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Economic Impact of Hosting Mega Sporting Events

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I hereby recognize and pledge to fulfill my responsibilities, as defined in the Honor Code, and to maintain the integrity of both myself and the College community as a whole.

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Abstract

Using data from 1960 to 2010, the empirical analysis examines the impact of mega games on the hosting country's economy, controlling for socioeconomic and demographic variables. The results suggest that mega games have no statistically significant effects on a nation's economic status. The following discussion section explores the influence of other factors, such as weather and culture, on the economy.

Chapter I

Economic Impact of Hosting Mega Sporting Events- Introduction

When the time comes to choose what country will host a mega-sporting event like the FIFA World Cup or the Summer Olympics, many countries fight for the chance to be the host of one of these mega sporting events. The reasoning behind the countries' desire to host such an event is the common belief that hosting these events have the potential to help stimulate the country's economy in the short-term and long-term. Many politicians advocate their country to host the FIFA World Cup or the Summer Olympics because these politicians believe that hosting such events increases employment through the preparations of the events and hosting one of these tournaments stirs GDP through tourism and other goods and services needed for hosting the event.

In recent years, many economists have been challenging the common belief that hosting a mega sporting event stimulates an economy and many economists have been measuring the real value of hosting an international sporting tournament like the FIFA World Cup and Summer Olympics. Studies have researched that the majority of hosting countries have not found a significant enhancement in their economy from hosting one of the two sporting events, neither short-term or long-term effects. Economists have recently discovered that hosting a sporting event like the World Cup or the Summer Olympics does not stimulate the economy like commonly believed; but, these tournaments have an opposite effect on the economy where researchers found that countries that have hosted the tournament could have had greater economic growth without hosting the event.

The FIFA website details the format where the Federation Internationale de Football Association, or FIFA, World Cup tournament is held every four years and it involves 32 national

teams competing for the trophy to be crowned the best national soccer team in the world, at that period of time. The venue is hosted by a nation where the games are played at different stadiums throughout the hosting country. This tournament involving the 32 national teams is the final phase where there are prior rounds for these 32 countries to qualify for the final tournament. These prior rounds are held in the countries that are trying to qualify for the final tournament. The preliminary rounds last over the three years leading up to the final tournament. In regards to the national team of the hosting country, it gets an automatic bid to the final tournament because the country has the privilege of hosting the final tournament. The final round lasts roughly a month where the hosting country is able to promote its culture and its own country as a whole. Therefore, the study specifically focuses on the hosting country's service sector portion of its GDP and the other variables in the year of the final tournament (FIFA).

Information gathered from Olympic.Org details the Summer Olympics. The Summer Olympics is a multi-sport competition which entails nations to compete against one another to obtain the top medal count. With each competition, there are medals handed out to the competitors in each sporting competition who place from first to third. The tournament is hosted every four years with certain qualifications. The International Sporting Federation, or iF, determines the country's international sporting competition. Individual qualifications are based on the competitor's placing in an international event or the competitor's international ranking. The tournament is held during the months of August and September, every four years, and the venues are held in a city within the hosting country. Since the Olympics is a multi-sport event, there are multiple stadiums throughout the country to hold all the events which include Track and Field, Gymnastics, and Soccer. Also, there is the Athlete Village which is a village built specifically for the performing athletes which is located within the hosting country. So, there are

many different infrastructures built primarily for the specific use of hosting the Olympics. Therefore, the sporting event is not contained to one specific area, but is held within multiple infrastructure throughout the hosting country. (Olympic.org)

The Summer Olympics and the World Cup are two international sporting events that have similar structures where they are both held every four years, the tournaments are two years apart from each other. Both of the tournaments are held during similar times within the year where the Summer Olympics are held during the months of August and September and the World Cup is held in the months of June and July. There is the Winter Olympics which is held every four years in the month of February. However, the Winter Olympics is not within a similar timeframe as the other two mega events so to control for time, therefore the Winter Olympics is excluded from the study.

The purpose of this paper is to analyze the effects of how hosting a mega-sporting event, like the FIFA World Cup and Summer Olympics, have on the service sector ratio of the hosting country's GDP. Specifically, the study will focus on how a hosting country's economic indicators play a role in the impact on a country's service sector ratio by hosting sporting events like the Summer Olympics and the World Cup since 1960 to the most recent events held for both tournaments which is 2012 and 2010, respectively. The study will focus on how the hosting country's population, the language of the hosting country, the government spending of the country, and other variables that may be impacted by hosting the sporting event, which could ultimately affect the country's economic growth. Incorporating hosting country's qualities will help determine whether hosting mega events help certain countries more than others; for example, whether, through the variables studied, countries that have the English language as an official language, and who are hosting a mega event, experience greater economic growth

relative to countries hosting a large sporting event that do not have English as an official language.

The implications of this study is to contribute to the research to determine the economic impacts of hosting large sporting events. By focusing on different indicators than prior work, this study can assist in determining whether certain countries are more impactful by hosting such events than other countries. Also, this study can provide more knowledge to the research that goes in to the selection process of the countries that host these events. By being more informed through the aid of this study, the committees who choose which country will host one of the events for the World Cup and for the Olympics will be able to select a country who will benefit the most by hosting such an event. So, the contribution of this study to prior research can help in the selection process of the countries who host these events where the research can change the common perception of economic impacts of hosting these events and the research can provide empirical evidence to select the best possible candidate to host.

There are two main findings within the study. The first finding involves the connection between hosting the mega events and its effect on service sector of the hosting countries since 1960. Within the regression models, they show that the correlation between the mega events and the service sector portion of the country's GDP is not statistically significant because there is no certainty that the correlation between hosting one of the mega events and the hosting country's service sector portion of its GDP has significance.

The second finding is that those countries that have English as their one of their dominant language and who has hosted one of the mega events found a positive increase in the hosting country's service sector portion of the GDP. Unlike the impact of hosting one of the mega events, the correlation between the countries that have hosted one of the mega events and who

have English as an official language does have a statistically significant relationship to that country's service sector portion of GDP which is presented in the first regression model.

The remainder of this paper will be organized as follows. Section 2 presents prior literature work that contains studies focused on examining the economic impact of hosting large sporting events and how these previous studies are tied in to this study. Section 3 discusses the empirical link between economic growth and different indicators of a country in hosting a large sporting event using compiled data from multiple sources. Section 4 portrays the regression model and the description of the variables within the model which represents the country's indicators. The section also analyzes the regression results and identifies the dependent and independent variables within the study. Section 5 discusses the functions of the results that have are not explained by the models and figures within the study. Section 6 concludes the results and the study's contribution to real world implications; also, it offers possible errors and caveats within the study.

Chapter II

Economic Impact of Hosting Mega Sporting Events- Literature Review

In recent years there has been a focus on gathering information about the economic impact of hosting mega sporting events like the Summer Olympics and the World Cup. By focusing on indicators like the "feelgood" factor and the multiplier effect to determine the economic relevance of hosting such events, prior researchers have found different results among their research from hosting such events have no economic impact; as well as negative effect and positive effects of hosting these mega events on the hosting country's economy.

In Stefan Szymanski's (2002) "The Economic Impact of the World Cup" the author highlighted the importance of the multiplier effect's role in the determination of whether there is an economic impact on the World Cup for the 2002 World Cup which was jointly hosted by South Korea and Japan. Szymanski focuses on various variables to study how the economy of a country is affected by hosting a mega-sporting event such as the FIFA World Cup. The author focuses on whether multiplier effects can cause a stimulus to the economic status of the hosting countries; in particular, the countries focused on are South Korea and Japan who co-hosted the 2002 FIFA World Cup. The multiplier effect is substantially insignificant because of the crowding out of the private sector because the governmental spending increases the interest rates. Therefore, the multiplier effect could be negative and the common belief of a positive impact on the hosting country's economy from the World Cup could be wrong. In addition to the multiplier effect, Szymanski studies how the revenue generated from hosting the 2002 World Cup is caused by foreign expenditure, like tourism created by foreign citizens migrating to the host country to attend the event. The revenue from the World Cup relies heavily on foreign expenditure because domestic consumption is assumed to be a trade-off due to the assumption that citizens of the

hosting country would spend the money on another domestic product if it was not hosting the World Cup. So the economic profit of domestic expenditure is zero.

