IS INDIA READY FOR THE OLYMPICS? A COST-**BENEFIT AND INFRASTRUCTURE ANALYSIS**

NEERAJA GOKHALE* and AMBER MANER St. Xavier's College, Mumbai

Abstract

India's hopes to host the 2036 Olympics will not only lead to international recognition but will also act as a catalyst for development in the country. In the past, developed economies like London (2012) and Paris (2024) have witnessed increased employment, tourism and new upgradation projects. However, India's current infrastructure limitations and income disparities act as barriers to hosting the games wherein costs lay immense burden on the country and revenue generation may not suffice if the Olympics are not planned sustainably. The research aims to present a comprehensive view of India's readiness to host the Olympics, suggesting ways to address the challenges identified and policies for sustainable long-term benefits. It involves a comparative analysis of four host countries, namely, the UK, Russia, Brazil and France with respect to the tourism revenue, costs incurred and the cost overruns. Additionally, an analysis of the Gross Capital Formation (GCF) of the same includes China 2022 Games and current assessment of India. It also comprises an evaluation of India as a potential host, regression analysis, correlation analysis and expert interview, along with a study of tangible and intangible benefits of previous hosts. The paper also provides recommendations to ensure that the hosting of such a mega-event reduces 'white elephant' like investment burdens and ensures sustainability.

JEL Classification: Z230, Z210, H54, H75, L83, 010

Keywords: Olympics Finance; India's Sports Infrastructure; Tourism; Sports Policy; GDP Growth

1. INTRODUCTION

uring the inauguration of the 141st IOC session, Prime Minister Narendra Modi confirmed India's bid to host the 2036 Summer Olympics, fulfilling a longheld national aspiration. However, concerns have surfaced regarding the potential multi-billion-dollar expenses associated with hosting the event.

The Olympics has grown into the world's largest sporting event in terms of scale, significance, and popularity. The Paris 2024 Summer Olympics garnered healthy participation from 206 National Olympic Committees and the Refugee Olympic Team, while also attracting attention from media and 743,000 spectators in just one day. Still, there have been few Games which have generated substantial profits, namely, Los Angeles (1984), Barcelona (1992) and London (2012).

An increase in the bids by developing countries has been noticed since the 2000s accounting for 50% of

the total from 18%. This can be attributed to the fact that hosting the Olympics also drives regional infrastructural development. However, it comes with significant short and long-term consequences for the host country. The Council on Foreign Relations pointed out that developing nations like Russia and Brazil needed to invest massive sums to meet the infrastructure demands of the Olympics.

Sochi's 2014 Winter Games cost over \$50 billion, Rio's 2016 Summer Games amounted to \$20 billion, and China's 2022 Winter Games are estimated to cost a total of \$39 billion (although China reported a much lower figure of \$4 billion).

India, being classified as a developing economy by the UN, has experienced rapid economic growth. This raises the question:

"Do the long-term benefits of trade and infrastructure development outweigh the substantial short-term costs for a developing nation like India?"

2. HYPOTHESIS

Hosting the 2036 Olympic Games in India will drive regional infrastructural development.

3. OBJECTIVES

- 1. To present a comprehensive picture of India's preparedness to host the 2036 Olympics with cost structures.
- 2. To study the short-run and long-run impact of funding the mega-event.

4. LITERATURE REVIEW

The economic opportunities tied to hosting the Olympics drive countries to bid in increasing numbers. The gains of the Games are mainly through job creation, foreign visitors, trade liberalization, investment, and economic growth. However these results are exaggerated since host countries rarely reveal actual data (Wnorowski, 2011b). Since various nations struggle to maintain the long-term use of sports facilities, real gains are limited.

The process of bidding to be an Olympics host country is lengthy and expensive, requiring extensive resources (Wnorowski, 2011b). From 1968 to 2024, every host has exceeded their initial budget. Political motives also play a significant role, with leaders aiming to showcase national strength and charting greater costs (Baade & Matheson, 2016). Hosting costs range from \$5 billion to \$50 billion for studies examining the impact on developing nations.

The 2014 Sochi Winter Olympics is the most expensive ever, costing \$55 billion. It was 4.5 times the original bid. While the Games were intended to promote regional development, many venues remain underused, leaving behind debt and maintenance costs (Müller, 2014).

Even the London 2012 Games, with existing infrastructure, cost \$10 billion. All Summer Games following this one have crossed the \$10 billion mark (Kaur, 2023). Since sport facilities are not the only drivers of costs, significant investments in airports, hotels, and security are required. The lack of quantitative analysis in the above papers is backed by regression analysis in this one.

