

## PROJECTED ECONOMIC AND FINANCIAL BENEFITS OF THE 2017 SUMMER UNIVERSIADE GAMES

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*In Western society, sport economic impact studies are often utilized to showcase the financial benefits for hosting mega sport event or to justify the spending for entering bids or covering infrastructure construction costs. This study projected economic impact of the 2017 Summer Universiade by examining the Taiwanese (the hosting country) residents' willingness to attendance and estimated individual spending (consumption) while attending the games. Through a series of convenience sampling surveys from February to April, 2017, 1,021 respondents (53.5% males and 45.3% females) reported their potential personal spending, willingness to attend the events, and preferred ticket price range. The results indicated that 61.5% of respondents expressed their willingness to purchase tickets. Projected cost for each individual potential game attendee was about \$58 USDs. The ideal general event ticket price should be set around \$13.5 USDs. The estimated total revenues based on one million game attendees' (including local and non-local Taiwanese residents and foreign visitors) personal spending reached \$67-million USDs. This revenue figure was projected to generate an economic impact of \$154.1-million USDs. The researchers further compared the obtained figures with the finding of past sport economic impact studies and addressed the significance and rationale for selecting a modest impact multiplier for the calculation. Additional recommendations are offered in using impact study results to plan strategies for boosting tourism and winning bids for future events.*

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Keywords: economic impact, 2017 Summer Universiade, sports events

### INTRODUCTION

In 1971, the Taiwanese government (the Republic of China) lost its seat in the United Nations. Since then, Taiwan has sought for various opportunities and platforms to gain its political spotlight and escape from the political oppression from China. One of the great ways that Taiwan gained international recognition and identity has been to host or compete for the international sport events sanctioned by the International Olympic Committee (IOC). Fortunately, Taiwan was able to host two recent major international sport events, the 2009 World Games and the 2010 Deaflympics. Furthermore, the IOC granted Taiwan the opportunity to host the 2017 Summer Universiade (also known as World University Games), the highest level of international events that has ever been hosted in Taiwan.

Hosting a mega international sport event (i.e., Olympic Games or FIFA World Championship) can be an effective method to obtain political spotlight and publicity (Jeong &

Faulkner, 1996; Ritchie & Lyons, 1990; Ritchie, Shipway, & Cleeve, 2009; Swan, 2012). Nevertheless, the preparation for the event is a daunting task for any host country to endure. In general, the host country usually spends on exorbitant amount of money on facility construction and infrastructure in the hopes that payout would return through incomes generated from tourism, event-related sales, and personal spending (consumptions). China, South Korea, South Africa, and Brazil are all great examples of countries that made significant investments in construction for mega sport games to earn international recognition and awareness (Jeong & Faulkner, 1996; Ritchie, Shipway, & Cleeve, 2009; Wolff, 2015). However, it is often believed that those events would eventually help boost the host country's tourism and local economy. Thus it is a worthwhile endeavor for the nation to invest in those sport events (Kim & Petrick, 2005; Kim, Gursoy, & Lee, 2006; Madden, 2002; Candrea, & Ispas, 2005; Swan, 2012). According to Kim and Petrick (2005), more people tend to emphasize the economic benefits associated with mega-events, and care less about the social and cultural implications that those events may bring. However, some scholars have criticized that economic benefits of those mega events are miniscule and are often exaggerated (Kasimati, 2003; Szymanski, 2011).

#### A. Economic Impact Studies and Their Implications

American scholars have typically held the belief that major sport events would bring economic benefits to host cities. Events such as the National Football League (NFL) Super Bowl, the National Basketball Association (NBA) All-Stars Games, the Major League Baseball (MLB) All-Star Games, and the National Collegiate Athletic Association (NCAA) Tournaments can easily produce \$10 to \$100 millions of dollars of economic impact to the host cities (Atlanta Sport Council, 2007; Baseball Almanac, n.d.; Berr, 2015; Davidson, 2015; Schrock, 2013; Matheson & Baade, 2004). Generally, civic boosters claimed the Super Bowl had an impact of \$300 to \$400 million on its host city's economy (Matheson & Baade, 2007).

In North America, economic impact studies are often utilized by sports franchises or city councils as a means to justify public subsidies for covering stadium construction costs. Another popular form of utilization of economic impact studies is to entice cities to host sport events for boosting the local economy (Baade, Baumann, & Matheson, 2008; Matheson, & Baade, 2004; Nebbling, 2002; Swan, 2012). This is the key rationale that explains the creation and formation of numerous post-season college bowl games (Leeds & von Allmen, 2014). Using Nokia Sugar Bowl as an example, it was estimated at least \$13 USDs had been spent by each of the onsite 78,344 spectators on food and drink (Waddell, 1997). That was a record-breaking sales figure (topping \$900,000 USDs) in food and drink for college bowl games.