The importance of the multiplier effect in its role of the impact hosting mega-sporting events is discussed by Szymanski where the author highlights how the multiplier effect creates a more accurate valuation of the economic stimulation of hosting a mega-sporting event. Szymanski's (2002) "The Economic Impact on the World Cup" is an important study for the determination of the economic impacts from international sporting events because it focuses on how the multiplier effect contributes to investment expenditures and how hosting these mega-sporting events injects demand for goods and services within the country. The size of the multiplier is the stimulus of the economic impact of the amount spent on the event. Therefore, the importance of Szymanski's study is to view the total economic impact of the injection of investments for the mega-sporting events through the multiplier effect.

The purpose of Georgios Kavetsos and Stefan Szymanski's (2008) "National Wellbeing and International Sports Events", is to examine if there is a "feelgood" factor through two hypothesis. In the first hypothesis, the authors assume there is an association of the "feelgood factor" with hosting mega sporting events. The second hypothesis, Kavetsos and Szymanski examine if the "feelgood" factor is correlated with national athletic success which could produce happiness within the hosting country among its citizens. The study focuses on three mega sporting events which are the World Cup, the Olympic Games, and the UEFA European Championship. For the Olympics, the author discovered that happiness is reported when the performance of the country is better than expected. In other words, if the hosting country is outperforming their expectations in the Olympics than the citizens of that hosting country will become happier resulting from the "feelgood" factor. The World Cup and the UEFA European

Championship, two international soccer tournaments, created happiness when a country hosted one of these events. The authors concluded that hosting mega events was only significantly associated with short-term happiness. Kavetsos and Szymanski did not find any statistically significant evidence resulting in any long-term happiness resulting from the "feelgood" factor. The authors only found that the "feelgood" factor creates short-term happiness for the citizens in the hosting countries of the soccer tournaments that were focused on within the study.

However, a critique to this study is the indicator that the authors examined. The "feelgood" factor that Kavetsos and Szymanski used to determine the happiness the citizens of the host country received is a subjective indicator which may result in their results being statistically insignificant. To measure one's happiness is subjective because not one test or not one indicator can determine what it is the cause of the happiness. There could have been other indicators like economic stimulus or a lower unemployment rate that occurred during the mega event which caused happiness among the citizens. Therefore, happiness among the citizens of the host country is subjective due to the possibility of other indicators being the cause, general indicators or even personal events that may cause happiness during the time of the tournament.

In Swantje Allmers and Wolfgang Maennig's (2009) "Economic impacts of the FIFA Soccer World Cups in France 1998, Germany 2006, and outlook for South Africa 2010" the authors study the effects of hosting the World Cup and its correlation on tourism and retail sales from hosting the mega-event. For the effects on the hosting country, France, there could be no effects that are statistically significant and the effects could not be isolated. However for Germany, the authors discovered an additional 700,000 hotel stays compared to the same time, the previous year, and saw an additional 900 million US dollars in net national tourism income from hosting the World Cup. In regards to South Africa hosting in 2010, the event took place

during the low season of tourism in South Africa; therefore, South Africa's GDP generated through tourism can be potentially greater because of the increase in tourism during the country's low season.

The importance of Allmers and Maennig's study is its focus of tourism on large sporting events, primarily the FIFA World Cup. The authors study how tourism from different countries coming to the hosting country to attend the World Cup impact the that country's economic status. Although the study of the authors is of importance, there are weaknesses within the study. The potential beneficial impact of tourism on South Africa is on speculative basis. There is no factual empirical data to show the economic impact from tourism. Also, the authors are basing the positive economic impact from tourism for South Africa on the authors' five arguments, which only creates assumption.

One caveat that the study obtains is that the tourism data for South Africa may be skewed relative to the other countries utilized within the study. The tournament is held during the offseason for tourism in South Africa whereas the other countries held the event during their tourism season so hosting the tournament may cause the results for South Africa to be misrepresentative compared to the other countries' data.

The success of a country's national soccer team in the FIFA World Cup is examined in Dennis Wilson and Craig Depken's (2008) "The Long Run Impacts of the World Cup". The authors study the correlation between the progress of a country's team within the World Cup tournament and its impact on that country's economic growth. In countries where soccer is of greater popularity, there are greater negative impacts on the country's economy when the country's national soccer team advances further within the tournament. The authors also ran a counterfactual study where there is a scenario that there is no existence of the World Cup. The

counterfactual study allows for Depken and Wilson to show that the findings are robust. Within the counterfactual study, the income per capita is significantly higher in countries whose economy is affected by success in the World Cup relative to the countries that do not have their economies impacted by their success in the World Cup.

The importance of Depken and Wilson's study is how it presents long-term effects of hosting large sporting events like the FIFA World Cup. The lack of economic growth produced by a country's success in the World Cup is compiled over the years as the country's national team participates in the tournament, and potentially succeeds in multiple tournaments over the years. The success of many tournaments over the years creates a compiled decline in economic growth. The compiled decline in economic growth presents a long-term effect from hosting the FIFA World Cup where other studies only presented short-term impacts of hosting such an event. The article's timeframe used within its tests is similar to this study's timeframe. Depken and Wilson's study focuses on the years of 1950 to 2004 where this study focuses on the years 1960-2012. However, the differences of this study to the author's article is that Depken and Wilson focus on the year-to-year percentage change in real per capita GDP in the years 1950 to 2004 whereas this study focuses on the service sector percentage of GDP in the years 1960 to 2012.

In Andrew Rose and Mark Spiegel's (2009) "The Olympic Effect" studies the economic impact of hosting mega-events, like the Olympics, by focusing on the exports of trade. The authors theorize that there is no difference in the increase in trade of exports between countries that hosted the Olympics and countries that sent in a bid to host the Olympics. Countries that are within both categories, hosting and bidders, saw their trade in exports increase by roughly 0.3. The authors concluded that many of the hosting countries joined international committees like the U.N. and World Trade Organization after receiving the hosting responsibilities.

Rose and Spiegel's research tried to determine whether a country joined an international trading committee after hosting the Summer or Winter Olympics is an important examination because it determines whether countries enter international trading committees with the assistance of hosting the event. There are a few concerns that the authors acknowledged about their study. There is no significant evidence on the country's population's desire to host the Olympic event. Also, the authors discuss the concern that their theory does not explain the behaviors of countries that have multiple submissions to host large sporting events. This study differs from Rose and Spiegel's research because this study involves exports as an economic indicator being utilized to evaluate the effects on the country's service sector portion of its GDP. Also, this study expanded upon Rose and Spiegel's study to include the FIFA World Cup to examine the effects of the mega events sporting, not solely the Olympic effect.

This study is similar to previous literature because it focuses on the correlation of hosting large sporting events and the event's impact on the hosting country's economy. For instance, this study is most similar to Allmers and Maening's study which focuses on the tourism stimulated by hosting the FIFA World Cup. This study is focusing on a similar economic indicator which is the service sector ratio of the GDP which includes tourism. Although, Allmers and Maening only focuses on three FIFA World Cups in France in 1998, Germany in 2006, and South Africa in 2010, this study is focusing on the FIFA World Cup and also the Summer Olympics within the timeframe of 1960 to 2012 which includes the three World Cups that Allmers and Maening examined.

There are notable differences in this study's approach to the empirical work in previous studies. First, this study is examining the short-run effects of hosting a large sporting event to that country's service sector GDP value. To accomplish the effects, this study analyzes the

country's service sector percentage of GDP the year before hosting the mega events and the service sector percentage of GDP the year hosting the event; whereas, previous studies examined long-run effects through the compilation of the GDP through the country's national team success within a singular event like Depken and Wilson's research.

Secondly, this paper examines whether a hosting country's language has a significant economic impact by holding one of the mega events. The study examines whether hosting countries that have the English language as one of their official languages find greater economic growth than those countries who do not have dominant language as English. Third, included in this is study the level of public corruption within the hosting country. This economic indicator is examined to see whether public corruption impacts the effectiveness of hosting the large sporting events on the country's service sector GDP. This study has notable differences from prior literature to help contribute to the research of hosting large international sporting events on a country's economy.

