for transportation, meal, hotel, etc. than those of residents.

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Conclusions

Social exchange theory suggests that residents of the host city, who receive psychic benefits from sport events, are likely to perceive impacts positively and be supportive, whereas residents who do not receive benefits, or who perceive the costs associated with sport events outweigh the benefits, are likely to perceive it negatively.

In Korea, the city of Daegu, one of the host cities of the 2002 FIFA World Cup, will host the 2011 IAAF (International Association of Athletics Federations) World Championships. This event is the second largest international single sport event. The bidding process was highly competitive with a record number of nine candidates submitting letters of intent to host the event. The city of Daegu was not in a good position to win the bid. However, the situation turned out favorably for the Daegu city due to the enthusiasm and passionate support demonstrated by the citizens. More than 50,000 Daegu citizens greeted the IAAF team upon their arrival to assess Daegu's Championships bid. Furthermore, over 300,000 Daegu citizens, who had experienced the positive psychic impact from hosting the 2002 FIFA World Cup, signed a promissory note that they were willing to support and favor this event with all their heart. According to Dr. Helmut Digel, the vice president of IAAF (2007), the strong support from the Daegu citizens played a critical and significant role in winning the bid for the 2011 IAAF World Championship.

However, the psychic impact of hosting a sport event for a community is not always positive. Gibson (1998) in a study of resident's perceptions regarding America's Cup Defense hosted by Fremantle, Australia found that prior to the event, many residents felt negative impacts from the event due to heavy traffic, severe congestion, crowding,

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and price increases. Using a longitudinal approach, however, she found that residents' reactions were more extreme than what actually occurred. In a New Zealand based study, Garnham (1996) found that in hosting the Ranfurly Shield (a national rugby tournament), some segments of the community gained positive economic impacts, while others lost. Nevertheless, Garnham found that community morale was the highest it had been in 22 years. The event provided a central focus for the local population which inspired a sense of pride in their community. Thus, once gain the psychic impact of hosting an event may have counterbalanced some of the negative impacts.

According to the results of this study, residents had a favorable opinion of the sporting event. Approximately two-thirds of the residents responded that visibility & awareness of Gyeongju city was improved when compared to before the event. More than 73 percent of residents also indicated that the image of Gyeongju city was improved due to the event. It was concluded that significant support was generated for hosting this sports event in the future. Results such as this are beneficial for marketers, sport organizations, and government agencies that want to host similar events in the future. Furthermore, these data can be valuable when demonstrating the worth of sporting events to residents who are not supportive of hosting future sport events.

According to the results of this study, hosting a sporting event is beneficial to the local economy in terms of financial earnings, employment statistics, income level, sales activities, and to residents for their psychic impact. However, the economic benefits from a sporting event are not limited to this. The economic impact studies of sport events include common categories such as lodging, eating/drinking, transportation, amusement, and shopping that can be compared with other similar activities such as recreation and

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tourism. Yet, the sport event economic impact on a defined region may include additional categories such as construction (e.g. stadium or other sporting facilities), or broadcasting (Noll & Zimbalist, 1997). Most sport events are artificially oriented, meaning they need man-made facilities and equipment to meet the regulations and criteria of individual sport competitions. A facility may cost several million dollars; therefore, it could have a huge impact on the local economy. Although the Mauna-Ocean Country Club was not newly constructed for the 2006 U.S. LPGA KOLON-Hana Bank Championship, maintenance of the golf course and creation of new structures (i.e. score board, gates for spectators, platform, etc.) to meet the regulations of the organizing body (LPGA) also contributed to the local economy.

In general, sport events are viewed positively by the public. Therefore, mass media agencies (television companies, radio stations, or news publishers) are willing to make contracts with sport event host organizations in order to release news from these events, which may also generate revenue. Under these circumstances, broadcasting fees become a large portion of revenue for some sport events. Therefore, this aspect may also provide a significant economic impact to the host community.

The media benefits from this event were also extended to the corporate sponsors. For example, the logo and brand message of the sponsors were exposed internationally while the event was being broadcast. According to Sport Marketing Research (2006), the company name, logo, and brand name of sponsors were exposed to a cumulative total of 3,741,092 people globally through TV, newspapers, and magazines. The total value of this exposure was approximately $6.7 million. Marketers and the host organizations can

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use this information as leverage when soliciting corporations for future sponsorships which will then provide another opportunity to increase the economic impact.