According to the Federal Highway Administration's report (2008), personal spending estimation of direct in-event revenues for all sports and cultural activities were about \$40 billion annually in the U.S. If the direct outside-of-event spending and secondary economic effects were included, the total economic impact could reach \$164 billion. Among the sports sector, the economic impact of the major four professional team sports (NFL, MLB, NBA, and National Hockey League) was about \$60 billion. However, the economic impact of college sports was far smaller at \$6.7 billion. A popular belief is that college football games are strong economic contributors to the local campus communities by increases in jobs, personal per capita income, and economic growth, despite some scholars not finding any statistical evidence on this notion

(Badde et al., 2008). Badde, Baumann, and Mathenson (2007) closely examined how football and basketball games of the University of Florida impacted the local economy of Gainesville, Florida. Although football could yield a modest gain of two to three million dollars per home game, these events still produced no statistically significant impact despite the increase in taxable sales.

From a global perspective, economic impact assessments are now considered by many cities as a significant tourism strategy (Gratton, Dobson, & Shibli, 2010). More studies have been done to offer a diverse view on participant-based sports tourism events and cultural activities (Candrea & Ispas, 2005; Cheung, Mak, & Dixon, 2016; Daniels, & Norman, 2010; Herrero, Sanz, Devesa, Bedate, & del Barrio, 2006). Different types of economic impact studies could also be found for horse racing, automobile racing, art and craft festivals, and beer festivals (Baade, & Matheson, 2000; Isidore, 2016; Giedeman, Isely, & Simons, 2015; Herrero, et al., 2006; Tovar, 2017; Upright, Smith, Larson, & Gibson, 2011). Those studies provided comparisons of visitor expenditures across different types of events, thus helping to analyze trends regarding sport tourism event attendance, expenditure rankings and the need for complementary activities in maximizing the effectiveness and impact of sports initiatives.

Typically, scholars used information such as estimated personal spending (consumption) generated by the event, and then calculated the direct effect by multiplying the selected multiplier and attendance (Author, 2016; Herrero, et al., 2006; Chen, Salazar, Vanover, & Stefanini, 2011). Additional required information for conducting a good economic impact study includes investments in new equipment and facilities (Herrero, et al., 2006; Chen, et al., 2011). The use of sports economic impact studies for soliciting public sector funds and boasting events' financial gains are prevalent and convincing. Literature also stresses various flaws and concerns regarding the accuracy of those studies. The estimations of events' actual impact are often inflated and manipulated by adopting overrated sales multipliers and incremental multiplier coefficients, including local spectators, claiming total instead of marginal economic benefits, and omitting opportunity costs (Crompton, 1995; Eschenfelder & Li, 2007; Lee, 2008).

It is hard to imagine Mr. Michael Berry's statement (the President of Kentucky Derby Festival) that every dollar spent during the festival will yield an impact of \$22 U.S. dollars (USDs) for the community (Tovar, 2017). This means that the projected economic impact can be 22 times larger than the revenues produced by the event. The overpromising economic impact studies further convince skeptical cities to invest in new stadiums with the goal of hosting future Super Bowls. In reality, the Super Bowl only contributes approximately 25% of the \$300 million projected impact to host economies (Matheson & Badde, 2007). This means the actual economic impact should be around \$75 million realistically. The wide variability in benefits and difficulty in predicting actual benefits make people wonder whether the economic impact studies are just sophisticatedly "fudged" mathematical games.

It is noted that the spending for stadium construction and other infrastructure often exceeds the actual incomes that the sports events may generate. The report indicated that Russia spent over \$50 billion USDs for its Winter Olympics (Riet, 2014). Critics often wonder how Russia was willing to pay such exorbitant cost, because according to the projection of Vancouver

Winter Games in 2010, the economic impact would only be as high as \$8.4 billion USD (Nebbling, T. (2002).

## B. Economic Benefits of International Sports Events

Many mega international sporting events, such as Summer and Winter Olympic Games and FIFA World Cups, draw billions of fans and spectators. Many countries are committing significant funding and efforts to earn the bid to host such events. The 2010 FIFA World Cup drew 373,000 actual visitors with an economic impact of R93 billion (about \$12 billion USD) (FIFA, 2010). The London Olympics claimed to have an economic impact of GBP 9.9 billion after the game; and the impact would grow to GBP 16.5 billion by 2017 (Olympic.org, 2013).