Chapter III

Economic Impact of Hosting Mega Sporting Events- Empirical Data

The World Bank Database was used to recover data on countries' service sector percentage of GDP between the years 1960 and 2012. The service sector percentage of GDP represents a portion country's GDP which is the wholesale and retail sale, including restaurants and hotels, portion of the country's GDP during the year in which the country hosted either the World Cup or the Summer Olympics. The natural logarithm of income per capita of each hosting country is collected from the World Bank Database as well. The natural logarithm income per capita of each hosting country is the income per household of each hosting country. The corruption perception index data comes from Transparency International from the year 2012. It measures the perceived corruption within the public sector in the countries that hosted either the World Cup or the Summer Olympics. The natural logarithm of the population data for each country was gathered from the World Bank Database. The dataset represents the population of each hosting country during the time period the country hosted the sporting event. The natural logarithm for both, income and population, is used to assist in creating a more efficient data set because the values of income and population are very large. The data for each country who hosted the FIFA World Cup was obtained from Top End Sports. Top End Sports was again exploited for the data for the countries that hosted the Summer Olympics. The information gathered from Top End Sports was used to create a dummy variable that indicated whether a country hosted either the events, the FIFA World Cup or the Summer Olympics from the timeframe of 1962 to 2010 and 1960 to 2012, respectively. The data for the unemployment rate comes from the World Bank Database. It covers the hosting country's unemployment rate in the year that the country is hosting the sporting event. The World Bank Database was used to gather

data on a country's export rate. The variable represents a country's export rate during the time of hosting either the World Cup or Summer Olympics. The data for official, or dominant, languages of a country is collected from the World Factbook.

The specifications within this test is the conditions of the hosting country. The variable that is being examined within the study is the service sector percentage of GDP represented by $DIFFSERVICEGDP$. There is a dummy variable, $MEGA$, which denotes that the country hosted either the FIFA World Cup or the Summer Olympics. The hosting country's population is a condition that is being tested $ln(POP)$. The unemployment rate of the hosting country within the year of the event is denoted as $URATE$. The income per capita is another independent variable that is within the equation which is denoted by $ln(INCOME)$. The language of the host country is an independent variable where the variable represents language barriers that may affect hosting the event (ENG). The export rate of the country hosting one of the sporting events during the year of the event is denoted by $EXRATE$. The variable for a country's government spending is represented by $GOVSPEND$. The last variable examined within the study is the corruption of a country's public sector which is called the Corruptions Perception Index, or $\ln(CPI)$. The Corruptions Perception Index is from 2012 data because it is assumed that the corruption of a government would not change significantly over a long timeframe. Within the second regression equation is the two timeframes denoted as $PERIOD1$ and $PERIOD2$.

III.1 List of Countries who have hosted the Mega Events

Table 3.1 displays the countries that have hosted the Summer Olympics since 1960 to the most present Summer Olympics event which was held in 2012 in London, England. The time

period of the Summer Olympics was chosen specifically because there are no disruptions or no breaks in holding the event within the selected timeframe.

Table 3.1: List of Countries that hosted the Summer Olympics

Hosting Countries of Summer Olympics (After 1950)	**Year**
Italy	1960
Japan	1964
Mexico	1968
Germany	1972
Canada	1976
Russia	1980
United States	1984
South Korea	1988
Spain	1992
United States	1996
Australia	2000
Greece	2004
China	2008
England	2012

Within Table 3.1, there are countries that hosted the Summer Olympics multiple times like the United States. Therefore, this study is important to those countries that have hosted large sporting events multiple times because to countries like the United States their economies are more effected by the events than the countries that have only hosted the events once. There is a similar case in Table 3.2 where Mexico hosted the FIFA World Cup two times within the timeframe. Table 3.2 portrays the countries that have hosted the FIFA World Cup since 1962 to the most recent tournament which was held in South Africa in 2010.

Table 3.2: List of countries hosting the FIFA World Cup

Hosting Countries of FIFA World Cup (After 1950)	Year
Chile	1962
England	1966
Mexico	1970
West Germany	1974
Argentina	1978
Spain	1982
Mexico	1986
Italy	1990
United States	1994
France	1998
South Korea/ Japan	2002
Germany	2006
South Africa	2010

Table 3.3 is a combination of Table 3.1 and of Table 3.2 that show which countries hosted both of the mega events, the FIFA World Cup and the Summer Olympics, from the timeframe that is being studied, 1960 to 2012.

Table 3.3: List of Countries that Hosted Both Mega Events

countryname	Freq.	Percent	Cum.
Argentina	1	5.56	5.56
Chile	1	5.56	11.11
France	1	5.56	16.67
Germany	3	16.67	33.33
Italy	2	11.11	44.44
Japan	2	11.11	55.56
Mexico	3	16.67	72.22
South Africa	1	5.56	77.78
Spain	1	5.56	83.33
United States	3	16.67	100.00
Total	18	100.00	

Under the "Frequency" column within Table 3.3 presents the total amount of mega events each country hosted within the timeframe examined within the study. Shown in Table 3.3, the United States, Mexico, and Germany have hosted the most events since 1960. Japan and Italy have hosted two events and the rest of the countries within Table 3.3 only hosted one of the events since 1960. There are a total of 18 mega events that are being utilized within the study. These 18 events are between the timeframe the study is focusing on. The "Percent" column displays the percentage of mega events each country within Table 3.3 have hosted since 1960 where the countries that have hosted 3 tournaments, each have hosted 16.67 percent of the World Cup and Summer Olympics since 1960. The countries that have hosted two of the tournaments, each have 11.11 percent of the hosting and the countries with one tournament, each have hosted 5.56 percent of the tournaments since 1960. The final column within Table 3.3 shows the cumulative percentage of the countries who hosted the events since 1960.

III.2 Descriptive Statistics

Figure 3.1 displays the descriptive summary statistics of the variables within the study. The variables that are within the study are under the most left column and the summary statistics are right of each variable. The column that is right of "Variable" column shows the numbers of observations each variable had- that variable's mean, standard deviation, and the variable's minimum and maximum values.

Figure 3.1: Descriptive Summary Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
diff_servi~p	528	.4118057	1.805187	-11.29428	16.55572
d_mega	689	.0261248	.1596223	0	1
ln_pop	676	17.58359	1.057098	15.50824	19.56463

urate	365	8.60411	5.553967	1.6	27.2
exrate	654	20.73933	11.17544	3.868761	54.36526
d_eng	689	.1538462	.3610633	0	1
govspend	647	15.8154	5.204469	2.975538	29.59389
ln_income	656	8.745473	1.340773	5.314144	11.33051
ln_cpi	689	4.073167	.3352377	3.526361	4.477337
d_period1	663	.5882353	.4925245	0	1
d_period2	663	.4117647	.4925245	0	1

The variables within "Variable" column within the Summary Statistics is the difference of the service sector portion of the country's GDP from the year before hosting the sporting event to the hosting year, the dummy variable indicating whether the country hosted one of the sporting events being examined within the study, the natural logarithm of the country's population, the unemployment rate, the export rate, the dummy variable if the hosting country has the English language as one of their official language, the natural logarithm of the per capita income, the natural logarithm of the CPI, and the first and second periods.

The majority of the variables have more than 600 observations within their dataset. However, unemployment rate has roughly half of observations as the other variables that are focused on within the paper. Since the observations of the unemployment rate is much lower than the observations of the other variables within the study, the effect of unemployment rate can be skewed due to the fact that unemployment rate's data is not weighted the same amount as the other variables because its observations are much less, therefore having less effect. Another variable that is unlike the others which has far less observations is the difference in the service sector variable, or the dependent variable. The service sector variable has 588 observations. The variable may have less observations than the other variables because the difference of the service sector portion of the GDP is the difference between the previous year before hosting and the year hosting the event so there may not be data available for the previous year like if the event was

hosted in 1960 where there was no data available for 1959, so the observations will be less because there may be less data available relative to the other variables within the study.

Focusing on the service sector variable, the mean difference from the year previous to hosting the mega event to the hosting year the difference in the service sector portion of the GDP is 41. 8 unit increase. However, an issue of concern is the extreme minimum and maximum values of the variable. The minimum value is roughly -1129 and the maximum is roughly 1655 where these values are extreme values from both ends of the spectrum. With such extreme values within the dataset for the service sector portion of GDP, the mean value may be skewed. Only two percent of the observations within the dataset have hosted either the FIFA World Cup or the Summer Olympics which is represented with a mean of 0.02. Along with the other dummy variables within the study, only fifteen percent of the observations have the English language as one of their official languages represented in its mean of roughly 0.15. The dummy variables for the time periods show that the first period represented 55% of the observations which is consistent with the years included within the study where Period1 includes more years than the second period so the first period will contain more of the data.

Within the Summary Statistics table the observations display that the unemployment rate is roughly eight percent among the observations. The general unemployment rate can displayed within the mean of the unemployment rate which is roughly eight percent. The export rate among the observations is roughly twenty percent where the variable's mean represents the average export rate.