While there have been several studies done on the economic importance of sport at a national level in Korea, the scope has been limited. The majority of the studies have been focused on the national level and while it provides a broad overview of the economic activity generated by sport, it provides limited information to policy makers at the city level where local economic development strategies incorporating sport are often implemented (Jang, 2004). This study undertaken at the city level in Gyeongju can be used as a valuable resource in several ways. First, it has provided baseline data regarding the economic activity generated by a sport event in Gyeongju city. This not only provides information for policy makers on the level of economic activity generated through the 2006 U.S. LPGA KOLON-Hana Bank Championship, but it also provides a platform from which to develop future research on the economic importance of sport in this region. By carrying out similar studies at regular intervals in the future, it will be possible to evaluate the role of sport in the development of the local economy. Second, it has provided valuable information on financial benefits, such as job creation, residents' earnings, and governmental income. Third, a further advantage of carrying out research at the city level is that it allows the local sport industry to be compared to other industries. Research at the city level provides the opportunity to study various aspects of the sport industry in depth, such as labor market dimensions so that the result can be compared to other hosting cities of sporting events.

By targeting prospective fans that fit the fan profile, the host city and organization can most likely increase the number of spectators, which will in turn increase the

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economic impact (Crompton, Lee, & Shuster, 2001). According to the results of this study, the spectators that were older and had higher incomes spent more money both on and off the event site than those with lower incomes who were younger. The difference in mean spending totals, while not statistically significant, was an important finding from a business and marketing perspective. Various entertainment options and activities, food, beverage, advertising, and pricing should reflect and target this population for future events in Gyeongju. Marketers may find the economic and demographic data from this study useful for future forecasting and planning in this region. Such a strategy could help increase the number of visitors, the amount of time they stay, and the amount of money they spend, which would increase the overall economic impact. If this strategy was implemented, a cost-benefit analysis could also be conducted on this marketing strategy to determine its effectiveness. If a return on investment (ROI) was found in subsequent tournaments, then the local economy could anticipate greater benefits accruing due to the event.

A large percentage (90.8%) of non-residents visited Gyeongju city primarily to attend the 2006 Championship, indicating the true "drawing power" of this staged attraction. Event officials had estimated the percentage of visitors whose primary purpose was to attend the event to be 95 percent of the total spectator group. In the future, economic impact or market research using survey methodology should consider the 90.8 percent visitor figure from this study when determining the anticipated spectator sample size.

Recommendations

The on-site spectator survey process used in this study is a reliable method for collecting expenditure information necessary for economic impact assessments at large scale sporting events (Crompton, 1999). Future research focusing on economic impact assessments of large-scale sporting events should compare spectator group expenditures according to the type of data collection method (i.e., diary, on-site interview, mail survey, telephone survey, etc.) used.

For this study, survey data were used to develop a profile of the 2006 U.S. LPGA KOLON-Hana Bank Championship spectators in terms of their group size, visitation rate, and spending behavior on and off the event site. Analyses were conducted on the spectator figures to estimate the number of non-resident spectator groups who visited Gyeongju city primarily to attend the event. Expenditures resulting from primary visitors were determined by applying categorical average expenditures to the number of spectator groups who made purchases within the category. A failure to use this method when applying the estimated number of primary visitor groups to on and off site aggregate mean spending figures would produce an overestimation of the direct economic impact.

Only expenditures directly attributed to the spectator groups who visited the local economy primarily to attend the special event should be used to determine the direct economic impact. These expenditures would not have occurred locally were it not for the existence of the sporting event. It is assumed that the expenditures made by spectators who visited the event area for reasons other than the golf tournament represented money that would have been spent anyway. Therefore, the use of their total expenditure in the final estimation of direct economic impact would have been inaccurate. Future research is

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needed to examine whether visitors not included in a study of this nature, such as time switchers and casuals, altered their spending behavior due to patronizing the event.

Similar recommendations have been made to exclude resident expenditures from economic impact assessments (Crompton, 1999; Smith, 2000, Lee, 2001; Jones, 2001; Matheson, 2002). The assumption has been that the expenditures of resident spectators at the event site would have been made in the local economy anyway (switching of expenditures). Future economic research is needed to examine this assumption to determine whether resident spectators altered their local spending behavior due to the event.

