Qatar to invest $50B hosting FIFA World Cup 2022 – A Cost or Benefit?

Portland State University

ETM 535/635

Advanced Engineering Economics

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Overview

In December of 2010 FIFA selected Qatar to host the 2022 World Cup. Qatar, a tiny Arab nation the size of Connecticut with a population less then 1.5M will need to invest extensively in their infrastructure to support the estimated 3M fans that will attend. This includes building 9 new open air soccer air conditioned to mitigate summer temperatures over 100° F. The ruling Al-Thani family has committed to spending the estimated $50B[1] required to upgrade the country's infrastructure.

So – this obviously seems like a bad economic investment. Or is it? Other events have shown that infrastructure can be converted to other uses when the event is over. The millions of fans will draw in tourist dollars to attend the event. Some of the indirect benefits will be improved GDP, higher employment, future improvements in tourism and the improved "brand image" of the country.

We will examine from an economic analysis view if the games are a net benefit to the regional economy. Our analysis is based on the information released regarding the Qatar games along with analysis of the previous World Cup's games, especially the 2010 World Cup in under-developed South Africa and other previous mega events such as the Olympics.

[1] Note that all finical amounts are in US dollars unless otherwise denoted.

Brief History of FIFA World Cup

Every four years, members of the Fédération Internationale de Football Association (FIFA), soccer's global governing body, bring their senior men's national teams to an international football competition most commonly known as the World Cup. The championship first started in the inaugural tournament during 1930 (in which 13 countries had teams) and has been going on every four years, except in 1942 and 1946 when it was canceled due to World War II. Spain won the last World Cup tournament in 2010 held in South Africa and is the current champion.

Between 1934 and 1978, 16 teams competed in each tournament (FIFA), except in 1938 in France, when Austria was absorbed into Germany after qualifying, leaving the tournament with 15 teams (FIFA), and in 1950 in Brazil, when India, Scotland and Turkey withdrew, leaving the tournament with 13 teams (FIFA). The tournament was expanded to 24 teams in 1982 (Reuters, 2006), and then to 32 in 1998 (FIFA) allowing more teams from Africa, Asia and North America to take part.

The current format of the tournament involves 32 teams competing for the title at venues within the host nation over a period of about a month – this phase is often called the World Cup Finals. A qualification phase, which currently takes place over the preceding three years, is used to determine which teams qualify for the tournament together with the host nation.

The past 19 World Cup tournaments have been won by eight different national teams. Brazil has won five times, and the only team to have played in every tournament. The other World Cup winners are Italy, with four titles; Germany, with three titles; Argentina and inaugural winners Uruguay, with two titles each; and England, France, and Spain, with one title each (FIFA).

The World Cup is the world's most widely viewed sporting event; an estimated 715.1 million people watched the final match of the 2006 FIFA World Cup held in Germany. The next three World Cups will be hosted by Brazil in 2014, Russia in 2018, and Qatar in 2022 (FIFA).

Literature Review

Economic impact to the host country of mega events like the World Cup has been studied extensively. When countries prepare a bid for future World Cup, justifications of the bidding normally require positive economic impact to the host country. In 2009, the USA Bid Committee said that the U.S. will see a positive economic impact of $5B (Committee, 2009). In analyzing this prediction, Coates (Coates, 2010) suggests that such claims are rarely accurate, research by disinterested academics, largely economists, who have studied the impact of mega-events like the World Cup, Olympics, and Super Bowl should be used as evidence to support the predictions.

In reviewing previous research, Coates also suggests that the most natural place to begin discussion of the impact of World Cup is with evidence from previous tournaments. Three have been studied for their economic impact: Germany 2006, United States 1994, and Germany 1974. Interesting enough, economist Wolfgang Maennig found no significant boost to the German economy despite the 2006 World Cup being considered a great success (Maennig & Du Plessis, 2007).

> *"On an aggregated level, neither merchant sales nor employment showed significant positive effects, which agrees with former empirical findings on the effect of large sports events. (Maennig & Du Plessis, 2007)"*

Badde and Matheson (Baade & Matheson, 2004) found that American host cities during the 1994 Cup games actually experienced declines in income. Tourism is assumed to be a major of economic benefit for the host country; however, consider Rogerson who analyzes the planning for the 2010 FIFA World Cup in South Africa. The article presents evidence from a range of sources to highlight several challenges the national government must deal with to achieve the goal of boosting tourism offered by this event (Rogerson, 2009). A study of tourism income of World Cups in Germany 2006 and France 1998 by Allmers and Maennig (Allmers & Maennig, 2009) was inconclusive and offered drastically different conclusions: no tourism income could be isolated for the French games but Germany netted $900M from tourism income.