Not many countries or cities get the chance to host a flagship international sports events. But there are several other lesser scale regional and intercontinental sport competitions taking place that are counting on cities (or countries) to host. The author and colleagues made an attempt to gather information on economic impact, revenues, ticket cost, and estimated number of participants of a few of those types of sport events (Chen, Johnson, Teater, & Miller, 2010). Table 1 depicts the information concerning economic impact and participation of a few international events including the 2010 Winter Olympic Games and the FIFA World Championship. Based on the aforementioned report, regional international sporting events, such as the Asian Games and Commonwealth Games, still recorded great values in economic impact (topping \$160 million USDs) as well (Chen et al., 2010; China Economic Review, 2010; Press Trust of India, 2010). The City of Lexington, Kentucky, had its taste for hosting the noble World Equestrian Games (WEG) in 2010. It was the first time that the WEG event had been hosted outside of Europe. The Games created an economic impact of approximately \$167-million USDs to the city (Alltech FEI World Equestrian Games, 2010); however, this figure was not considered as large due to its small amount of total participating athletes (about 800). In general, an event with a small amount of total participants usually draws a less amount of foreign visitors to the hosting country, thus the event will generate a lesser degree of impact. Both the organizing committee and City of Lexington were very pleased with the collaborative experience. The WEG is expected to return to Lexington in 2022. In general, American cities are more likely to receive great economic benefits from hosting sports events because cities normally do not need to spend as much as other nations to build expensive facilities. The construction costs for facilities and infrastructure are the primary reasons that cause the event hosts to lose money.

Table 1. Summary Information of Various International Sport Events in USDs (Chen, Johnson, Teater, & Miller, 2010)

Event	Number of Participants & Nations	Economic Impact (in USD)	Significant Incomes and Costs (in USD)	Ticket Price	Other Notes
(International Events with Mega Economic Impact and Large Participation)					
FIFA World Cups	1,000 athletes (32 nations)	\$12B	\$169M in security, \$300M for construction	\$17-750 (136-6,000 Rands)	3.1M total attendees
Commonwealth Games	14,000 athletes trainers & coaches (45 nations)	\$4.98B	\$2.4B (revenues) \$2.6-6.8B (Costs)	\$950: Opening ceremony	Low quality of security and dorms
Vancouver 2010 Winter Olympics	2,662 athletes (82 countries)	\$1.3-2.7B to \$2.1-8.4B (from two studies)	\$1.3B operation costs & \$1.0B revenues	\$25-\$100 general	
16th Asian Games	7,987 athletes, 4,500 officials, 45 countries	About \$1.3B	US\$420M (cost) and US\$450M (revenues)	\$1,000: Opening ceremony	1.5M volunteer applications for 50,000 spots
(International Events with Moderate Economic Impact and Participation)					
FIBA World Championships	430 players (24 countries)	About \$300M	\$120M total revenues (\$50M from TV and sales)	\$15 in general	350,000 attendees hospitality program
FEI Alltech WEG	800 athletes & 750 horses (62 nations)	\$167M	\$20M sponsorship fees	\$25-\$100 Over \$200 for ceremonies	NBC televised 6.5 hours, 507,022 attendees
International Gay Games	Over 10,000 athletes and 2,000 artists, musicians & volunteers	\$60-80M		\$30 Closing Ceremony ticket price	10,000 at the closing ceremony.

In terms of Taiwan's experience in hosting international sport events, the 2009 World Games in Kaohsiung was the first high-level International Olympic Committee (IOC) sanctioned event that had ever taken place. The work of Chen, Dick, McNabb and Tseng (2010) is one of the rare pieces that examines the financial and economic aspects of that historical event. Over 5,900 athletes from more than 100 nations and approximately 30,000-50,000 foreign tourists visited Kaohsiung during the 2009 World Games. Ticket sales for the competitions had exceeded \$2-million USDs. Total spending of all participants and attendees were about \$11-million USDs. According to Sun's (2010) study, the two highest categories among attendees' expenditures were shopping (about \$3-million USDs; 27%) and food and beverage (\$2.3 million; 21%).

### C. About the Summer Universiade (World University) Games

The Universiade Games (also known as World University Games) is an international sporting and cultural festival that is organized by the International University Sports Federation (FISU). The term, "Universiade" is a combination of the words "University" and "Olympiad." According to the official website of FISU (n.d.), the games take place every two years in different host cities. It is the second largest multi-sports competition only behind the Olympic Games. The Summer Universiade consists of 11 compulsory sports and up to 3 more optional sports chosen by the host country. The summer games allow student-athletes worldwide to celebrate with the host city in a true spirit of friendship and sportsmanship in 12 days. Both of the last two Summer Universiade Games had more than 10,000 participants from more than 140 countries (Gawanju 2015, 2015). Many volunteers are also students who are generally of the same age as the athletes. The events were broadcasted by more than 100 TV channels.