Specifically focusing on the dependent variable within the Summary Statistics, Figure 3.2 shows two variables which one is the dependent variable, the difference from year-to-year

service sector percentage of GDP and the second variable within Figure 3.2 is the growth rate of the service sector portion of GDP.

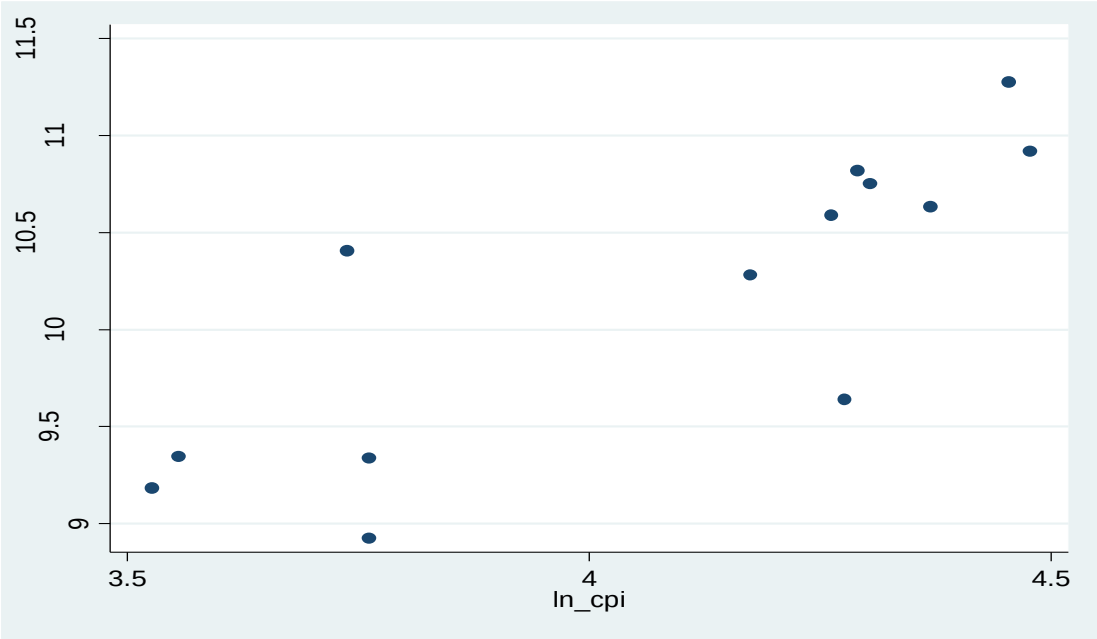
Figure 3.2: Summary Statistics of Difference in Service Sector GDP and Growth Rate Service Sector GDP

Variable	Obs	Mean	Std. Dev.	Min	Max
diff_servi~p	528	41.18057	180.5187	-1129.428	1655.572
diff2_serv~p	528	.7576031	3.488437	-16.59169	33.01427

The difference between the two variables is that the dependent variable of the study examines the difference from year-to-year service sector GDP whereas the second variable within Figure 3.2 represents the growth rate of the service sector percentage of GDP from year-to-year. The growth rate of the service sector portion of GDP has an average value of .75 percent. In other words, the percent growth of the service sector from year-to-year from the countries within the dataset grows at an average of .75 percent rate from year-to-year. As mentioned in Figure 3.1, the difference in service sector from year-to-year, the dependent variable, increases on average of roughly 41 units within the dataset. Just like the dependent variable, the growth rate of the service sector has less observations than the variables located in the Summary Statistics in Figure 3.1 because, like the dependent variable, some countries do not have data for their service sector for every year from 1960 to 2012 which decreases the observations to examine.

To display the significance public corruption has on a country where public corruption is prevalent, Figure 3.3 portrays the correlation between the levels of public corruption and the country's per capita income.

Figure 3.3: Relationship between (log) per capita of income and (log) Corruption Perception Index



Within the scatter plot, there is a positive correlation between the natural logarithm of the income per capita and the natural logarithm of the Corruption Perception Index. As the natural logarithm of the CPI increases, so does the natural logarithm of the per capita income. In other words, if there is less public corruption recorded within the Corruption Perception Index, it is expected that the country to have a higher per capita income. Since there is less public corruption within the country, the wealth of the country is able to flourish without much corruption. Within the scatter plot, there are a few outlying points such as a low value on the Corruption Perception Index, indicating high levels of public corruption, and a high level of per capita income. Also, there are outlying points which indicate low levels of public corruption in relation to low levels of per capita income. Even though there are a few outlying points within the scatter plot, the overall direction of the points indicate that there is a positive correlation between the natural logarithm of CPI and the natural logarithm of the per capita income.

By expressing the significance public sector has on a country's wealth, Table 3.4 displays the difference between the public corruption of countries that have hosted the mega sporting events and the countries that have not hosted either of the tournaments since 1960.

Table 3.4: The difference of the Corruption Perception Index between Hosting and Non-hosting Countries

```
-> d_mega = 0

    Variable |       Obs        Mean    Std. Dev.       Min        Max
-------------+--------------------------------------------------------
         cpi |       671    61.98063     18.9064         34         88

-------------------------------------------------------------------------------------------
-> d_mega = 1

    Variable |       Obs        Mean    Std. Dev.       Min        Max
-------------+--------------------------------------------------------
         cpi |        18    59.77778    18.56802         34         79
```

The table is a Summary Statistics that compares the Corruptions Perception Index of the countries that have not hosted the FIFA World Cup or the Summer Olympics. The countries that did not host either of the mega events had a higher average CPI. In other words, the countries that did not host either of the mega events had, in general, less public corruption within the countries than the countries that have hosted one, or both, of the mega events since 1960. Although the average CPI of the non-hosting and hosting countries are not vastly far apart, their maximum values present an indication that the countries that host one of the mega events relatively have a lower CPI. The maximum CPI value for the countries that have hosted one of the mega events is 79 compared to the maximum level of the non-hosting countries which is 88. So, the countries that are chosen to host have relatively low CPI values whereas countries that have high CPI values are not being chosen to host these tournaments. The countries that have low CPI values, or high levels of public corruption, are being chosen to host these tournaments

because the average CPI value is relatively low which is 59.78, along with the maximum CPI value, 79. Therefore, countries that are chosen to host these events have higher public corruption levels than the countries that are not chosen due in part to the average CPI values of host and non-hosting countries and the relative difference in the maximum CPI values of host and non-hosting countries. The reason behind the hosting countries having lower CPI values than non-hosting countries is the correlation between CPI and per capita income which is represented in Figure 3.3 where there is a positive correlation between the natural logarithm of per capita income and the natural logarithm of CPI. There is a correlation where a lower natural logarithm CPI value is tied to lower natural logarithm per capita income. So, the committees who choose the host countries wish to stimulate an economy of a country in a poor economic situation will also choose a country that is expected to have a higher public corruption rate because of the correlation between a low per capita income and high public corruption.

Within Table 3.5, the specified Summary Statistics examines the usage of the English language to determine whether language plays a factor in choosing which country will host one of the mega events.

Table 3.5: Summary Statistic regarding the English Language

```
-> d_mega = 0

    Variable |       Obs        Mean    Std. Dev.       Min        Max
-------------+--------------------------------------------------------
   _Id_eng_1 |       671    .1520119    .3593003          0          1

-------------------------------------------------------------------------------------------
-> d_mega = 1

    Variable |       Obs        Mean    Std. Dev.       Min        Max
-------------+--------------------------------------------------------
   _Id_eng_1 |        18    .2222222    .4277926          0          1
```

The Summary Statistics in Table 3.5, only 15 percent of the countries have English as one of their official languages whereas 22 percent of the countries that hosted one of the mega events had the English language as one of their official languages. Of the countries that have hosted one of the mega events, 22 percent of the countries have the English language has one of their official languages presents a large portion of the total hosting list. Relative to the total dataset where the English language comprises only of 15 percent of the 671 observations, English language is the official language of 22 percent of the few 18 observations which are the hosting countries.

So, the English language is prevalent in the hosting countries relative to the rest of the countries that did not host one of the mega events. A reason why the English language is in high prevalence in the hosting country is because of language's international use. As economic globalization is on the rise, the English language is used as a center of communication where it is taught in many countries as a secondary language. Therefore, the committees that choose the hosting countries for the two mega events may have a bias towards the countries that have the English languages as one of their officials languages because it will allow for foreign tourists visiting the country for the event to be able to communicate with the locals and it will also attract more foreign fans to attend the event if they know that they will be able to communicate within the hosting country. Therefore, by attracting greater tourism levels may stimulate greater profits which may incentivize the event committees to pick a country that has the English language as one of their official languages.