In an ETM 535 project report in 2010, Alfayes and his group performed a cost benefit analysis on the economic impact of hosting the World Cup in South Africa (Alfayes, Almasri, Nuhisi, & Mokhawa, 2010). The study calculates a Benefit/Cost (B-C) ratio of 1.63 with costs of $615.38M and revenues of $1B, thus the project (yes, hosting the World Cup) is economically justified. Their study, however, focused on the costs and revenues incurred only during the event itself. The costs included in their analysis were: communications infrastructure, security, training, administrative, and mobilization. The revenues include: FIFA contribution, tickets, broadcasting/advertising, and tourism income. From the 2011 FIFA financial report (FIFA, 2011b), the local organizing Committee (LOC) statements shows a B-C ratio of 1.02 (Revenue $526M, Expenses $516M) as shown below in Figure 1.

Organising Committee World Cup 2010: Income statement*

USD million

Revenue	526	Expenses	516
FIFA contribution		• Stadium operations	260
• Ticketing	300	– Temporary structures	89
• Cash payments	200	– Power supply	87
• Value in kind	26	– Stadium rental	23
		– Security	22
		– Volunteers	14
		– Other	25
		• Personnel	58
		• Transport	34
		• Information technology	26
		• Marketing	23
		• Accommodation	13
		• Insurance	13
		• Show production	10
		• Other	79

*Provisional figures: the LOC's income statement assumes full recovery of open financial commitments from third parties, the final accounts remain subject to audit and have not been submitted to FIFA at the date of reporting.

Figure 1 World Cup 2010 Revenue and Expenses (Source (FIFA, 2011b))

Even though the B-C ratio for hosting the event itself is greater than 1.0, the actual costs are far beyond the expenses listed for the event. These costs include years of investment in new and renovated infrastructure, event stadiums, transportation networks, hotels, etc... Coates (Coates) suggests the actual total cost of the South African World Cup at $5.2B with a $4.7B budget overrun as compared to initial forecast (see Figure 2).

In this study of the economic analysis for Qatar's hosting of the World Cup in 2022, we will include costs & benefits for prior to, during, and post the actual World Cup games.

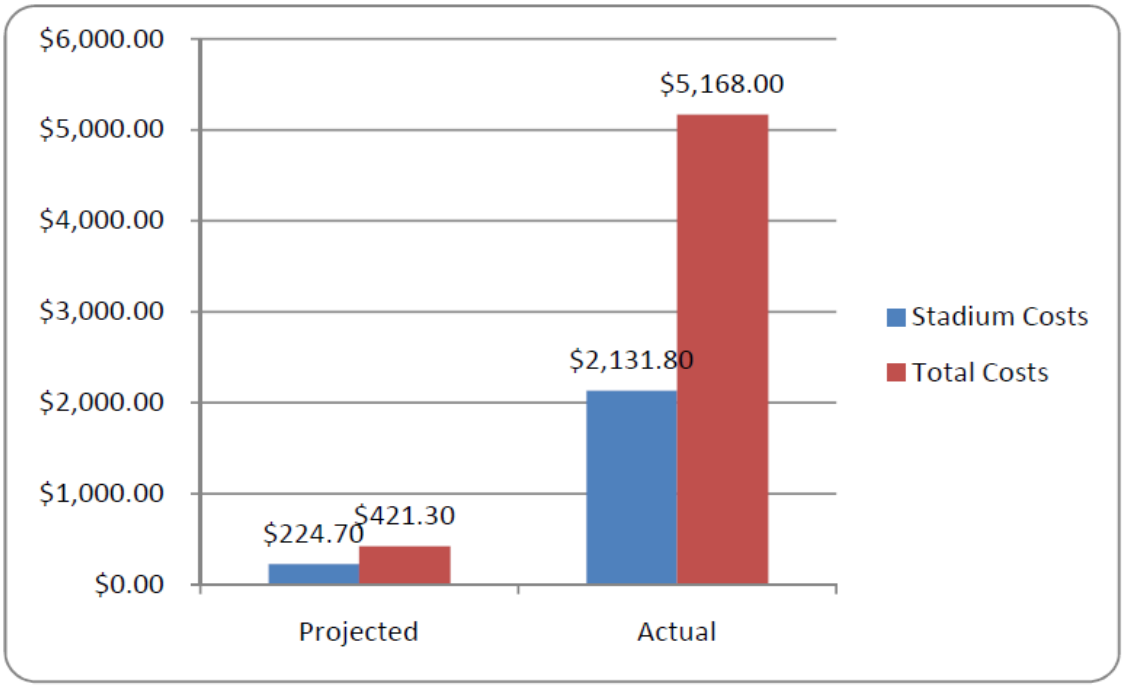

Figure 2 South Africa World Cup Costs (Millions of dollars, source (Coates, 2010))

Infrastructure and Accommodation

With almost $100B in planned investments over the next 12 years, Qatar will be the biggest construction site in dollars per square meter. Qatar's spending on World Cup-related infrastructure projects will keep the country's economic output expanding at an annual 8-13% in the near future, experts say (IFP QATAR).