According to Tyler (2015), many years following Sheffield, England's hosting of the 1991 Summer Universiade, the city still receives continued economic impact from visitors. Subsequently, the local government poured additional investments in sports and leisure activities. More than 16,000 sports participants still regularly use the facilities that were built for the events. The City of Taipei certainly would have expected another record-high number of participatory countries and student-athletes in 2017. With more than 30,000 foreign visitors coming to Taiwan during those Summer Universiade Games, it was certain to promote tourism and stimulate the local economy. According to Chen, Lin, and Hung (2015), they discovered that a high percentage of local citizens (77.6%) supported the city in hosting the event. It was anticipated that young males and individuals with regular exercise habits would be the primary core spectators for the events.

### D. Purpose and Significance of the Study

As the host city of the 2017 Summer Universiade, the City of Taipei obviously had numerous goals to achieve, whether it was to catapult Taiwan's international image and identity, or profit through tourism and economic growth. Apparently, scholarly research on the economic

and financial benefits for hosting a major international event in Taiwan is rarely conducted, since Taiwan lacks the opportunity to host the events. The past Taiwanese literature related to the Summer Universiade Games often focused on themes such as management of facilities, enhancement of participatory athletes' performance, and use of volunteers (Chen & Chen, 2013; Cheng & Chang, 2009; Chiu et al., 2014; Peng, 2012; Tseng, Wei, & Liao, 2012). The researchers attempted to capitalize on this opportunity by investigating young Taiwanese residents' perception of economic impact and financial benefits that the 2017 Summer Universiade may have generated. The results of this study may be used to justify whether public funding was properly spent. Additionally, benchmarks would also be established based on collected information in areas such as: (1) total public spending (or budget) for hosting the event, (2) estimation of revenue and economic impact generated through advertising, sales, and tourism, and (3) willingness to attend and estimated consumption of individual game attendees (either as spectator or volunteer).

Although it is encouraging to see that Taiwan had gotten the opportunity to host an international sports event, it is important to know that events like Summer Universiade Games and World Games are still considered as relatively small and lower-tier events as compared to Summer and Winter Olympics and FIFA World Cups in terms of the number of participants and spectators. There are far more economic impact studies focusing on those mega events. However, similar types of studies are less available, denoted to the smaller scale international sport events (like the Summer Universiade Games). In another words, there are not a lot of benchmark figures for the developing countries to refer to while trying to prepare or bid for future events. Economic impact studies are more likely to be conducted when the events are held in the Western hemisphere. Previously, in 2013, Kazakhstan had the opportunity to host the Summer Universiade Games. A recent study presented the results of economic and social development that those Games brought to the city of Kazan and the Tatarstan Republic (Bagautdinova, Mingazova, Zamaletdinov Panasyuk, Safiullin, Gafurov, Glebova, Zotova, Kadyrov, & Suslova, 2015). Interestingly, the host countries of the last five Summer Universiade Games all claimed that they financially broke even for hosting the event, only three of the countries reported a simple amount of total incomes generated by the games (Chinese Taipei University Sports Federation, 2012). There is no specific information on the break downs of incomes derived from tourism and local spending. The researchers believe the information collected in this study would help broaden the scope of economic benefits that a medium-size international sports event may contribute to a host nation. Our study would specifically separate and examine the spending of the foreign visitors to ensure the accuracy of the economic impact calculation and avoid the traditional mistakes (e.g., counting the spending of local and foreign visitors together) according to the experts (Crompton, 1995; Eschenfelder & Li, 2007). Hopefully, the results of the study would provide additional insights on the economic benefits of mid-size international sport events, and give prospective countries accurate expectations for preparing the event.

## **METHODOLOGY**

### **A. Participants and Procedure**

In order to project the economic impact of Taiwan's 2017 Summer Universiade Games, the authors conducted a series of field surveys from mid-February to late April of 2017 in five different major cities (Taipei, New Taipei, Kaohsiung, Tainan, and Changhua) in Taiwan. Participants were mainly recruited in public areas such as parks, basketball courts, bus and train stations, libraries and six different university campuses. The authors picked seven days within the aforementioned data collection timeframe to solicit participants by adopting a convenience sampling method. Each survey session of the day lasted about five hours. Participants were randomly approached by volunteer interviewers and voluntarily chose to respond to the survey after being given the instructions and their rights for participation. A total of 1,021 respondents (546 males: 53.5%; 463 females: 45.3%) completed our economic impact survey. A high majority of the participants (85%) were under 25 year-old adults (at least 18 years old). Since these events were genuinely promoted to target young adults and university students, the researchers were naturally drawn to the young respondents. In general, they were more likely to accept our invitation to complete the survey. About 36.5% of the participants claimed that they were residents of Taipei City.