Projection and recall bias are two variables which influence the reliability of economic impact studies using survey methodology. It should be noted that a fine time-line exists between when projection and recall bias occurs (Crompton, 1999; Matheson, 2002). Future research is warranted to address these methodological issues. Researchers conducting economic impact assessments and seeking to determine the reliability of their data collection instrument should also use a larger sample size than was employed in this study. Large sample size can minimize errors and bias as well as generate more precise results. In this study, direct economic impact was calculated based on sample spectator group spending which was applied to all spectators of the 2006 Championship. After that, multipliers were applied to get indirect economic impact. The error was negligible when calculating just sample spectator group spending, but it would be increased if applying to all spectators visited during the event days, and moreover when the multipliers are applied. However, projection bias associated with the on-site survey technique used in this economic impact study did not enter into the results. No significant difference for the

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on-site spending mean was found between spectators who indicated that their last visit was the day in which they were surveyed compared to those who planned future visits.

Random selection of survey participants is necessary to insure generalizability of the results to the population of the sport event spectators and should be adhered to regardless of the data collection procedure selected (Crompton, Lee, & Shuster, 2001). Care must also be taken in assigning survey personnel to different areas of the event site. An on-site survey should be conducted at neutral locations throughout the event site to avoid biased results. For example, if an economic analysis of a sport event held in an urban area produced a disproportionate number of surveys conducted at an accommodation area where more non-residents congregate during the event, results would be biased upwards in terms of percentage of spectators who are visitors. Therefore, researchers seeking unbiased results should choose neutral locations for both residents and non-residents to collect data.

Selection of days and hours of operation to sample event spectators should be done at random to control for sampling bias and assure generalizability of results to the total population of spectators. For example, if a disproportionate number of surveys were conducted on weekends when out of town visitation tends to be higher, results would be biased.

Several scholars have raised the issue of trustworthiness regarding previous research (Crompton, 1994; Lee, 2001; Preuss, 2005; Rascher, 2002). Since research in this area often forms the basis for significant investment from both public and private sectors, the research must be of the highest integrity. In an effort to achieve a higher level

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of integrity, increase the trustworthiness, and bring accuracy and consistency to the study

of sport-related economic impact studies, a set of specific guidelines have been provided.

Based on the process followed for this study, the following guidelines are recommended

for researchers who want dependable results. Figure 9 presents a modified process based

on the findings from this study. The ten step process is illustrated for future economic

impact research related to sporting events.

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Figure 9.