For infrastructure, Qatar is currently undertaking a number of large scale projects. The emirate has recently just committed $43B to spend building new roads, and upgrading the existing road network.

Qatar has pledged an initial $3B to begin work on the Qatar rail network. The emirate is planning to build a metro project with a total length of 340 kilometers. The metro project is scheduled to have four major lines, and each train is expected to have a capacity of 400-800 passengers. The Doha metro project will go ahead regardless of whether Qatar is successful in its World Cup bid. The bid committee expects the metro to be capable of transporting 35,000 spectators every three hours. The estimated completion date for the project is 2021. The metro is expected to be linked to the proposed GCC train network, which is planned to link the six Gulf countries together.

Doha International airport is currently undergoing $9B worth of development work, which will see its capacity increase to 50 million passengers by 2012. The airport will have one of the largest runways in the world at 4,850 meters. (Roscoe, 2010)

It will be relatively easy for the ruling Al-Thani family to get the stadiums infrastructure built to accommodate the games - the country, which has vowed to spend $50B on infrastructure and build or upgrade 12 stadiums at a cost of another $4B, doesn't even have political parties. (Montopoli, 2010)

Additionally, Qatar will build over 80,000 new hotel rooms by 2022, 10,000 to 15,000 of which were ready by the end of 2010. This comes as the country's answer to FIFA's requirement that the host country should have a 60,000-room capacity, the Middle East Economic Digest (MEED) said. Doha has said it would provide 80,000 to 90,000 by 2022. The $4B Qatar-Bahrain Causeway with its 45-kilometre fixed link between Qatar and Bahrain was put on hold in June.

There is also an extra "$5.5B cost of building housing and schools for expatriates expected to flock in to support the projects".

Qatar will pay, with cash, the $70B price tag for infrastructure needed to host the 2022 World Cup, according to the head of the International Bank of Qatar (IBQ). IBQ Managing Director George Nasra says that oil and gas projects in Qatar are likely to reduce a $130B budget surplus in the next five years, ensuring that World Cup infrastructure will not negatively affect the Gulf state's cash-flow. "All government-sponsored projects will be cash funded," Nasra said.

Qatar plans to build the infrastructure in phases. Work on a national rail system and metro lines in the capital Doha is scheduled to start in 2015. Also slated is the further development of the airport, a deep water port and a causeway connecting Qatar with Bahrain. Qatar will also build 12 air-conditioned stadiums to compensate for scorching summer temperatures. Estimates for the cost of the infrastructure vary. Rating agency Standard and Poor's (S&P) estimated a relatively low total cost of $63B or 47%of Qatar's 2010 gross domestic Product (GDP) (Dorsey, 2011).

To provide a general idea of the expense of building the stadiums Table 1 below shows construction costs that South Africa incurred while constructing or renovating its' facilities for the 2010 World Cup.

Stadium	Location	Cap.	Status	Cost ($US)
SOCCER CITY STADIUM	Johannesburg	94,500	Major upgrade	$440M
ELLIS PARK STADIUM	Johannesburg	61,639	Minor upgrade	$7.2M
CAPE TOWN STADIUM	Cape Town	66,000	New construction	$600M
NELSON MANDELA BAY STADIUM	Port Elizabeth	46,082	New construction	$270M
DURBAN STADIUM	Durban	69,957	New construction	$450M
MBOMBELA STADIUM	Nelspruit	43,589	New construction	$140M
PETER MOKABA STADIUM	Polokwane	45,264	New construction	$150M

Table 1 Cost stadiums for the 2010 World Cup (Media Club South Africa)