Chapter IV

Economic Impact of Hosting Mega Sporting Events- Empirical Analysis

IV.1 Regression Equations

To find whether hosting the FIFA World Cup or Summer Olympics has an impact on the economy of the hosting country can be shown through the variables incorporated within the regression equation. Therefore, the study is to test the impact of hosting FIFA World Cup or Summer Olympics since post-war, year 1960, to contain consistency in hosting the events. The economic indicators within the study is estimated in the following equation:

Regression Equation 4.1: The Effect on Service Sector Ratio

$$DIFFSERVICEGDP = \beta_0 + B_1 MEGA + \beta_2 \ln(POP) + \beta_3 URATE + \beta_4 \ln(INCOME) + \beta_5 ENG + B_6 EXRATE + \beta_7 GOVSPEND + \beta_8 \ln(CPI) + \epsilon$$

where the dependent variable, $DIFFSERVICEGDP$, is the difference of the service sector portion of the hosting country's GDP in the year before hosting the event and the hosting year. β's are parameters to be estimated. The error term is ε.

The service sector percentage of the GDP is on the left-hand side of the regression equation, identified as the dependent variable within the study and will be affected by the independent variables. One of the independent variables within the study is a dummy variable within the study is denoted by $MEGA$ which represents whether a country hosted either the FIFA World Cup or the Summer Olympics. The other independent variables include the unemployment rate, $URATE$, and the natural logarithm of the income per capita of the hosting countries which is represented by $\ln(INCOME)$. Another variable examined within this study is

the dummy variable denoting the countries whose official language is English expressed within the regression equation as ENG. The other independent variables included are the export rate, which is expressed as $EXRATE$, and the government spending of the countries that hosted the one of these two sporting events denoted within the Regression Equation 4.1 as $GOVSPEND$. Finally, the last independent variable within the study is the natural logarithm of the CPI, or the Corruptions Perception Index, of the hosting countries expressed in the equation as $\ln(CPI)$.

To control for the time period for which the events for held, the timeframe of the dataset was separated within two time periods included within Regression Equation 4.2.

Regression Equation 4.2: Addition of Period 1 and Period 2

$$DIFFSERVICEGDP = \beta_0 + B_1 MEGA + \beta_2 \ln(POP) + \beta_3 URATE + \beta_4 \ln(INCOME) + \beta_5 ENG + B_6 EXRATE + \beta_7 GOVSPEND + \beta_8 \ln(CPI) + \beta_9 PERIOD1 + \beta_{10} PERIOD2 + \epsilon$$

The timeframe of the dataset is separated within two time periods represented as $PERIOD1$ and $PERIOD2$ where the first time period includes the years from 1960 to 1990 and the second period includes the years 1991 to 2012. The separation of the timeframes were chosen to control for events that have affected the hosting country's GDP at that time such as the technological boom of the 2000's which stimulated international relations which could have greater effects to the hosting country's service sector portion of the GDP compared to the countries that hosted one of these events before the 1990's. Other than the addition of the time periods, Regression Equation 4.2 is the same as Regression Equation 4.1.

IV.2 Empirical Analysis

The Regression Model 4.1 displays the difference in a hosting country's service sector portion of its GDP from the previous year compared to the year that they hosted the mega event as the dependent variable. Within the model, the independent variables are the natural logarithm of the country's population, the dummy variable indicating that the country hosted either the World Cup or the Summer Olympics, the unemployment rate and the export rates, the natural logarithm of the income per capita of the country, the government spending, the natural logarithm of the Corruption Perception Index, and the countries that have hosted the mega events.

Regression Model 4.1: Dependent Variable: Growth of Service Sector Share

```
      Source |       SS       df       MS              Number of obs =     323
-------------+------------------------------           F( 17,   305) =    2.27
       Model |  82.1114414    17  4.83008479           Prob > F      =  0.0032
    Residual |  649.303613   305   2.1288643           R-squared     =  0.1123
-------------+------------------------------           Adj R-squared =  0.0628
       Total |  731.415054   322  2.27147532           Root MSE      =  1.4591

------------------------------------------------------------------------------
diff_servi~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      ln_pop |  -1.305628   1.746258    -0.75   0.455    -4.741865     2.13061
      d_mega |   .2178429   .5040341     0.43   0.666    -.7739815    1.209667
   _Id_eng_1 |   2.972768   .7241903     4.10   0.000     1.547726     4.39781
       urate |  -.1545653   .0345242    -4.48   0.000    -.2225011   -.0866295
      exrate |   .0007582   .0192678     0.04   0.969    -.0371565    .0386729
    govspend |  -.0519998   .0491446    -1.06   0.291    -.1487051    .0447056
   ln_income |   .3063441   .2595319     1.18   0.239    -.2043555    .8170438
      ln_cpi |  (dropped)
_Icountry~_2 |   1.691077    2.69621     0.63   0.531    -3.614451    6.996605
_Icountry~_3 |  (dropped)
_Icountryc~4 |  -1.578068   1.789076    -0.88   0.378    -5.098562    1.942425
_Icountryc~5 |   .8007394   1.099884     0.73   0.467    -1.363581     2.96506
_Icountryc~6 |   1.225421   .4862701     2.52   0.012     .2685523     2.18229
_Icountryc~7 |   .9599952   .7897411     1.22   0.225    -.5940354    2.514026
_Icountryc~8 |   .7407445   .7002812     1.06   0.291    -.6372495    2.118738
_Icountryc~9 |   .4461224   1.946384     0.23   0.819    -3.383918    4.276163
_Icountry~10 |  -.0626309   1.822217    -0.03   0.973     -3.64834    3.523078
_Icountry~11 |  -2.365512   3.326848    -0.71   0.478     -8.91199    4.180967
_Icountry~12 |  -1.104869   3.088728    -0.36   0.721    -7.182782    4.973044
_Icountry~13 |  (dropped)
       _cons |   22.59398   28.73314     0.79   0.432     -33.9463    79.13426
------------------------------------------------------------------------------
```

Within the regression model, the dummy variable indicating when a country hosted a mega event did not have any significant results in relation to the difference of the country's service sector of its GDP. As shown, the correlation between the service sector percentage of GDP and hosting a mega event is statistically insignificant represented by the p-value within the regression model. The p-value for the mega event indicator is 0.666. The value is greater than 0.01, 0.05, and 0.1 which represents 99%, 95%, and 90% confidence in the empirical evidence, respectively. Therefore, the relationship between hosting a mega events and the country's difference from year-to-year service sector GDP is not statistically significant because its p-value is 0.666.

The dummy variable for the countries that have hosted a mega event and that has the English language as one of their official languages have similar results as the mega event indicator within the regression model. The countries that have hosted a mega event and that have the English language as one of its official languages presents a positive relationship with the country's service sector percentage of GDP. If the hosting country has English as one of their official languages then there is a 2.97 increase in the service sector percentage of the country's GDP from the year before hosting the event to year the country hosted the event. In contrast to the mega event indicator, the English dummy variable obtained statistically significant results where the p-value for the dummy variable is 0.000. Unlike the mega event indicator, the English dummy variable has a positive correlation with the service sector percentage of the host country's GDP that is statistically significant represented by the variable's p-value.

The CPI, or Corruption Perception Index, is utilized within the study to view how a country's public corruption affects its service sector portion of its GDP during the period of hosting a mega sporting event. The natural logarithm of the CPI is used for efficiency within the

data. Within the regression model, the natural logarithm of the CPI have been dropped from the regression model. The reason behind the CPI variable being dropped within the regression model is because of mutlicollinearity within the model where the other independent variables of the dataset are strongly correlated with the CPI variable.

The countrynames within the regression model represent the countries that have hosted either the FIFA World Cup or the Summer Olympics. The variables that are listed as countrynames are all insignificant where their p-values are greater than the values to indicate statistically significant results. Therefore, there is no statistically significant evidence is indicate whether there is an economic effect to a particular country hosting either the World Cup or the Summer Olympics. Within Regression Model 4.1, the countrynames 3 and 13 are "dropped". The variables may have been dropped to due multicollinearity within the regression model where the independent variables- in this case countrynames 3 and 13- are strongly correlated within one another. This multicollinearity within the independent variables may increase the strength of the insignificant among the variables.