While costs are emphasised, there's no systematic comparison between expenses and any quantified returns, such as GDP growth, tourism surges, or increased investments.

The above text focuses only on the Olympics. A focus on the hosting of other mega-events such as the Asian Games, also slated as the mini-Olympics & Commonwealth Games reveals India's capabilities through comparison.

5. METHODOLOGY

5.1. Quantitative Methodology

5.1.1. Comparison of Cost Structures and Revenue

A quantitative comparison will be made of the cost structures and revenue generation from the London (2012), Sochi (2014), Rio de Janeiro (2016), and Paris (2024) Olympics. Gross capital formation given as a % of GDP is the current readiness giving the addition to its current stock of capital. This will help contextualise the financial dynamics of hosting the Olympics across different economic environments, providing a benchmark for India.

5.1.2. Correlation Analysis

A correlation analysis will quantify the economic impact of hosting the Olympics. It will establish the relation between the GDP growth, Olympic costs, tourism revenue due to the Games and the FDI inflows and determine the shape, pattern and extent of the effects on each other. The data for four host countries – Beijing (2008), Sochi (2014). Rio (2016) and Paris (2024) will be calculated. This will highlight the most significant impression on the GDP for that particular year, out of the other variables, indicating the long-term benefits.

5.1.3 Regression Analysis

A linear regression model taking the dependent variable as the GDP growth rate and outturn cost of Olympic Games since 1964, including Summer and Winter Games, would establish a relation between the two variables. The log of both variables is considered while one is in percentage and the other in US billion dollars.

5.2. Qualitative Methodology

5.2.1. Analysis of India as a Host of Mega-Sporting Event

This section will evaluate India's existing sports infrastructure, focusing on the readiness and infrastructural development and rapid urban development undertaken during the three times India hosted other sporting events.

5.2.2. Expert Interview

This section will evaluate India's existing sports focusing on readiness and infrastructure, the development and infrastructural rapid development undertaken during the three times India hosted other sporting events through an interview conducted with Mr. Sanand Salil Mitra, international athlete and sports ecosystem engineer. He is known for his positive takes on the long-term impact of hosting the Games. this analysis provides crucial insights into India's current readiness and potential for hosting the mega-event.

5.2.3. Benefits

The intangible and tangible benefits for the past Olympics hosts – London 2012, Sochi 2014, Rio 2016, Pyeongchang 2018, Tokyo 2020, Beijing 2022, and Paris 2024 – are viewed through figures.

6. ANALYSIS

6.1. Comparison of Cost Structures and Revenues

The selection of these games is strategic since London was one of the most successful Games in recent history, while Paris, as the most recent event, provides fresh insights. The Sochi Olympics, hosted by Russia, were the most expensive, due to inflated prices for labour and materials, as well as corruption within the construction industry. Due to wealth inequality and higher cost burden of developing infrastructure, one can draw parallels between the Sochi and Rio Olympics and India. Rio (2016), despite Brazil's economic challenges and high infrastructure costs, managed to succeed in certain aspects, whereas Sochi's expenses were widely

criticised. Notably, London and Paris benefitted from already existing infrastructure, while adopting a sustainable approach. A 2018 study conducted by Brazil's Institute of Applied Economic Research (IPEA) found that Rio's GDP would have been 7.5% lower had the Games not been held. From 2012 to 2015, the income of Rio's poorest 5% grew by almost 30%, and the city's unemployment rate decreased by 50% during this period. Additionally, tourism saw a great boost during the Games, with 1.17 million tourists generating \$1.2 billion revenue, positioning Rio as a potential host for Games to come. However, these benefits seemed insignificant due to the financial and organisation issues with Rio hosting the Games since its worst recessionary phases since the 1930s. Record-high crime rates and budgetary cuts in education and healthcare were observed. The challenges Rio faced in managing Olympic venues post-Games sparked debate about the feasibility of new venue construction for an event lasting just over two weeks. For example, a plan to auction off the venues failed, and currently, Brazil's federal government operates most Olympic arenas.

Considering Tokyo's 2020 Olympics, economist Zimbalist points out that the \$13.7 billion budget was for the 17-day event only. The actual costs likely reached \$30 billion accounting for infrastructure, highlighting a pattern of costs exceeding revenues such as from ticket sales and sponsorships, which amounted around \$5 billion.