To thoroughly examine the economic and financial benefits of hosting the 2017 Summer Universiade Games, the researchers further collected news reports and relevant articles to establish benchmark figures in various areas such as: (1) total public spending for hosting the event, (2) estimation of revenue generated through advertising, sales, and tourism, (3) residents' expectation for the events, and (4) willingness and level of residents' involvement in the games (either as a spectator or volunteer).

### **B. Instrumentation**

The research framework for measuring direct spending for an event were based on the studies of Chen, Salazar, Vanover, & Stefanini (2011). The self-created survey questionnaire included nine specific items that covered content areas such as: (a) willingness to attend the events and purchase tickets and merchandised products (three items), (b) estimated personal spending and ideal ticket price for the event (four items), (c) estimated number of companions also attending the game, and (d) demographic information concerning gender, age, and residential status. In general, personal spending for the event covers spending in five areas: food and beverage, lodging, transportation, retail shopping, and miscellaneous cost. Those costs are common categories used for estimating economic impact of an event (Isidore 2016; Mullins, Hardy, & Sutton, 2007; Nebbling, 2002; Patton, 2011).

The acquired estimation of personal spending was useful information that helped authors calculate potential direct-injected (short-term) economic benefits that the Summer Universiade would bring to the city. This calculation method had proven to be an easy and logical method to estimate economic impact provided by potential fans and tourists (Chen et al., 2011). The detailed results of various aforementioned content areas were listed in Table 3 of the Results.



The original survey items were composed in English. The primary author translated the original survey into Chinese. It was reviewed by a panel of Taiwanese sport management faculty ( $n = 4$ ) who were fluent in both English and Chinese to ensure the essence, meaning, and content validity were maintained through the translation process. A pilot test for the reliability was performed in early February of 2017 with 40 Taiwanese college students who went through the test and re-test trials. The authors obtained the approval from the Institutional Review Board of each institution involved concerning the contents of survey and training of volunteer interviewers before administering the survey.

### C. Statistical Analysis

Descriptive analyses were performed to identify the key demographic information of the participants, and their willingness for supporting and attending the events. The researchers also performed t-tests and analyses of variances to examine if there were any significant differences that may have existed in game attending willingness and personal spending based on demographic variables (i.e., gender, age, and residential status). Two different sets of projections of economic impact were calculated based on the collections of estimated individual spending of potential event attendees. Information that was utilized for the economic impact calculation also included estimated total number of domestic event attendees and foreign visitors (i.e., athletes, coaching staff, and their family members and friends). In the Results section, the selection of coefficient multipliers for calculating direct-injected economic impact were further discussed. Processes of economic impact calculation were illustrated in Table 3.

## RESULTS

In general, the participants expressed a positive attitude about attending the 2017 Summer Universiade Games physically. Nearly 61.5% of participants expressed their willingness to purchase tickets. There were also more than 54% of potential attendees interested in purchasing licensed merchandises or souvenirs. Each attendee stated they would likely be accompanied by an average of 1.61 additional visitors. Projected cost for each individual potential game attendee was about \$58 USD. Table 2 listed the breakdown of each individual spending in five specific categories of cost. This estimation was concluded based on the projected personal spending of all 1,021 local residents (36.5%) and out-of-town (62.5%) respondents. Participants indicated that the ideal general event ticket price should be set around \$13.5 USDs (\$400 NT).

*Table 2.* Estimation of Personal Spending while attending the events

Category	Amount	Percentage
Food and beverage	\$239 NT (\$8 USDs)	11%
Lodging	\$849 NT (\$28.3 USDs)	39%
Ticket	\$430 NT (\$13.5 USDs)	20%
Transportation	\$327 NT (\$11 USDs)	15%
Retail shopping	\$285 NT (\$9.5 USDs)	13%
Others	\$21 NT (\$0.7 USDs)	1%
Total	\$ 2,151 NT (about \$71.5 USDs)	100%

### A. Projection of Economic Impact

Before getting the chance to host the 2017 Summer Universiade, the 2009 World Games was the last large international sports event that took place in Taiwan. The total visitors of World Games were 910,000 in counts (Joloveho, 2009). It was quite reasonable to assume the greater-scale Summer Universiade would draw more than one million visitors. So the authors set the total number of local Taiwanese visitors at one million in counts during the 12-day event. If each individual spent about \$43 USDs daily while attending the event (including all categories but lodging listed in Table 2), then the total event revenue (from local visitors) would reach around \$43-million USDs. The authors assumed this figure is reasonable and conservative, because Taiwan is such a small island that local visitors probably would not need to pay for lodging to attend the event.