The result of Regression Model 4.1 is that there is no significant evidence to indicate the relationship of in the service sector GDP of a country to hosting a mega sporting event. Although there is no significant relationship between service sector GDP and hosting the events, there are other indicators within through regression models that have an impact on the relationship between the two variables. The results of Regression Model 4.1 show that there are outside indicators that affect the relationship between hosting these sporting events and the country's service sector ratio.

For example, one of the reasons the coefficient of the mega games is insignificant is because of the location the events are held. Most events are held in a cities, so the effect can be

mostly concentrated in those cities. Therefore, it is difficult to capture the effect from the national data. Another reason why there was insignificance within the mega event coefficient could be the investments in the infrastructure. The general public expects that hosting country will invest in building stadiums such as Olympic village and stadiums. This kind of investment is usually a one-time investment where the infrastructure may not be used again. For countries already equipped with all the facilities, such investment effect is small or none which can lead to the insignificance of the mega coefficient within Regression Model 4.1. There can be other factors that affect the significance of the mega coefficient within the regression model.

Within the Regression Model 4.2, the timeframe in which the study examines is separated within two periods. The model includes the same variables as the first regression model in addition of the two time periods to examine the effect of hosting such events in different time periods.

Regression Model 4.2: Addition of Two Time Periods

```
      Source |       SS       df       MS              Number of obs =     304
-------------+------------------------------           F( 18,   285) =    1.78
       Model |  69.1234013    18  3.84018896           Prob > F      =  0.0274
    Residual |  615.232795   285  2.15871156           R-squared     =  0.1010
-------------+------------------------------           Adj R-squared =  0.0442
       Total |  684.356196   303  2.25860131           Root MSE      =  1.4693

------------------------------------------------------------------------------
diff_servi~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      ln_pop |  -.8820765    1.78991    -0.49   0.623    -4.405196    2.641043
      d_mega |   .2192198   .5407056     0.41   0.685    -.8450633    1.283503
   _Id_eng_1 |   3.009463   5.941648     0.51   0.613    -8.685617    14.70454
       urate |  -.1333986   .0364545    -3.66   0.000    -.2051527   -.0616444
      exrate |   .0154495   .0204681     0.75   0.451    -.0248382    .0557373
    govspend |   -.025753   .0528699    -0.49   0.627    -.1298181     .078312
   ln_income |   .4378034   .3371656     1.30   0.195    -.2258473    1.101454
      ln_cpi |  -2.761175   3.714679    -0.74   0.458    -10.07286    4.550513
_Icountry~_2 |   1.784995   3.450956     0.52   0.605      -5.0076    8.577591
_Icountry~_3 |  (dropped)
_Icountryc~4 |   .7917179   1.092173     0.72   0.469    -1.358031    2.941466
_Icountryc~5 |   2.328244   3.840947     0.61   0.545    -5.231979    9.888467
_Icountryc~6 |   2.492425   2.200999     1.13   0.258    -1.839851    6.824701
_Icountryc~7 |   2.268216   2.959287     0.77   0.444    -3.556615    8.093048
```

_Icountryc~8	.7566771	1.217653	0.62	0.535	-1.640056	3.15341
_Icountryc~9	2.040524	4.619338	0.44	0.659	-7.051824	11.13287
_Icountry~10	-.3433652	1.775699	-0.19	0.847	-3.838514	3.151783
_Icountry~11	(dropped)					
_Icountry~12	(dropped)					
_Icountry~13	.1027332	5.062621	0.02	0.984	-9.862137	10.0676
d_period2	-.3656826	.3459707	-1.06	0.291	-1.046664	.3152993
_cons	23.22623	42.29435	0.55	0.583	-60.02268	106.4752

The timeframe in Regression Model 4.2 is being examined within this study is separated in to two periods. The first period covers the years from 1960 to 1990. The second period covers the years from 1991 to 2012. However, within the regression model the first period is not shown and this is because the second period is being compared to the first period. The second period is statistically insignificant to the service sector portion of the GDP for hosting one of the mega events, compared to the first period. So there is no statistical evidence that the timeframe of the event has an significant effect on the service sector of GDP.

There are many similarities, as well as differences, to the first regression model presented in Regression Model 4.1. The dummy variable for hosting the mega event is still statistically insignificant along with the rest of the variables within the regression model. A difference between the two models is that the English language variable is statistically insignificant in Regression Model 4.2 but statistically significant in Regression Model 4.1. With the addition of the period within the regression model, the English variable is statistically insignificant. A reason behind the change in the significance of the variable is the increase in globalization and international communication via technology represented within the two time periods. This increase in technology and globalization could result in the difficultly in compared the events that did not have the technology to the events that has the most updated technology available.

The results gathered from the regression models indicate that the results are not robust. To help assist in the robustness of the relationship between the year-to-year difference in service sector GDP and hosting the mega event, Figure 4.1 specifically compares the average difference in the service sector of GDP of the countries that hosted one of the mega events to the countries that have not hosted.

Figure 4.1: Comparison the difference of the service sector GDP of the hosting countries and non-hosting countries

```
-> d_mega = 0

    Variable |       Obs        Mean    Std. Dev.       Min        Max
-------------+--------------------------------------------------------
diff_servi~p |       512    .4056319    1.823485  -11.29428   16.55572

-------------------------------------------------------------------------------------------
-> d_mega = 1

    Variable |       Obs        Mean    Std. Dev.       Min        Max
-------------+--------------------------------------------------------
diff_servi~p |        16    .6093676    1.082188  -2.466152   2.062168
```

Figure 4.1 above shows that statistical summary primarily focusing on the dependent variable, the service sector portion of the GDP, where the figure displays the comparison of the service sector of the countries that have hosted one of the sporting events and the countries that have not hosted one of the events. The average unit difference on the service sector of GDP for the countries that have hosted one of the sporting events is significantly greater relative to the average difference of service sector GDP for the countries that have not hosted the events examined. The average difference in the service sector portion of a country's GDP who have hosted one of the events is roughly 0.61 whereas the average difference for the country's that have not hosted is roughly 0.41. So, the year-to-year difference of service sector portion of the GDP has a greater difference for the countries that have hosted one of these events than the

countries that have not by roughly 0.20 unit difference. The figure shows that the countries that have hosted one of the mega events presents evidence indicating that there is an increase in its service sector portion of its GDP. Having a larger difference in the year-to-year service sector, the countries experience an increase in its service sector by hosting one of these sporting events.

The descriptive statistic displays the larger difference in the service sector for the hosting countries compared to the non-hosting countries presents the evidence to indicate that hosting either the World Cup or the Summer Olympics has an increase in the service sector portion of the hosting country's GDP. There are similar empirical data within the regression models that shows that the coefficients are not statistically significant so the evidence within the models are not robust. But the evidence presented by Figure 4.1 shows that the positive correlation between hosting these events and increasing the service sector portion of that country's GDP exists so although the regression models display results that are not statistically robust because of its p-values, the positive relationship between the service sector of GDP and hosting either the World Cup or Summer Olympics has more support from the descriptive statistic; however, there are economic indicators that are not presented in the regression models and descriptive statistics that may play a part in the results which is discussed in the next chapter.

The reasoning behind the contrasting robustness of the regression models and Figure 4.1 is the massive data set used within the study. The dataset that is examined within this study is large to the extent that it involves various economic indicators for many countries over a long timeframe. Therefore, to focus on one variable the results may become clouded by the process of analyzing such a large dataset which may be the cause of the statistically insignificant results found in the two regression models. So by narrowing the dataset to focus on the service sector portion of GDP which is represented in Figure 4.1, it displays the positive relationship between

service sector GDP and hosting a mega event which helps to increase the robustness of the relationships that are found within the regression models and helps to support the theory that hosting one of these mega sporting events has a positive impact on the service sector portion of the hosting country's GDP.

The data shows that hosting countries exhibit a higher growth rate in their service-to-GDP ratio than the non-hosting countries. The regression, however, fails to detect any significant effect of hosting mega games on the economy. This insignificance may be attributed to a couple of reasons. First, only roughly 2.6% of the observations in the data actually have the dummy variable d_mega = 1. Secondly, as noted in the discussion section, the positive effect of mega game on the economy, if any, may be mixed with the impact of some counterproductive incidents, such as protests and violence, and increased corruption.