2009 New Soccer Field Maintenance Cost Estimates			114 000 sq.ft.		
Description of Activity	**Man Hours**	**Man Hour Cost**	**Product**	**Product Cost**	**Total Activity Cost**
50 Mowings / Season	113	2,228.36			$ 2,228.36
Growth Regulator, Once Per Month	12	236.64	Primo	1,227.60	$ 1,464.24
Topdressing, 5 Applications Per Year	31.5	621.18	Sand	1,987.50	$ 2,608.68
Water, 1 Acre Inch Per Week/ 26 Weeks	6	118.32	City Water	5,703.62	$ 5,821.94
Fertilizer @ 6.1 #s N / year	12	236.64	Fertilizers	1,548.00	$ 1,784.64
Paint, 6 Applications Per Season / 20-5 Gal. Pails	45	887.40	Paint	378.75	$ 1,266.15
Aeration, 3 Times Per Year	13.5	266.22	Verti-Drain		$ 266.22
Fungicide, Four Applications / Season	8	157.76	Disarm 480 SC	1,575.00	$ 1,732.76
Over-Seeding, Once Per Season	5	98.60	Seed	997.50	$ 1,096.10
Herbicide, One Applications Per Season	2	39.44	Herbicide	22.66	$ 62.10
Fence-line Maintenance, 2 Apps. Per Year	8	157.76	Control Products	125.00	$ 282.76
Miscellaneous	50	986.00	Misc. Products	200.00	$ 1,186.00
Pre-emergent Applications	4	78.88	Drive 75 DF	360.18	$ 439.06
Insecticide Applications		-	Dylox		$ -
					$ -
Sports Lighting		-	Electricity	402.60	$ 402.60
	Labor Cost	**$ 6,113.20**	**Supplies Cost**	**$ 14,528.41**	
*** These lighting estimates are based on 10 events @ three hours in length per season.**					
76 - 1,500 Watt Lights					
Labor Cost $16.44 x 20% benefits =	$ 19.72	Labor Cost Per Hour			
Mowing Season : 33 Weeks x 1.5 Mowings / w = 50 Mowings / Season x 2.25 hrs. / Mowing = 112.50 hrs.					
	Program Cost	Field Size	Cost Per Sq. Ft.		
	$ 20,641.61	114,000	$ 0.18		
	Total Estimated New Soccer Field Annual Maintenance Cost				**$ 20,641.61**

Table 2 Estimated cost of maintaining soccer field annually (Sports Turf Manager Association)

Tourist Attendance

Global mega events consistently draw temporary crowds of 100-500,000 people. Defining the scope inevitably varies by country and region yet some important considerations must be made as to how to transport, feed, and house the visitors while keeping them impressed and happy. Qatar hopes to impress tourists though incorporating carbon neutral designs and sharp marketing. New and existing infrastructure capacity and circulation patterns are a particular challenge as the World Cup is projected to bring around 350,000 people into a country with a population of less than 2M people. In financing the significant security, operational, and FIFA costs, Qatar has a uniquely strong fiscal position and cost will likely be a non-issue.

The distinction between long-term spending and actual spending is very difficult to accurately quantify as studies have widely varying conclusions ranging from significant benefits during and for months after the games to no benefits during and after when the World Cup was held. Forecasting the number of visitors is challenging and depends on geographic location, the country itself, high quality facilities, agreeable climate, sound reputation, high security, and reasonable costs.

Income generated from ticket sales is the main revenue source to primarily meet operating costs of the World Cup and FIFA, but the host country also has a share of ticket sales. The number of planned tickets is generally constant and helps to plan the stadium capacity and number of matches. As such, FIFA has a standard number of tickets it needs to sell for the games. For the German World Cup, 3.2M tickets were sold. The average stadium capacity was around 50,000 people and 64 matches were played for the 3.2M available tickets. The Germany ticket sales generated about half the total operating budget of $470M, an average of over $73 per ticket. In addition, over 700,000 additional hotel stays and at least $1B in tourism income was generated during the German Cup. The South African World Cup had around 200,000 visitors who spent $8.7B, over $43K per person. As the South African number for dollars spent per visitor clearly demonstrates, the potential benefits for local vendors and producers of goods and services are enormous. Core tourism and service accommodations like food and drink are generally reliable sources of income. World Cups average around 373,000 visitors who spend approx $4,000 each. An average of over $1.5B is spent on food and beverages alone per event.

Long term benefits, both quantitative and qualitative, are difficult to pin down for mega events as once the event is over the show moves on; financial benefits wane quickly. Yet development of quality sustainable infrastructure and cities from scratch may serve to generate long-term economic benefits and increase overall quality of life. As Qatar has unique geographical and financial possibilities, their definition of success for the games will likely be qualitative; the nation's goal is to establish a world-class name for itself as a destination for sports, arts, and culture. Designs of the events' facilities will be carbon neutral, an extensive renewable energy infrastructure will be incorporated into the society and in the process, and this alone may sustain the country's ability to attract foreign visitors for a longer period then other cups.