This pattern is also touted as the 'winner's curse' referring to host countries seeking to fulfill ambitious plans and overboarding costs in the process. Corruption issues have troubled the IOC selection process, leading to changes under President Thomas Bach's Olympic Agenda 2020. This agenda aims to lower bidding costs, promote sustainability, and boost transparency. To implement more significant changes, some economists have proposed holding the Games in one city to avoid recurring infrastructural expenses while some have suggested picking host cities from wealthier nations only. It is unanimously agreed upon that any host should ensure that the Games support broader development goals to leave a positive lasting legacy beyond just the two weeks. A cost overrun in the Olympics is when the actual cost of the games exceeds the planned cost. They are a common feature of the Olympic Games, and they have increased since 2008. Cost overruns have been

consistent, averaging 172% since 1960. Although these figures typically exclude broader urban and transport infrastructure investments, they highlight the increasing expenses associated with hosting the Olympics. The largest budget overrun for the Summer Games was Montreal 1976 at 720%, and for the Winter Games, it was Lake Placid at 324%.

Table 6.1.1 : Comparative Analysis of Olympic Costs and Revenue (2012–2024)

Olympics	Cost Incurred	Cost Overrun	Revenue Generate d
London (2012)	\$ 16.8B	76 %	\$2.6 B
Sochi (2014)	\$ 28.9B	289 %	\$1.3 B
Rio de Janeiro (2016)	\$ 23.6B	352 %	\$2.9 B
Paris (2024)	\$ 8.7B	115 %	

Source: Compiled by authors; Council of Foreign Relations

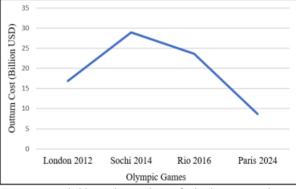
Cost analyses show a trend of budget overruns in the Olympics. For instance, London incurred a 76% overrun with costs reaching \$16.8 billion, Sochi's cost hit \$28.9 billion with a 289% overrun, and Rio saw a 352% overrun at \$23.6 billion. Paris, with a budget of \$8.7 billion, reported a 115% overrun, though this was still below the recent Games' expenses. The 2024 budget relied heavily on private funding (96%), from IOC contributions, sponsorships, and ticket sales, covering the costs of planning and organising the event.

It can be seen from the above table that both the developed countries, that is, London and Paris, have incurred significantly lower costs.

Finally, the table shows the most recent cost estimates and budget overruns of the Olympics to be held between 2026 and 2032. These games will be hosted by all the developed economies, which results in reduced costs for the Olympics. India is aiming to host the 2036 Olympics and will definitely have higher costs in comparison to these countries. Based on past developing host countries, it can be very challenging for India to host the Olympics amidst

rising concerns of pollution, corruption, lack of sports infrastructure, inflation, etc. It will also be important to consider the long-term effects and feasibility of such infrastructure.

Figure 6.1.1: Outturn Cost (Billion USD) of the Games



Source: Compiled by authors; The Oxford Olympics Study 2024

Table 6.1.2: Latest cost estimates and cost overruns of the Games 2026 - 2032

Games	Latest estimate in billion 2022 USD	Cost overrun nominal terms	Cost overrun real terms
Milano- Cortina 2026	2.6	102%	78%
Los Angeles 2028	5.9	28%	-5%
French Alps 2030	2.8-3.5		
Brisbane 2032	3.6	44%	2%
Salt Lake City-Utah 2034	3.5		

Source: Compiled by authors; The Oxford Olympics Study 2024 **Table 6.1.3:** Average and median budget overruns of the Olympic

Games 1960-2024.

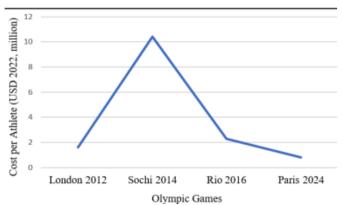
	Real Terms		Nominal Terms	
	Mean	Median	Mean	Median
Summer	195%	121%	336%	142%
Winter	132%	118%	277%	169%
Overall	159%	118%	302%	146%

Source: Compiled by authors; The Oxford Olympics Study 2024

It can be seen from the above figures that Rio 2016 was the most expensive Olympics for Summer Games and Sochi 2014 for Winter Games.

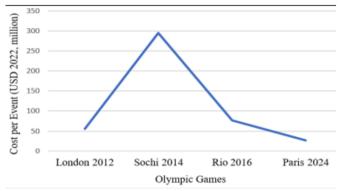
A significant fact to note is that the cost per event for the Sochi 2014 Olympics [295.1 USD 2022 millions] was exorbitant.