Chapter V

Economic Impact of Hosting Mega Sporting Events- Discussion

Although the models and the figures that are presented in Chapter III and Chapter IV display a vast amount of information about the effect of hosting a mega event on a country's service sector portion of its GDP, there are other effects that are not explained by the models that may play a vital role in the effectiveness of these two mega sporting events.

V.1 Protests: A Counteractive Economic Indicator

An indicator that is difficult to be shown within a regression model is the effect of hosting such a sporting event on the society of the hosting country. The mass media is portraying the protests in Brazil as the workers build the infrastructure to hold the 2014 FIFA World Cup. However, because of these protests, workers are going on strike and there have been multiple riots of the local citizens who do not wish to hold such an event. One of the internationally known mass media companies, the BBC News (2013), provided coverage in their article in "Protest disrupt Fifa visit to Brazil World Cup venue" regarding the protests about the upcoming World Cup that is to be held in Brazil in the Summer of 2014. Within this coverage, BBC acknowledges the protests and discusses how these protests are affecting the workers that are building the infrastructure for the tournament and how these protests are creating a dangerous atmosphere for the local citizens and this dangerous environment may continue until the World Cup final tournament begins. The protests may deter foreign tourists in attending the event because of the safety concerns. The event's protests may deter economic stimulus that could have been created without the protests. But, with the protests, there could be a negative impact on the economy because of stoppage of work and the waste of government money that is invested in

building the infrastructure and other investments for hosting the event which is being seen in Brazil for the upcoming World Cup. There have also been instances within the Summer Olympics that protests have greatly affected the event which, in turn, has an economic effect to the country's service sector and its economy as a whole.

There have been many instances of protests that have occurred within a country that have hosted a Summer Olympics where it has affected the event and it has the potential to effect the economy of the hosting country. Solan (2014) presents protests that have affected the Summer Olympics of the past in its article "7 of the most memorable Olympic protests in history (and one that could be)". More specifically, a protest that was mentioned in Solan was the 1968 Mexico City Summer Olympics Games where there were multiple politic protests that were present within the event. One protest in particular, discussed by Solan, was created by Mexican students which started months before the Olympic event was held where these Mexican students were protesting for democracy. However, the government did not want any protests or a negative image brought upon Mexico during their first time to host the Summer Olympics. So roughly a week before the Olympic Games were to be held, government troops open-fired on the student protestors killing roughly 300 demonstrators and injuring another 1,000 demonstrators. With a massacre of such proportions happening roughly a week before the Olympic Games, many spectators of the event may have deterred from attending the events because of the high levels of violence that is occurring so close to the anticipated date of the event. Foreign tourists traveling to Mexico City to attend the event may not go because of the violence. The local businesses may close because of the mass protests and violence that come along with social unrest may put workers and the owners themselves in jeopardy. So the violent actions taken by the Mexican

government to eliminate the protests before hosting the 1968 Summer Olympic Games may be have affected the effect of hosting the Olympic Games on their economy.

So, an indicator that is difficult to present within a regression model or summary statistic are social disturbances, like a protest. There have been protests that have occurred within past mega sporting events like the massacre which happened at the 1968 Summer Olympics in Mexico City along with the protests that are taking place for the 2014 World Cup being held in Brazil. These protests are hard to prove through regression models and summary statistics where protests have the potential to be counteractive to the economic status of the hosting country.

V.2 Weather Conditions

There may be natural indicators that may be difficult to determine through regression models or summary statistics that may affect the service sector GDP of hosting countries. One of these natural indicators that are difficult to express through regression models and other economic models is how the weather of the hosting country may become a factor within the determining the effect of hosting such events on the service sector portion of the country's GDP.

For instance, in the most recent Summer Olympics held in London, England, the weather conditions that the country experienced was worse than the average weather that England has during the months of June, July, and August. A report covered by TravelMail (2012) discussed in its article "Olympics and poor weather to blame as UK tourists sites have 'worst' summer in a decade" expressed that the weather conditions in the summer of 2012 was the worse that England has seen in a very long time as England experienced a very rainy summer. With rainy weather conditions, individuals who plan on attending the Olympic Games for the outdoor events may not go since they do not wish to attend the event in such poor weather conditions. Just like the

negative effect England's outdoor tourist attractions, the Summer Olympics may have been affected because of the poor weather conditions where foreign tourism may have declined due to the weather.

Another weather condition that is a cause of concern is the hot temperatures that can be reached in Qatar that is to host the 2022 FIFA World Cup. In the months that Qatar would host the event, the temperatures can reach upwards to fifty degrees Celsius which is discussed in Mirror's article "World Cup 2022, be it in winter or summer, is already looking like a mess with no obvious get-out". The hot temperatures in Qatar can be a potentially dangerous environment for the players participating and a dangerous environment for the individuals that are attending the event. Because of such high temperatures, individuals may deter from attending the World Cup because they may be concerned for their own health in the heat.

Also, mentioned in Mirror's article is the chance that the World Cup may move to a different season where Qatar is not as hot as it is in the traditional timeframe the World Cup is usually held. Changing the time period can cause problems other than the temperature. Determining the timeframe to hold the World Cup may affect the economy of Qatar, more specifically, the service sector GDP if the World Cup takes place around the Holiday period where the general public may not have the money in their budget to attend the event because of the costs of the holiday season. By changing the timeframe of the World Cup due to the weather may have an effect on the economy of the hosting country.

However, it is difficult to say whether the effects on the service sector GDP is due in part of the timeframe in which was chosen or the weather. In other words, it is difficult to express on a regression model how weather can play a vital role within the effects on the service sector due to hosting these mega sporting events; but, it can be theorized that the weather conditions of the

hosting country may be an intrinsic indicator where its value is difficult to express through a regression model because weather conditions are spontaneous and the incidences do not have a clear pattern.

V.3 False Reporting of GDP Values

The corruption of a country's society, like a protest, can stem from to a governmental level. A corrupt government can skew its budget to present an inflated budget that is different than their actual budgetary numbers. For instance, a government may change their GDP values to present a positive GDP growth so that their country portrays a strong economy to the other countries but in reality they are in a poor economic state. Therefore, countries that changed their values in economic indicators like their GDP values, unemployment rates, etc., to improve its image towards the other countries may have skewed the results found in the regression models.

An example of this false reporting was recently discussed by Bloomsberg (2014) in "China's Dodgy Data Is Under Scrutiny Again, With Latest GDP Release" where the media discusses China's nine cases of false reporting in its GDP value. More specifically, the article discusses that the local and national aggregate GDP values do not calculate the same values. The local Chinese governments have been consistently exceeding the national calculations for the GDP value and this may be the case because the local and national governments do not have the same valuing system. In turn, the GDP value becomes overvalued and is falsely reported. There may be similar false reporting of GDP values within countries that have gone unreported.

Since there are spontaneous false reporting of GDP values in countries like China, the effect of hosting a mega sporting event on a country's service sector GDP may be skewed or overvalued because of false reporting by that host country's government. There could have been

false reporting of GDP values in other governments and economic indicators as well. The accurate economic effect by hosting mega sporting events can be buried behind spontaneous false reporting by countries that wish to improve their economic image on a global perspective.

So, the effect of hosting a mega sporting event could be skewed due to the false values that corrupt governments may have used to enhance their image globally. These skewed values are difficult to interpret on a regression model because there is uncertainty to which values have been changed. But the uncertainty of the changed values creates an uncertainty in the effect of hosting such an event on the service sector because the skewed values are too difficult to show on a regression model or summary statistic.

V.4 Culture Shock

Another indicator that is difficult to show within a regression model is the cultural differences that the host country presents to foreign tourists that come to the country to attend the mega sporting event. For instance, in the upcoming FIFA World Cup that is being held in Brazil the government is accommodating for the foreign tourists that are migrating to Brazil to attend the event by investing in over 100 information booths in the 12 hosting cities within Brazil discussed by MSN (2013) in its article "Brazil wants to improve the services for World Cup tourists". Along with the information booths, the restaurants within Brazil will have menus that have translations attached for foreign tourists. These accommodations for the different cultures migrating to Brazil for the upcoming FIFA World Cup have an underlying effect on the retail sector of the GDP as foreign tourists will feel more confident to navigate Brazil knowing that they will have information centers for assistance. But each country that has hosted a mega sporting event in the past have different cultural norms than Brazil and each country has different

cultural norms than each other. Therefore, each host country have different approaches to accommodate the cultural differences when they host mega sporting events like Brazil's approach to accommodate cultural differences is to invest in informational booths and translated menus in restaurants whereas 2012 Summer Olympic Games hosted in London, England developed Olympic National Hospitality Houses discussed Londontown's " Olympic National Hospitality Houses" where these houses conduct cultural events and activities of their country to improve their global image.