Germany's World Cup generated around 2M additional foreign visitors to the country in the months following the games yet the majority of economic benefits fell weeks after the Cup was over. Overall dollars from tourists was around $60M. Overnight stays also increased by 32% from a year earlier; one month after the Cup ended, the increase from the previous year was only 12%. Other World Cups have different results. In the South Korean World Cup, number of foreign visitors, retail sales, and hotel occupancy numbers remained unchanged from a year before the games were played. In regions that generally maintain large numbers of tourists, mega events actually serve to displace potential tourists. People might wait to go on a planned trip to the host country or even cancel their trip to that country because of the Cup (which brings traffic, price hikes, security hassles, noise and crowds). While this population may be significant, in Qatar, where the tourism industry is becoming established, the effect of an event such as the World Cup would likely draw its' visitors purely for the event and use the event for positive media exposure and tourism promotion impressive 21st century comprehensive design standard.

Methodology

Hosting a mega-event like World Cup requires a great investment from any hosting government; Qatar's hosting 2022 World Cup is in no exception. For this reason, we will treat this project (hosting the World Cup 2022) as a project for public-sector. The model is implemented with Microsoft Excel as shown in Figure 4 B/C Ratio Analysis Implementation.

The following approach will be used in this analysis:

1. Cost Benefit Analysis (CBA) will be used.
2. Social Discount Rate of 4% per year will be used.
3. Net Present Value (NPV) of 2011 price will be used to calculate both costs and benefits.
4. Due to the commitment from the Qatar government fund at current price, no inflation will be included.
5. As Qatar has got the bid for 2022 World Cup already, the bidding cost will be treated as sunk cost which will not be included for this study.
6. The study period will be 15 years from 2011 to 2025 prior to the next World Cup in 2026.
7. The following costs will be included in this study: Stadia, hotels, road network, railroad network, airport, housing and school, maintenance, security and training.
8. The cost estimate for stadia and road network is based on a life-cycle cost model presented by Sullivan (Sullivan, Wicks, & Koelling, 2009). The Cumulative Left-Cycle Cost Estimates for Stadia and Road Network is shown in Fig.3.
9. The following benefits will be included in this study: Tourism income, local spending, hotel income prior to event, hotel salvage post event, communication services, ticket income.
10. Three scenarios will be considered when estimating the annual cost and benefits: Pessimistic, optimistic, and most likely.