As for the foreign visitors, each individual would spend a minimum of \$960 USDs (\$80 USD per day) during the event. This figure is quite low because the hosting country charged a minuscule rate for their meals and lodging cost. Many of the visitors were able to stay in the free dormitories and athletes' villages provided by the Organizing Committee. If the number of the foreign visitors was set at 30,000, then the total event revenue coming from this group would be \$28.8-million USDs. So total revenue from all visitors would be about \$67-million USDs, thus yielding an economic impact of \$154.1-million USDs. Table 3 shows the steps of economic impact calculation by using a direct demand-output multiplier. This concise calculation model is very similar to the practical formula suggested by the Economics Department of the Michigan State University (n.d.). The selected demand-output multiplier (2.3) was the figure denoted for the entertainment industry and service businesses in the handbook of regional input-output modeling system (RIMS II) (Bureau of Economic Analysis, 1997). This model is most popularly adopted for calculating economic impact of major sports events (Chen et al. 2011, Eschenfelder & Li, 2007).

*Table 3. Projected Total Visitor Spending and Economic Impact (Unit: US Dollars)*

<p>Step 1: Projected total revenue</p> <p>Total revenue = Local visitor spending + Foreign visitor spending                  = (\$43 per local visitor) x (1,000,000 people) + (\$80 per day per foreign visitor) x (12 days) x (30,000 people) = \$43M + \$28.8M = \$67M</p>
<p>Step 2: Projected economic impact (Michigan State University, n.d.)</p> <p>Economic Impact = (Total revenue) x (the demand-output multiplier) = \$67M x (2.3) = about \$154.1M</p>

## B. Additional Information

The 2017 Summer Universiade Games opening ceremony took place on August 17 in Taipei. There were 7,639 athletes attending the ceremony. This is the second highest number of athlete participation in these Games (Lin-Sung, 2017). The organizing committee also reported that total ticket sales had exceeded \$110-million NT (Sports Center, 2017). These record-breaking figures should offer some financial support for this costly event (the budget is set at \$17.1-billion NT). According to the estimation of Department of Education of Taiwan, the Summer Universiade Games claimed to bring an economic impact of \$11.9-billion NT. (Cheng, Chang, & Peng, 2017).

## DISCUSSIONS AND CONCLUSIONS

The 2017 Summer Universiade Games ran from August 19 to 30 in Taipei. Our study was completed about one and a half months before the actual event took place, so the researchers were able to compare the projected findings with some of the factual data collected after the event. Doing this type of comparison not only helps validate the accuracy of our prediction, but also guides us in composing well-sound recommendations and strategies for handling and bidding future events. The researchers believed that the organizing committee made a very sensible decision on prices of tickets, since the final prices were close to the expectations of participants. Our study revealed that the ideal average ticket price was about \$13.5 USDs (\$400 NT) and about 60% of the participants set their ideal price between the ranges of \$200-\$350 NT (about \$7-12 USD). The final ticket prices for preliminary and final games were set at \$200 NT (\$7 USD) and \$300 NT (\$10.3 USD), respectively (Chen, 2017). The researchers were pleased to learn our finding correctly reflected the actual prices.

Based on the researchers' calculation, the 2017 Summer Universiade could bring an economic impact of \$154.1 million USDs (\$67.4 million in total revenues) to the city of Taipei. Due to the exclusion of the incomes from lodging, our projected economic impact is expected to be less. There were 62% of non-local Taiwanese who might possibly spend money on lodging; however, it was very difficult to know exactly the number of individuals that actually paid for that cost. So the researchers intended to exclude the potential lodging incomes (as large as \$28.3-million USDs) in the projection process. Our estimation was only about 39% of the estimation of Taiwanese Department of Education (\$11.9-billion NT, roughly equals \$ 396-million USDs) (Cheng et al., 2017). In our calculation, the size of direct impact is set around 2.3 times greater than the sales income. This value is slightly smaller than the value (2.7) that was found in Sun's study (2011) in predicting economic impact of the 2009 World Games based on tourism spending. Our multiplier figure of 2.3 indicates that the capture value is set near 0.7 (or 70%). This means every invested dollar for the event, will yield a return of 70 cents locally. For a self-sufficient large capital city like Taipei, this rate of return is quite realistic, because there will be less money leaking out of the region due to tax losses. Any typical economic impact studies in the United States will claim a benefit-cost ratio jumps to 5 to 1 (Commonwealth Economics, 2017). In order to get a multiplier as large as 5.0, the studies must use a relative large capture rate (> 90%).