So, the hosting country of a mega sporting event accommodates for foreign tourism migrating to their country to attend the mega sporting event. By accommodating for the cultural difference, the hosting country is developing the opportunity for foreign tourists to feel more comfortable in the foreign country which may lead to greater retail purchasing because the foreign tourists will be able to better navigate the foreign country through the cultural accommodation. For instance, these foreign tourists will be able to buy goods and services with better ease than those foreign tourists who is attending a mega sporting event in a host country whose cultural norms are unfamiliar internationally which may deter retail sales because of the difficulty of interactions and the unfamiliarity of the cultural norms may deter foreign tourism as a whole. However, it is difficult to analyze the effect of cultural accommodation on a regression analysis because each country has their own cultural norms which are difficult to value as an indicator because of the specifics of each hosting country's culture. Also, each hosting country approach cultural accommodations differently so it is difficult to evaluate in a regression model how a host country's cultural accommodation for foreign tourism has an effect on its service sector portion of its GDP as it hosts either of the two mega sporting events examined compared to the countries that have not hosted a mega event.

Chapter VI

Economic Impact of Hosting Mega Sporting Events- Conclusion

VI.1 Summary of the Study

This study's purpose is to examine the year-to-year difference in the service sector percentage of GDP of a country that have hosted a mega sporting event, specifically the Summer Olympics or the FIFA World Cup. The importance of such a study is introduced in Chapter I above where mega events, like the Summer Olympics and FIFA World Cup, are massive responsibilities for the hosting country as many foreign tourists will migrate to the country to attend the event and the hosting country's economy will be examined by other countries to see how hosting such an event will affect its the country's economy. Chapter II displays similar previous research to the topic of economic effects on mega sporting events. By displaying the similar literature review in Chapter II, the study is able to emphasize the similarities and differences from the previous work.

The variables within the study and the sources to each of the variables are discussed in Chapter III of the study. The regression equations have involved the dependent variable, the year-to-year service sector ratio, and independent variables along with the regression models that display the relationships between the dependent variable and independent variables which is discussed in Chapter IV. However, not every economic indicator can be viewed within a regression model or descriptive statistics. These indicators, like protests and weather conditions, have an economic effect on countries that host a mega sporting event which are examined in Chapter V of the study. This chapter aims to summarize the entirety of the study and to provide potential errors and caveats that may exist within the study. Also, the chapter discusses the study's implication to real world situations and concluding remarks.

In regards to prior literature studies, the study further develops research on the economic impact of hosting mega sporting events; however, the study also differentiates itself from the previous literature on the topic. The previous literature shows that different economic indicators have different impacts on the economy like a nation's success within the tournament portrays a negative impact on the economy; whereas, other economic indicators used in previous literature stimulates the hosting country's economy. This study is most similar to Allmers and Maening's (2009) literature which focuses on the tourism stimulated by hosting the FIFA World Cup. The study focuses on a similar economic indicator that Allmers and Maening's research examines. However, this previous study only examines three FIFA World Cups in France 1998, Germany 2006, and outlook for South Africa 2010 whereas this study focused on the FIFA World Cup and also the Summer Olympics within the timeframe of 1960 to 2012.

The description of the empirical data is vital within the study for the clarification of the variables that are being examined. The majority of the variables within the dataset were taken from the World Data Bank. Other sources of data used within the study were the Top End Sports and World Factbook. Chapter III also presents lists containing the countries that have hosted the Summer Olympics and the FIFA World Cup since 1960. The descriptive statistics shown within the chapter displays the values of the variables such as their average values and their minimum and maximum values. Also, the descriptive statistics present the amount of observations each variable has in the dataset set and for dummy variables, the percent of its occurrence is shown under the "Mean" column. These variables that were introduced within Chapter 3 are utilized within the regression equations and models to find results for the relationship of the service sector ratio and hosting the mega sporting events in the following chapter.

The regression equations and regression models are presented in Chapter 4 which shows the relationship of hosting mega sporting events and the service sector percentage of the hosting country's GDP. There are two regression equations. The first regression equation shows the dependent variable, the service sector ratio, and the independent variables that will affect the dependent variable. The second regression equation is the same as the first regression equation with the addition of two variables which are the two periods that break up the timeframe of the study. The first regression model is in accordance with the first regression equation. The relationship between hosting one of the two mega sporting events and the country's service sector ratio GDP is insignificance where there is no definite correlation between the service sector ratio and hosting the mega events. The second regression model includes the two time periods along with the variables that were included in the first regression model. Just like the first regression model, the results for the second model are insignificant relationship between the service sector ratio and hosting the mega events. The statistical summary shows the year-to-year difference of service sector ratio of the countries that have hosted the mega events to the countries that have not hosted the mega events. The descriptive statistic shows that the difference in service sector ratio of the countries that have hosted the mega event is greater than the non-hosting countries. This statistical summary displays a positive relationship between the dependent variable and hosting the mega events by isolating the two variables outside of the dataset were the results are muddled in the massive data within the study. Although there is a positive relationship between the service sector ratio of GDP and hosting the events, there are outside indicators that come in to play that can affect the dependent variable which is discussed in Chapter 5.

There are economic indicators that are difficult to analyze through a regression model or a descriptive statistic. Some indicators that are difficult to evaluate in a regression model was expressed in the Discussion chapter are indicators like protests which can be a counteractive economic indicator. Other indicators that are difficult to evaluate through regression models are indicators like the weather conditions of the hosting conditions and the culture shocks the foreign tourism will experience arriving to the host country to attend the event. These variables play a pivotal role in the relationship of hosting the mega events and how hosting affects the service sector percentage of the hosting country's GDP. By having indicators that affect the relationship between the service sector ratio of GDP and hosting the mega events, the positive relationship of the two variables is uncertain due to factors outsides of the variables evaluated within this study like protests and weather conditions.

VI.1 Potential Caveats

There are potential errors that could be the cause to the lack of robust results for the study. One potential error, which was discussed earlier in the study, is the lack of observations for the unemployment rate. The lack of observations for unemployment rate could cause the economic indicator to be weighted less than the other variables examined in this study. Since this variable is weighted less than the other indicators, its lack of effect can impact the overall significance of large sporting events on a country's GDP growth rate. On the other end of the spectrum, an issue of concern that arises from the dataset is the size of the dataset as a whole. With massive data in the study, the accuracy of the relationships represented within the regression models can be skewed because of the great variety in the values represented in the set.

VI.2 Implications to Real World Scenarios

The implications of this study to real world situations are limited due to the lack of robust results from the regression models. However, the findings within this study indicate that the countries who have hosted the mega events do not experience any statistically significant impact to its economy. Therefore, the selection process does not have to consider the language of the potential hosting countries because the language spoken within the country will not affect the impact that hosting such events have on that country's economy.

VI.3 Concluding Remarks

The empirical results of this study provides research in the economic effects of hosting mega sporting events by primarily focusing on the service sector ratio, or the retail sector, of the hosting country's GDP. This study is able to further the research on the economic effects that hosting international events, like the sporting events in the study, have on the host countries. With the contribution of this study, along with the previous research on the topic, policymakers and the committees that have the power to choose which countries have the opportunity to host one of the mega events will have a vast amount of information to choose the correct country based on this study and the other research within this subject.

To gather more information on this subject for the committees to make the most efficient decision on the host country, there can be expansions off of this study. First, a study that can be expanded off of this study is to examine how one-sport mega events, like the FIFA World Cup and the UFEA European Championship, effect the hosting country differently than multi-sport events like the Summer and Winter Olympics. Second, an expansion of this study can focus on whether hosting multiple mega sporting events has a greater impact on the country's economy than a country that has only hosted one of the mega sporting events. Since a country that has

already hosted a mega event, the expenses of building infrastructure and other costs may be lower since they already built it so the economic effect may be different compared to the countries that have only hosted a mega event once.

The few ideas on the expansion of this paper can further develop the research in the topic of the economic effect of hosting such events. This study and the past literature can help better understand the economic benefits and disadvantages of hosting these mega sporting events like the FIFA World Cup and the Summer Olympics. Along with this study and previous research, further studies, including the expansion off of this study, can bring in to light the full effects of hosting these events has on a country's economy.

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