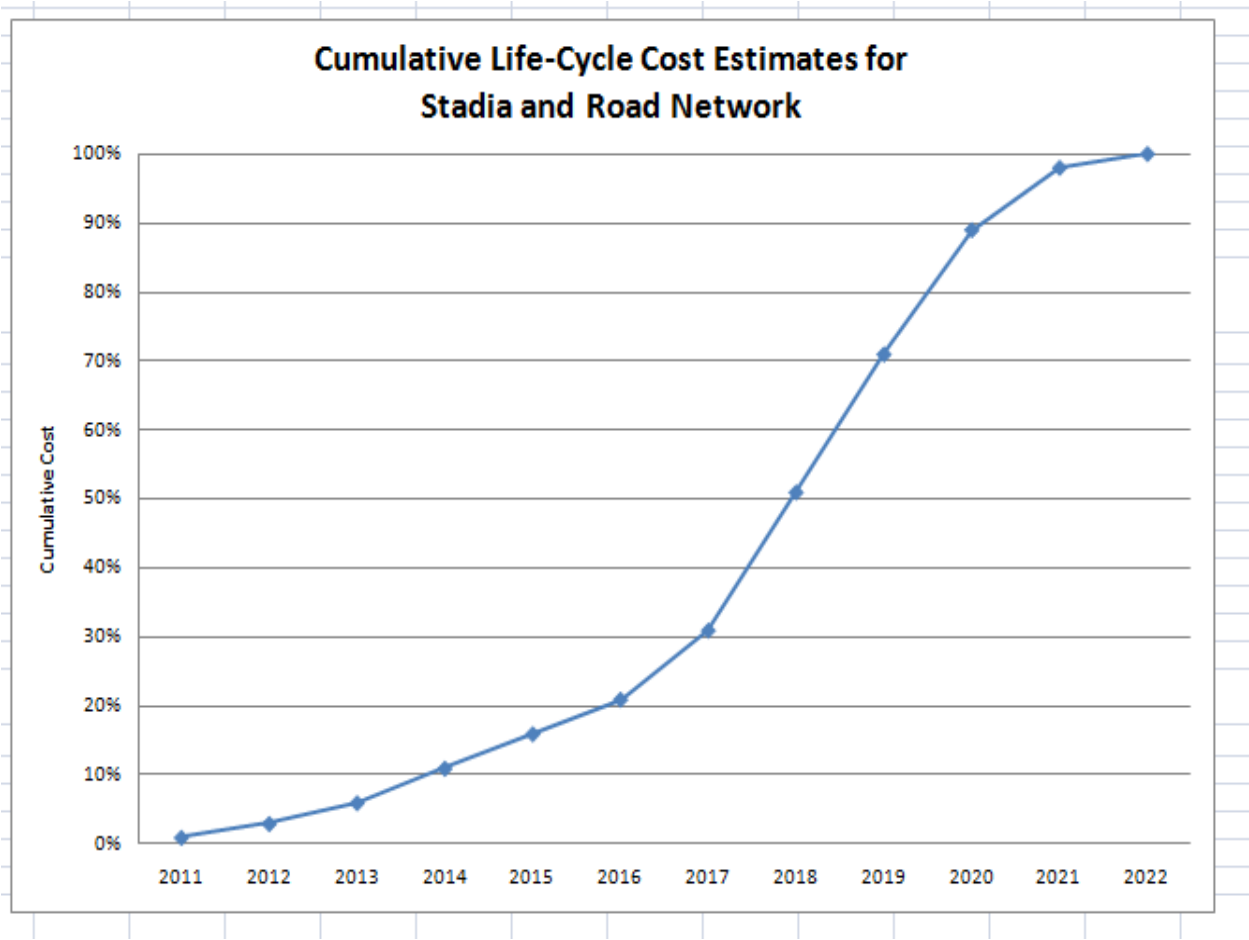

Figure 3 Cumulative Life-Cycle Cost Estimates for Stadia and Road Network

Cost Benefit Analysis of the 2022 World Cup Hosted by Qatar

Note: All costs and benefits are in real dollars (2011 prices)

Interest Rate	4.00%

Cost Estimate Assumptions

% of Cost Each Year	Est. Cost	Total %	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Stadia	$4,000	100.0%	1.0%	2.0%	3.0%	5.0%	5.0%	5.0%	10.0%	20.0%	20.0%	18.0%	9.0%	2.0%	0.0%	0.0%	0.0%
Hotels	$4,000	100.0%	15.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	10.0%	10.0%	4.0%	5.0%	0.0%	0.0%	0.0%
Road Network	$42,900	100.0%	1.0%	2.0%	3.0%	5.0%	5.0%	5.0%	10.0%	20.0%	20.0%	18.0%	9.0%	2.0%	0.0%	0.0%	0.0%
Rail Network	$3,000	100.0%	0.0%	0.0%	0.0%	0.0%	10.0%	10.0%	20.0%	25.0%	20.0%	0.0%	10.0%	5.0%	0.0%	0.0%	0.0%
Airport	$9,000	100.0%	10.0%	20.0%	30.0%	30.0%	10.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Housing and School	$5,500	100.0%	1.0%	2.0%	3.0%	5.0%	5.0%	4.0%	10.0%	20.0%	15.0%	15.0%	12.0%	8.0%	0.0%	0.0%	0.0%
Maintenance Cost	$6	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%		
Security and others	$516	100.0%											20.0%	80.0%			
Total	$68,922																

Costs ($Million)

Cost Category	Cost	NPV	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Stadia	$4,000	$2,933	$40	$80	$120	$200	$200	$200	$400	$800	$800	$720	$360	$80	$0	$0	$0
Hotels	$4,000	$3,204	$600	$320	$320	$320	$320	$320	$320	$320	$400	$400	$160	$200	$0	$0	$0
Road Network	$42,900	$31,460	$429	$858	$1,287	$2,145	$2,145	$2,145	$4,290	$8,580	$8,580	$7,722	$3,861	$858	$0	$0	$0
Rail Network	$3,000	$2,198	$0	$0	$0	$0	$300	$300	$600	$750	$600	$0	$300	$150	$0	$0	$0
Airport	$9,000	$7,978	$900	$1,800	$2,700	$2,700	$900	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Housing and School	$5,500	$3,998	$55	$110	$165	$275	$275	$220	$550	$1,100	$825	$825	$660	$440	$0	$0	$0
Maintenance Cost	$6	$4	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$6	$0	$0
Security and others	$516	$325	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$103	$413	$0	$0	$0
Total	$68,922	$52,099	-$2,024	-$3,168	-$4,592	-$5,640	-$4,140	-$3,185	-$6,160	-$11,550	-$11,205	-$9,667	-$5,444	-$2,141	-$6	$0	$0