Figure 6.1.2: Cost per Athlete of the Olympic Games hosted



Source: Compiled by authors; The Oxford Olympics Study 2024

Figure 6.1.3: Cost per Event of the Olympic Games hosted



Source: Compiled by authors; The Oxford Olympics Study 2024

6.1.1. Gross Capital Formation as % of GDP

Gross Capital Formation (GCF) shows investment in fixed assets such as buildings, equipment, stadiums and other durable assets. The Olympics require large-scale public and private investment and GCF levels are usually elevated in the years surrounding the games.

Developed economies usually have lower Gross Capital Formation as a percentage of GDP because their infrastructure is already mature. As can be observed from Table 5 (A-1) statistics, London, a developed economy, had one of the lowest capital formation levels (16%) but managed to accommodate the Olympics with relatively minimal spending, mostly because it used pre-existing infrastructure and careful long-term planning. This approach minimised the need for large-scale capital outlay. Low GCF meant London relied on existing assets. In contrast, Brazil being a developing economy had a low GCF of 16% and therefore, unlike London utilized existing infrastructure, undertook large-scale investments through an \$895 million emergency loan from the federal government to the state of Rio de Janeiro.

Interestingly, although Sochi 2014 hosted the most expensive Olympic Games ever, with costs estimated at USD 50 billion, its gross capital formation was only 22%. This indicates that while spending on the Olympics was huge, investment in other sectors was relatively limited, or the country's large GDP made the GCF percentage appear smaller. Thus, Sochi's moderate GCF did not reflect the huge specific Olympic cost. Beijing in 2008 and 2022 had the highest GCFs at 42% and 43%, showing large-scale infrastructure projects that supported the country's development goals. Variables including the general condition of the economy, activity in non-Olympic sectors, and country investment policies can also affect these numbers. Beijing's high GCF showed the with **Olympics** aligned massive national development. The gross capital formation of India is 33.32% of its GDP which makes it one of the most investment-heavy countries in the world. This rate is much higher than previous host countries such as the UK (16%), Brazil (15%), or Russia (22%). Considering the magnitude, India can incorporate the infrastructure required for Olympics within the large-scale investment it already incurs. Therefore, additional costs need not be made and existing investment capacity can be strategically realigned to fit the needs of the Olympics as well as for long-term usage of the same.

6.2. Correlation Analysis:

The heatmap, Figure 4 (A-3), represents the correlation values of Spearman's correlation coefficient, ranging from -1 to 1. Each row and column contains the five categories – Olympic Cost, Rate of Inflation, GDP Growth, FDI Inflows and Tourism Revenue – signifying the relation between each variable.

There is a high negative correlation present between the GDP growth for the year and the Olympic cost borne in the same year. This signifies the financial burden of hosting the Games, resulting in a loss-making event. Inflation also has a high negative correlation with tourism revenue, indicating a hindrance in profitability from tourism. FDI inflows and GDP growth show a moderate negative correlation. This denotes that in spite of a downward GDP growth for Brazil in 2016, a boom was observed in the FDI inflows post Rio 2016.

6.3. Regression Analysis:

This linear regression analysis uses the following equation:

$$Y = \beta_0 + \beta_1 OUTTURN + E$$
 (1)

Where,

Y = GDP Growth Rate of the host country for the Olympics' Year

OUTTURN = The actual cost expenditure for the Games

Table 6.3.1: Summary

Regression Statistics			
Multiple R	0.598096		
R Square	0.357719		
Adjusted R Square	0.333016		
Standard Error	0.802838		
Observations	28		

Source: Author's calculation

Table 6.3.2: *ANOVA*

Column	Coefficients	Standard Error	t Stat	P - Value
Intercept	1.404843	0.189602	7.409426	0.00000007
Logged Outturn Costs	-0.39826	0.104659	-3.80536	0.000775