Economic Impact Study Guidelines for a Sport Event

START

Step 1
Select an event

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Step 2
Decide time duration

↓

Step 3
Define impact region

↓

Step 4
Develop a framework

↓

Step 5
Design instrument

Step 6
Decide data collection strategies

↓

Step 7
Identify subjects

↓

Step 8
Identify multipliers

↓

Step 9
Determine leakage

↓

Step 10
Identify pure impact

END
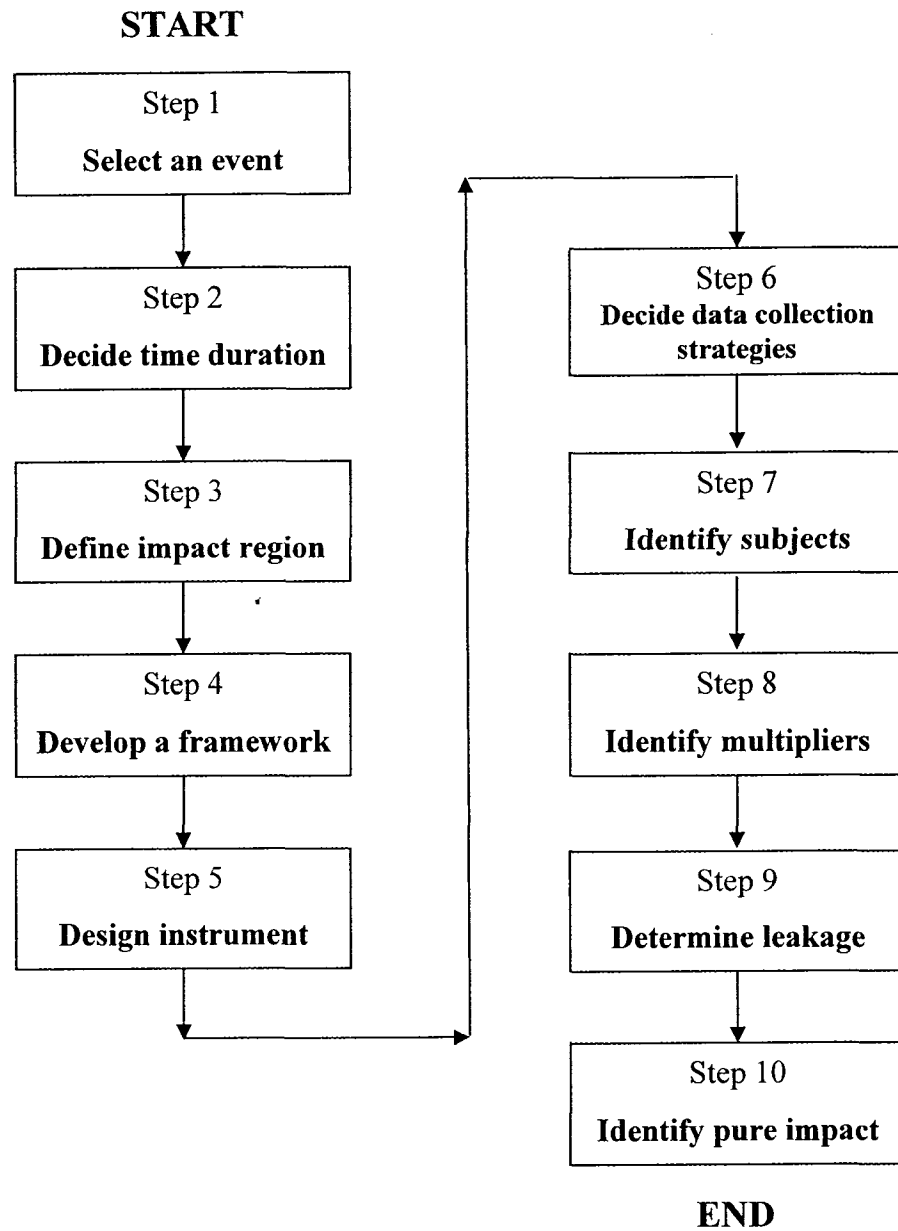
Note. Modified from "Conducting Economic Impact Studies of Recreation and Parks Special Events" By Turco, D. M. and Kelsey, C. W. 1992 Washington, DC: National Recreation and Park Association, p.40.

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Information generated from this study's model can be used by other sport event managers to estimate economic impact and to analyze the cost effectiveness of that event so that the marketers can evaluate the success of their marketing efforts. This study's model has particular value in tracking the demographic origin of spectator groups and determining their expenditure patterns on the event site and in the adjacent local economy. The 2006 U.S. LPGA KOLON-Hana Bank Championship was the first competition after the title, sponsors, and event site were changed from CJ Nine Bridge Classic. The results and information found in this study's model can be used as a baseline for future events that are going to be held in the same city for repeat years.

Studying the effectiveness of event promotional messages targeted to select demographic markets may also be needed. Additionally, return on investment (ROI) ratios can be established by comparing the costs to promote the event in a geographic region with the spending accruing to the event organizers from targeted spectators. The U.S. LPGA KOLON-Hana Bank Championship will be held at the same cite for the next four years. In this regard, the ROI would be a significant factor for golf event marketers and organizers to utilize when they consider altering the host city for future U.S. LPGA Championships that would be held in a different city after four years. Therefore, a longitudinal study for this event is strongly recommended.

The IMPLAN system is recommended to determine the indirect and total economic impact of future U.S. LPGA KOLON-Hana Bank Championships. The Interindustry analysis table with the Input Output analysis system used in this study is less expensive than building a complete primary data model, while allowing for the greater accuracy of primary data collected to be entered into IMPLAN for the sectors of

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interest. However, the Interindustry analysis table with the Input Output analysis is complicated and time-consuming when applying the multipliers for calculating total economic impact. Organizers of smaller events may wish to use an aggregate output multiplier figure generated by government economists for the region under study, such as RIMS II, or LOCI, or develop an output multiplier range to compute total economic impact.

Significant tax revenues accrued to the local governments of Gyeongju city where 2006 U.S. LPGA KOLON-Hana Bank Championship was held. Economic impact studies of special events should attempt to assess the tax revenues attributed to the event and returned to government units. Such findings may be of particular use to event organizers as a bargaining tool when seeking financial support for their activities or to acquire service cost discounts from government agencies. Furthermore, this economic gain may be the deciding factor for the future provision of these staged tourists attractions.