Benefits Estimate Assumptions

Benefits Category	Est. Benefit	Total %	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Tourism	$3,000	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	80.0%	10.0%	7.0%	3.0%
Local Spending	$10,000	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	20.0%	80.0%	0.0%	0.0%	0.0%
Hotel Salvage	$2,000	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	80.0%	20.0%	0.0%
Hotel Income	$200	100.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	10.0%	10.0%	10.0%	10.0%	15.0%	0.0%	10.0%	5.0%	0.0%
Communication Services	$200	100.0%												100.0%			
FIFA contribution (Tickets,cash, etc.)	$526	100.0%												100.0%			
Total	$15,926																

Benefits ($Million)

Benefit Category	Benefit	NPV	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Tourism	$3,000	$1,800	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$2,400	$300	$210	$90
Local Spending	$10,000	$6,296	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$2,000	$8,000	$0	$0	$0
Hotel Salvage	$2,000	$1,192	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$1,600	$400	$0
Hotel Income	$200	$147	$10	$10	$10	$10	$10	$10	$20	$20	$20	$20	$30	$0	$20	$10	$0
Communication Services	$200	$125	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$200	$0	$0	$0
FIFA contribution (Tickets,cash, etc.)	$526	$329	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$526	$0	$0	$0
Total	$15,926	$9,889	$10	$10	$10	$10	$10	$10	$20	$20	$20	$20	$2,030	$11,126	$1,920	$620	$90

B-C Ratio	0.19

Figure 4 B/C Ratio Analysis Implementation

Three scenarios (pessimistic, optimistic, and most likely) are used when estimating the benefits and costs. Pessimistic has a 20% overrun for expenses and less benefits; Optimistic is 5% under-run for expenses and more benefits. In Table 3 above the B-C ratios under the three scenarios are shown.

Scenarios	Pessimistic	Most Likely	Optimistic
B-C Ratio	0.15	0.19	0.24

Table 3 B-C Ratios Under Different Scenarios

The Total Annual Costs and Benefits under the most likely scenario are shown in Figure 5.

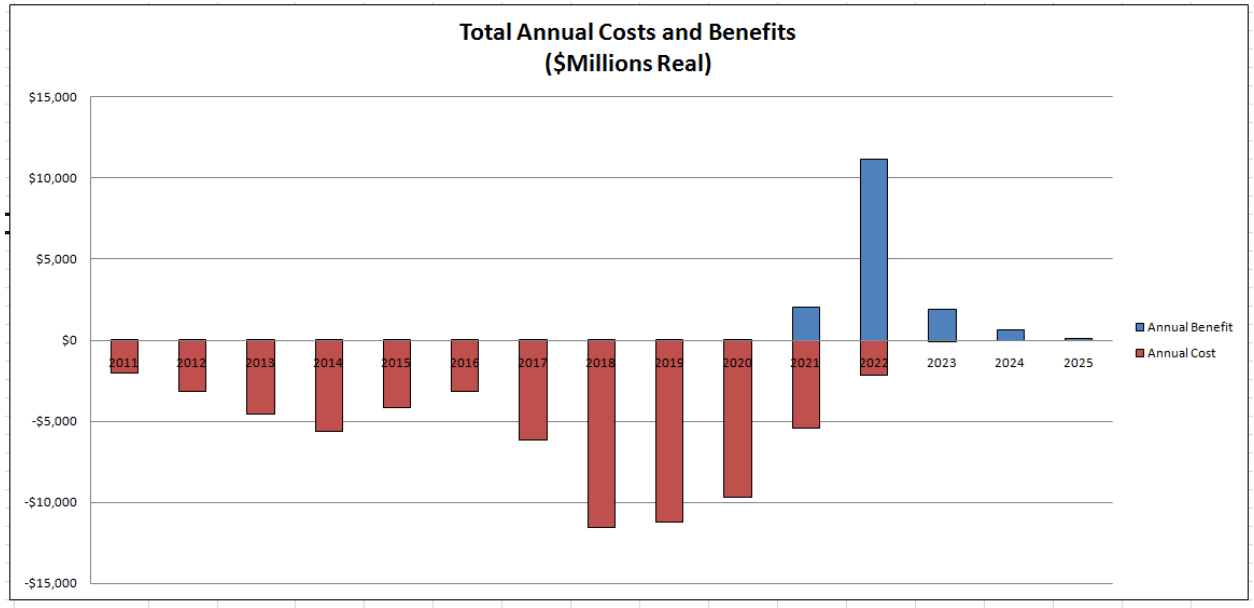

Figure 5 Total Annual Costs and Benefits Under Most Likely Scenario

Discussion

As can be seen the typical B-C value of 0.19 is significantly less than one indicating that the correct economic decision is to not host the games. The optimistic scenario of 0.24 that includes higher expected attendance and salvage costs is still significantly less than one.