Source: Author's calculation

35.77% of the variation in growth rate for that year can be accounted for by the log(outturn cost). The pvalue is <0.05, making the model statistically significant. The negative coefficient represents that an increase in the costs would lead to a 0.39826 decrease in the growth rate. Host countries observe a fall in the GDP after the Games are held. This not only points to the massive-scale costs incurred on venues and accommodations but to the sinking costs after the Games since they are left unused. Similarly, the tax revenue which primarily is used to subsidise the various events of the Games, rarely are pumped back in the economy as tourism revenue, which can lead to leakages. (Mehrotra, 2011) While the Olympics are held for 15 days, the massive scale and cost of this event have implications far beyond that month, resulting in a negative impact on the growth rate, albeit 35%. Existing literature also suggests a

long-run negative impact of these costs on the economy. Cases in point: Rio 2016 faced negative benefits due to harder existing conditions. Brazil was already experiencing a recession, which strained the funding and resources available for the Olympics. Unlike cities such as London, Rio failed to significantly boost its international reputation or draw long-term tourism and business investments. Japan has seen slow economic recovery after the 2008 financial crisis, along with an aging population and high debt before 2020. The Games led to significant upgradation and investment initiative but the pandemic hit harder on the economy. According to Yu (2024), the economy shrank 3.74% after the Games, due to a decreased number of tourists among other reasons.

6.4. Analysis of India as a Host of Mega-Sporting Events:

The Commonwealth Games 2010 reportedly contributed an estimated US \$4.94 billion to India's GDP over 2008–2012, which was nearly three times the impact of the Melbourne 2006 Games whilst generating roughly 2.47 million job opportunities. India built five new sporting venues and upgraded iconic facilities like Jawaharlal Nehru Stadium and Indira Gandhi Stadium, later open for public use. The Games accelerated transport projects: airport expansions, metro line enhancements, flyovers, and road widening significantly improved Delhi's connectivity.

The first Asian Games (the second largest multisports event ever) was held in 1951, from 4th to 11th March, after being delayed from 1950 due to logistical and financial constraints. It was hosted at the Irwin Amphitheatre, renamed as the National Stadium, Delhi. 11 countries participated with over 480 athletes in 6 sports. They were regulated by the Asian Games Federation till 1978, being held every four years post 1951. It was the first large-scale sports event held in India while it was recovering from a war-torn economy and refugee crisis and diverting the burden of hosting the Games without funds or infrastructure from healthcare and developmental infrastructure. Guru Dutt Sondhi resigned from the organising committee six months before the Games. A group of individuals were involved in the organisation of the event - patrons, civil servants and sports administrators - since the structure involved

the repairs for the National Stadium increased the audience accommodation count to 40,000 spectators. While swimming and water polo were the only exceptions to be held in the pool adjacent to the stadium, built by NSCI. General Cariappa, Chief of Army Staff, procured 2 army staff buildings, which were eventually turned to contain the athletes' village. The benefits were touted on a global scale, heralding the arrival of an independent India and its efforts taken towards Asian unity.

India ranked 2nd in the medal tally – the best rank achieved up to now – considering China and Pakistan did not participate due to tensions on the border. The All India Radio, the more accessible broadcast medium, covered all live event coverage, results and even live commentary.

The 1982 Asian Games, the biggest events till then, now regulated by the Olympics Association of Asia, were a chance to prove India's development and modernisation. It marked a turning point in India's approach to mega sports events. 33 countries participated with over 4,500 athletes in 21 sports.

The Asian Games Special Organising Committee was given charge of monitoring the activities. The Asiad Village, constructed on a 35-acre land near Siri Sport Stadium, is now a residential area with green areas and climate-responsive site planning. World-class arenas such as the Jawaharlal Nehru Stadium, Indira Gandhi Indoor Stadium and Talkatora Swimming Pool and Stadium were built in this period. Its modern infrastructure, including synthetic tracks and retractable roofs, plus a seating capacity of 60,000, accelerated the pace of Delhi's infrastructure.

The road infrastructure saw new flyovers, road widening, and an increase of 290 buses to the Delhi Transport Corporation. Bearing the surge in tourists and foreign teams, 12,000 new phone lines were added and 150 km of telephone cables were laid. The official launch of colour television in India was due to these Games, wherein Doordarshan had to massively upgrade its infrastructure, including cameras and OB vans. Sales ascended and viewership surged. Diplomatic ties were bolstered, and India's status in Asian sporting and political circles was solidified. A new era in Indian sports was sparked with Pravin Jolly, Charles Borromeo and even P.T. Usha gained her first dose of international attention. Observers

from Seoul, the host of the 1986 Asian Games, were sent to Delhi. From political turmoil right up to 1980, the rapid urban development ensured a successful Games.