Our figure is also relatively small compared to many of the major U.S. sports championship events' reported economic impacts. For example, a Super Bowl would typically generate an impact exceeding \$300 million dollars (Matheson & Badde, 2007). It was estimated that each of the NCAA Men's College Basketball Final Four in Atlanta and Dallas generated more than \$200-million dollars for its own state (Atlanta Sport Council, 2007; Schrock, 2013). The annual Kentucky Derby claimed to bring an economic impact of \$215-400 million USDs to the region (Isidore, 2016; Tovar, 2017). Those events normally are shorter in duration, yet with a far greater personal spending in food and lodging. In general, the ticket price of most U.S. sports events are far greater than \$13-15 USDs, thus the personal spending would increase tremendously. Our estimated economic impact did not reach the level of some other regional continental sports events' (i.e., Asian Games or Commonwealth Games) figures, either (see Table 1 for detailed information). The primary reason would be the Summer Universiade Games is still far smaller in scale, and attract less foreign tourists and visitors. The economic impact can be diminished if the events rely only on local residents to attend, because the lodging spending would not be maximized. To ensure the accuracy of the economic impact projection, the researchers purposefully separated the spending of the potential local Taiwanese residents (estimated at one million people) and foreign visitors (estimated at 30,000). Honestly, the researchers thought the Taiwanese Department of Education might have overestimated the figure, since its estimation was about 70% of the event total budget (\$567-million USDs) (Cheng et al., 2017). This somewhat implied that the event would be profitable, when revenues such as sponsorship deals and broadcasting fees are included. The researchers really suspect how the previous Gwangju Summer Universiades generated \$242.1 million Euro Dollar (over \$363 million USD) in total revenues (the impact would be far greater) with less total attendance (Taipei 2017, 2017). We believed that we made a more accurate estimation than the Taiwanese Department of Education did, since we calculated the spending of foreigners and local residents separately. According to many critics' comments, many economic impact studies adopted inflated multiplier, including all visitors' spending, and neglect the potential of opportunity costs (John Locke Foundation, 2017; Michigan State University, n.d.). If possible, the economic impact studies should likely avoid multipliers altogether and focus on obtaining good estimates of visitor spending and its direct effects on the region's economy (Michigan State University, n.d.). A good example of this concept is that the Beijing Olympics specifically reported an operating profit of \$146-million USDs (Burton & O'Reilly, 2009). In fact, it is evident that all economic impact studies adopt a certain type of multiplier model (IMPLAN--Impact Analysis for Planning, CUM--Capacity Utilization Model, REMI--Regional Economic Model, Inc, or RIMS II,) to predict impact (John Locke Foundation, 2017). It may not be fair to claim that this study is error free, since we still adopt an outcome multiplier from a second resource (RIMS II) to apply in this study. However, we attempted to make a more accurate estimation by using a more conservative outcome multiplier (2.3) (which is far smaller than many other available studies), eliminating any unsure income (such as lodging spending), and focusing on spending of non-local citizens. Perhaps, it may be more accurate to describe our study as an economic "significance analysis" since we include the spending of all visitors including both local and foreign visitors as described in the Economic Impact Concepts presented by the Michigan State University (n.d.).

Although foreign visitors were far less in number compared to the local residents, they would generate nearly as much impact as the local residents due to paying for greater lodging

and meal costs and staying for a greater length of time. To some of the scholars and economists (Crompton, 1995; Eschenfelder & Li, 2007), local residents' spending should not be counted as part of the calculation in an economic impact study. If this is the case, then the projected impact would drastically decrease by more than 50% (subtracting 30-million from the total of \$58.8-million). Scholars may argue that sport events add little impact to the mega-sized cities' local economy, because there are more alternative activities and opportunities for spending (Baade et al., 2007). The researchers would like to further reiterate that the small towns or cities would hurt even more, if no sport events are hosted in those places to generate new incomes, particularly when incomes from local spending cannot even be considered as part of the impact (Chen et al., 2011).