When calculating direct economic impact as a result of the 2006 Championship, the leakage such as non-local surtax was not put in the total direct economic impact. Economic impact researchers should take into account revenue leakage. Failure to adjust for this lost revenue will lead to a gross overestimation of total direct economic impact figures. Similarly, operating costs for prize money awarded to non-resident players should be deducted from direct operating expenditure totals.

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APPENDIX A

Panel of Experts

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Panel of Experts

Translation (into Korean) and content validity

Kim, Ae Rang, Ph.D. Associate Professor
Department of Sport Management
Tong Myoung University, Busan, Korea

Kim, Hyun Duck, Ph.D. Assistant Professor
Health, Physical Education & Sport Sciences
Arkansas State University, Jonesboro, Arkansas

Back-translation (into English) and content validity

Lee, Choong-Ki, Ph.D. Associate Professor
College of Hotel and Tourism Management
Kyoung Hee University, Seoul, Korea

Lee, Soon Hwan, Ph.D. Assistant Professor
Department of Human Performance
Minnesota State University, Mankato, Minnesota

Content validity

Oh, Man Won, Ph.D. Professor
Department of Exercise & Sport Science
Jeju National University, Jeju, Korea

Ryu, Ji Hoon, Vice Chief
Department of Sport Marketing
Diamond Ad Ltd., Seoul, Korea

Translation and back-translation (into Japanese and English)

Misato Yoshikawa, Doctoral Student
Communication and Journalism
University of New Mexico, Albuquerque, New Mexico

Asako Nobuoka, Doctoral Candidate
Department of Education (Teaching English as a Second Language)
University of New Mexico, Albuquerque, New Mexico

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APPENDIX B

Letter to Experts

Letter to Experts

October 1, 2006

Dear................

I am a doctoral student at the University of New Mexico in the department of Physical Performance and Development with a concentration in Sport Administration. I am conducting an economic impact study of a sport event as partial fulfillment of my doctoral degree.

In October, 2006 the KOLON-Hana Bank Championship hosted by the U.S. LPGA will be held on Gyeongju, Korea. As reflected in the title of my study, my intent is to ascertain the economic impact to the Gyeongju local economy resulting from the 2006 KOLON-Hana Bank Championship. More specifically, the study is designed to measure direct and indirect economic impact on the Gyeongju economy as a host for this event, whether on-site and off-site expenditure differ significantly when controlling for group size and number of visits, and the extent to which the image and awareness of the hosting city is affected by the event (See the research questions enclosed).

To determine the answer to these questions, I have a questionnaire derived from several related studies to be answered by those who attend the event. As part of the questionnaire development process, I need your help to determine content validity and to be sure the appropriate questions are being asked properly. Toward this end, I am writing to ask if you would review the enclosed questionnaire for its validity of its intended purpose.

Through the careful review of the questionnaire, you might consider whether the individual items adequately represent the domains of the constructs in terms of wording, clarity, format, and adequacy. In other words, you will conduct a structured review of each item on the questionnaire to ensure their content relevance and content repetitiveness. If confused, unclear, or inadequate items are found, the researcher will edit and modify based on your recommendations.

I have enclosed a form for you to fill out along with a self addressed stamped envelop to be returned to me. I am asking that the material be returned to me no later than October 22, 2006. Please feel free to call or email me should you have any questions.

Telephone: (11) 111-1111
E-mail: abcdefg@hijklmn.com

Thank you

Sincerely,

Hongbum Shin

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APPENDIX C

Spectators Cover Letter

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Spectators Cover Letter

October, _____, 2006

Dear Spectator,

This letter is in regards to a study I am conducting at the University of New Mexico in the United States to assess the economic impact of a sporting event on the local economy as partial fulfillment of doctoral degree, with the advisement of Dr. David Scott, Associate professor of the Department of Sport Administration.

You have been selected to participate in this study because you have been recognized as a spectator of this golf event. I assure you that there will be minimal risk involved in responding to this questionnaire. Your answers will be confidential and will not be released individually to anyone under any circumstance. Please understand that your survey responses will be used and reported only as group data for this study. You can choose whether to participate in this study or not, and refusal to participate will involve no penalty or loss of benefits to which you might otherwise be entitled. However, I strongly believe your answer will help assess the economic impact of this golf event on Gyeongju economy. Your participation would be sincerely appreciated.

After you read this letter, please complete the questionnaire. It will take you approximately *ten minutes* to complete. After you complete it, please put the questionnaire in the *designated boxes* which are placed *in front of the score board and in the Club house*. The researcher will consider you are participated in this study if you answer the questionnaire.