The economic analyses examined the measurable costs and benefits of hosting the World Cup. In addition there are other intangible benefits, disbenefits and risks that were not included in this analysis but will have an impact on the economic impact of the games.

Intangible Benefits

It's difficult to justify hosting any mega event on the basis of the additional income generated by the event. The non-monetary benefits are often more important. For both South Korea and South Africa hosting the World Cup was an opportunity to showcase their countries and improve world awareness and attitude towards the country. Hosting a mega event brings large amount of media coverage, most if which is positive. The viewership for the World Cup is one of the highest in the world and reaches into all media markets. People who did not know anything about Qatar will gain an awareness and recognition of the country which is the first step to building a brand for the country. They will be more likely to take notice of future news about Qatar after watching the World Cup coverage. The coverage will likely be overwhelmingly positive which will either create or alter people's image of Qatar, the third step in building Qatar's brand equity. This will result in future increases in tourism, which has been considered in the analysis, and also result in more companies investing or building in Qatar, more prominence in global affairs and more business for Qatar firms. Although there will be many intangible benefits of hosting the World Cup there was insufficient data available to include them in the analysis.

Disbenefits

There are disbenefits to Qatar that were not included in the analysis due to the difficulty in quantifying them. Without a doubt having 3M fans visiting a country with 1.5M residents is going to cause a great deal of inconvenience for the residents of Qatar. The residents of Vancouver complained about the 2010 Winter Olympics in Vancouver, BC and this was a much smaller event. Although the population of Qatar is not as religious as its neighbors, such as Saudi Arabia, the presence of so many non-Museums will likely discomfort some of the local population.

Risks

The analysis has captured some of the risks in hosting the World Cup by including pessimistic and optimistic scenarios. The two general areas of major risk are increased cost of construction and decreased attendance.

Like any construction project, this one may go over budget, as many previous mega events have done. We have considered an increase in costs in the pessimistic an analysis but the costs could be even greater. The recovering worldwide economy and improving regional economy may further increase the demand for construction materials and drive up prices. The increased cost of oil may also increase the costs of raw materials for building the necessary infrastructure.

Another major risk is a decrease in attendance. If the price of oil continues to rise, the cost of air travel will continue to rise and some attendees may not travel to the event. On the other hand, given the average amount spent at the world cup, the price of air travel is a relatively small portion of the expense. Of the countries in the Middle Eastern area Qatar is one of the most stable. By the time the World Cup takes place in 2022 the current disturbances in the area are likely to be a distant memory but there may be lingering unrest. This may influence risk adverse travelers not to attend the cup. Lastly the typical estimate attendance is based on the continued upwards trend of World Cup attendance. Unlike South Africa, Germany or South Korea, other recent locations for World Cups, there are few tourist attractions in Qatar or the immediate area. Some indecisive fans may elect not to go because of the lack of other things to do in the area. The pessimistic scenario considers lower attendance but may not be pessimistic enough.

Although there are Intangible benefits, disbenefits and risks this analysis did not include it is unlikely, including them would be unlikely to change the magnitude of the overall costs and benefits. The typical, pessimistic and optimistic values of the B-C ratio were 0.19, 0.15 and 0.25. It seems unlikely that if the other factors were included that it would change the B-C ratio to a value greater than one. Even if these factors were included the economic analysis would still indicate that Qatar should not host the World Cup.

Conclusion

At the beginning of this paper we made the statement: "*So – this obviously seems like a bad economic investment"*. It's clear from the B-C ratio of 0.19 that the $50B that Qatar will spend hosting the World Cup in 2022 is not a net positive benefit for the country and it is a bad economic investment. If it were possible to include the intangible benefits of improved country image, world wide exposure, and international advertising for the country excluded from the analysis the B-C ratio were included the enormous infrastructure costs outweigh any realistic estimate of benefits. Although the all of that data used is approximations - the magnitude of the values is approximately correct and the B-C ratio would be much less then one. Our results are consistent with the previous academic papers examining World Cup that found there no positive economic benefit. Likewise including the risks of fans not attending because of the lack of other tourist attractions, expensive oil and the risk of political upheaval in the area will decrease attendance the B-C ratio would not be significantly lower.

Examining the realistic pessimistic and optimistic options we found a range of B-C values from approximately 0.15 to 0.25. It's clear that the economic decision to host the games would be no regardless.

So – should Qatar host the games? From an economic analysis view the answer is no. But countries choose to take on massive infrastructure investment projects for many reasons and it's clear that Qatar's economy can pay for hosting the World Cup. Although the economic analysis shows that hosting the World Cup in 2022 does not make economic sense for Qatar – their decision was obviously based on other grounds.

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