Despite the projected economic impact was not as large as other international sports events, the results of this study brought encouraging signs to the potential host cities about bidding for the future events. Game attending interest from our sample was fairly high (about 62%). According to the reported attendance records, numerous events were completely sold out; and more than 87% of all tickets were sold which reflected the enthusiastic support of the fans (Taipei 2017, 2017). Comparing to the sales rate from the Gawanju Games, the Taipei Games had sold 35% more tickets (Sport Center, 2017; Taipei 2017, 2017). This means more than 730,000 tickets were sold. With the amount of tickets sold, the researchers believed our estimation of total attendance counts (set at one million people) for the event was quite conservative. There were many more daily visitors who attended the cultural festivals and celebratory activities for no admission cost during the timeframe of events. Spectators' overwhelming support for the events defied the worries and concerns of many city councilmen about the low attendance. A news release three months prior to the games indicated only 30% of Taipei citizens were interested in attending the game (Yu, 2017). This low figure was quite different from our pre-event findings. The researchers suspected the sample group of that study might have contained a greater amount of older participants (older than age 40) than our study. In a prior study by Chen and his colleagues (2015), they indicated that 77.6% of surveyed Taipei citizens supported the city in hosting the event. The critical issue is whether they would show their support by physically attending the games as well. In order to generate a great economic impact, having a critical mass of attendees is essential. When those individuals spend more money for food, tickets, and licensing merchandises, then the injected spending will boost the impact furthermore. With an attendance record exceeding the organizing committee's expectation, the host city should be pleased with the turnout and financial benefits that it had gained from the Universiade Games.

Obviously, the biggest limitation on the accuracy of our projection was not being able to directly collect the personal spending of actual attendees during the event. The researchers focused only on all visitors' spending that was directly injected to the local economy. Although there are other greater sales multipliers and coefficients to boast about possible ripple effects and potential impacts from future tourism, our simple calculation would not address the ripple effect that might be created by future tourism and employment. Those types of impacts would require several follow-up studies to track down increases in tourists and employment rates. However, if the initial impact from the direct-injected revenue is not large in size, it is likely the additional ripple impact will also be modest.

## A. Recommendations for Future Events

While examining the final financial reports of the last five Summer Universiade Games, other than the missing data from the 2013 Games in China, none of the organizing committees had reported any losses for hosting the events (Chinese Taipei University Sports Federation, 2012). Therefore, it is no surprise that Taipei City was optimistic about the 2017 Summer Universiade Games would bring positive financial gains for the City. The city certainly would look forward to reaping the benefit from this projected \$135-million USDs economic impact. In most of the economic analysis cases, major reasons for the host city experiencing a financial loss are the exorbitant facility construction costs and failure of utilizing built facilities for future events (Lin, 2006; Riet, 2014; Tang, 2016; Tang, 2017). Once the city has the infrastructure ready for the event, it should take advantage of continuously hosting the future events and/or similar events to maximize the use of the facility (Olympic.org, 2013; Tyler, 2015). The researchers strongly believe that the City of Taipei is in a promising position to grow its sports and recreational tourism. The City should attempt to gain international recognition and economic benefits by hosting and bidding for future events. The researchers would love to witness another international sports event taking place in Taiwan soon. Then more future economic impact studies can be conducted during the actual time frame that events take place. This should yield a more accurate personal spending on the events.

Scholars (Chen, 2007; Chen et al., 2015) have expressed the importance of effective marketing to generate more event spectators. There are far more young people who are interested in attending sports events than individuals with an age of 35 or older in this case. Therefore, the researchers assumed it might be logical for the event organizers to target young attendees, the real “bread and butter,” in order to boost ticket sales. However, it is also important to realize that the individual consumption power of young attendees may be slightly lower than the more financially established middle-aged individuals. To maximize the economic impact of an event, the establishment of various levels of ticket prices and the selection of promotional strategies should be closely examined. The findings of past economic impact analyses should provide useful information to the event organizers for making practical marketing decisions. In this study, readers can clearly witness the smaller amount of foreign visitors would contribute nearly as much spending as the local (residential) domestic spectators. This is one of the reasons that mega sports events are so attractive, because large-scale international sports events, such as Olympic Games and Commonwealth Games are more likely to draw foreign visitors. The main problem is that the greater size of the event may trigger a greater construction cost for multiple facilities. The researchers believe a better strategy to reap the financial benefits of the sports events is to host more track and field events and marathons that do not require as much high-cost construction. These events will bring large numbers of foreign athletes and visitors, and keep the event in a central location (around the stadium). There should be more economic impact studies for these types of events in Asian nations. The researchers believe that these findings have demonstrated a great degree of affordability while hosting a large-scale event in the Far East region, like Taiwan. The low daily spending cost for foreign visitors to participate in events can be an attractive point to convince the IOC and other international sports governing bodies to grant future bidding to Taiwan. Rising nations such as Taiwan, Vietnam, Indonesia, and others should take advantage of hosting more of these types of events to boost their local economy and international reputation.

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