If you have any questions or concerns regarding this survey or this study, please feel free to contact the researcher at (11) 111-1111, abcdefg@hijklmn.com, Dr. David Scott (Department Chair) at (222) 222-2222, hijklmn@abc.edu, or the Institutional Review Board at the University of New Mexico, 1717 Roma NE, Room 205, Albuquerque, NM 87131, (505) 277-2257, or toll free at 1-866-844-9018.

Thank you very much for your prompt response and cooperation with this study.

Hongbum Shin
Doctoral Candidate
Department of Sport Administration
University of New Mexico, U.S.A.

APPENDIX D

Questionnaire

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2006 KOLON-Hana Bank Championship
The Mauna Ocean Country Club, Gyeongju, Korea
Economic Impact Survey

1. Are you a resident of Gyeongju?

☐ Yes (If yes, skip to question 11)   ☐ No

2. If No to question #1, in which of the following areas do you reside?

☐ Seoul   ☐ Kyounggi   ☐ Kangwon

☐ Choongchung   ☐ Kyoungsang   ☐ Jeolla

☐ Other Country *(Please, specify)*_____

3. What is your _one main reason_ for visiting Gyeongju?

☐ Attend 2006 KOLON-Hana bank Championship   ☐ Visit friends/ relatives

☐ Vacation (Tourism)   ☐ Business

☐ Conference/ Convention   ☐ Shopping

☐ Other *(Please, specify)*_____

4. How many people, including yourself, are in your visitor group? _____people

5. How did you travel to Gyeongju?

☐ Plane   ☐ Train   ☐ Car

☐ Bus   ☐ Other_____

6. How many nights in total do you intend to stay in Gyeongju?

☐ Not staying   ☐ One night   ☐ Two nights   ☐ Three nights

☐ Four nights   ☐ Five nights   ☐ More than five nights

7. How many days (times) will you or did you attend the 2006 KOLON-Hana Bank Championship

☐ One day   ☐ Two days   ☐ Three days

8. Where are you staying overnight in Gyeongju?

☐ I am not staying overnight   ☐ Hotel/ Motel/ Inn

☐ Private residence   ☐ Campground (RV/ tent)

☐ Home of family or friend   ☐ Other _____

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9. Please estimate the amount you and your immediate travel party will spend and have spent *off the event site* (outside of the Mauna Ocean Country Club) on Gyeongju in each of the following categories listed below.

■ Lodging (hotel, motel, campground, etc) $_____

■ Transportation (plane or train ticket, rent car, parking,
                  gas, public transit, taxi, etc) $_____

■ Meals (restaurant, snack bar, etc) $_____

■ Grocery & liquor stores $_____

■ Shopping (gifts, clothing, memorabilia, souvenir, etc) $_____

■ Entertainment (drinking, movie, night club, etc) $_____

■ Sightseeing/ attractions (tours, museums, exhibitions) $_____

■ All others (*not* listed above) $_____

10. Please estimate the amount you and your immediate travel party will spend and have spent *on the event site* (inside of the Mauna Ocean Country Club) in each of the following categories listed below.

■ Admission (ticket) $_____

■ Food (restaurant, club house, etc) $_____

■ Beverages (alcoholic, non-alcoholic, bars, vendor) $_____

■ Souvenirs (LPGA related gifts, clothing, etc) $_____

■ All others (*not* listed above) $_____

11. Has the "*PERCEPTION* (visibility & awareness)" of Gyeongju been improved through this golf event compared to before you visited here?

☐ Not at all   ☐ Little   ☐ Somewhat   ☐ Much   ☐ Great Extent

12. Has the "*IMAGE*" of the Gyeongju been enhanced through this golf event compared to before you visited here?

☐ Not at all   ☐ Little   ☐ Somewhat   ☐ Much   ☐ Great Extent

13. What is your gender?

☐ Male   ☐ Female

14. Which age group are you in?

☐ 20~29 yrs.   ☐ 30~39 yrs.   ☐ 40~49 yrs.

☐ 50~59 yrs.   ☐ 60~69 yrs.   ☐ 70 yrs. and over

15. How much is your annual household income?

☐ Under $30,000   ☐ $30,000~$39,999   ☐ $40,000~$49,999

☐ $50,000~$59,999   ☐ $60,000~$69,999   ☐ Over $70,000

Thank you for completing the questionnaire.
Please put this in one of the designated boxes placed in front of the score board and in the Club house.