Finally, Table 6 reveals the allocation of funds under the Khelo India scheme across different states in the country. Punjab contributed 19 athletes to the 2024 Olympics and received ₹78 crore. Haryana sent 24 athletes, the most of any state, but received a lower allocation of ₹66 crore. In contrast, Uttar Pradesh and Gujarat received the largest amounts, ₹438.27 crore and ₹426.13 crore, but only sent 6 and 2 athletes to the Olympics, respectively. This shows inefficiencies and raises serious questions about how resources are allocated under the scheme. Haryana's exceptional sports culture should be facilitated by the necessary monetary requirements.

6.5. Expert Interview

'The Olympics is a loss-making event when viewed singularly.'

Viewing the action plans and task forces employed for upgrading the area in a better light can significantly policymaking, boost enhance production, foster entrepreneurial enterprise, and stimulate extensive research. The Olympic Broadcast Service for Paris alone brought together 16,000 people, which should bring about greater benefits. Almost 35 sectors will be engaged in development for the event, ramping up quality for exports for years further. Rose and Spiegel (2011) stated that it was not the event itself or the resulting tourism or advertising that increased exports, but rather that the very act of bidding served as a credible signal for a to commit to trade liberalisation, permanently trade flows increasing and strengthening relations.

Intent for hosting will also be a driver in the hosting of the Games. While it is seen that previous hosts used this for the demonstration of political and economic power, with Russia's \$51 billion spending in 2014 or China's \$45 billion investment in 2008. In India's democratic system, after the reported frauds in CWG, 2010, there will be further deliberations on the costs and allocations of funds. Scrutiny and criticism are bound to arise where the whole nation

will come together. A very important point mentioned by our interviewee is the 7+5 framework that India needs to look at meticulously before hosting the Olympics. The first seven years will involve infrastructure development, which will then enable our country to train Indian athletes as well as encourage foreign participation.

6.6. Benefits

Table 6.6.1: Benefits for the Previous Olympic Host Nations

Olympics	Tangible and Intangible Benefits
London 2012	● Urban redevelopment of East London, green infrastructure, 13,000+ trees planted, 110,000+ jobs, £14.2B + trade & investment gains, new housing. ● Community cohesion through volunteering, education outreach to 85% schools, national branding, global youth engagement.
Sochi 2014	• 12 venues reused, new tourism/resort infrastructure, new rail/airport, F1 track, regional economic diversification, increased events hosted. • Science/sports education (Sirius Academy), accessibility legacy, tourism branding, cultural engagement.
Rio 2016	 Revitalised 5M m² of Porto Maravilha, 150+ km of BRT and new metro line, new schools and parks, GDP uplift, improved transport integration. Cultural enhancement, education programs for 8M+ students, reduced income inequality, social integration, sports uptake.

PyeongChang 2018	Green-certified venues, high-speed rail, EV charging infrastructure, Olympic Village turned residential. Global winter sports exposure, 22,000+ workforce trained, regional sustainability leadership, cultural collaboration.
Tokyo 2020	 \$3B in venue construction, urban housing reuse, hospitality upgrades, boost to electronics and retail sectors Increased national pride, women's empowerment, sports engagement, policy reform debates.
Beijing 2022	 Reuse of 2008 venues, major tourism & job growth, hydrogen-powered transport systems, green tech showcase Winter sports growth (346M people), gender equity in sports, environmental leadership, national visibility.
Paris 2024	 Resource donations, tourism surge (11.3M+), record ticket sales, revenue impact (~\$12B), hospitality and retail boost. National pride, cultural exchange, international collaboration, inclusive Olympic -Paralympic hosting model.

Source: Compiled by authors; Olympics.com, Deseret News & TIME.

7. POLICY RECOMMENDATIONS

- The Olympics is always a loss-making activity as the trend from previous hosts suggests. However, developing countries tend to have more cost overruns from developed countries making it a more risky endeavour. Since India doesn't have a very strong foundation for infrastructure, greater costs will be incurred. But the infrastructure should be made in such a way that it is reused and utilized for the common people of the country.
- As mentioned previously, a high Gross Capital Formation (GCF) percentage has been linked to the success of the Olympics in developed countries. India's emphasis on capacity building could thus be vital for the Games. (7+5 framework as recommended by Mr. Sanand Salil Mitra, starting from 2024)

- As mentioned in the tangible and intangible benefits, Olympics can lead to the promotion of national integration via robust media platforms.
 To reduce the carbon footprint, and ensure sustainability, environment friendly centres will be crucial for the country as it suffers from pollution.
- As mentioned in the Khelo India scheme, there has been inefficient allocation of funds across different states, including unaccountability from states that have not performed well despite huge budget allocations. Favouritism and political biases should not hinder talent acquisition.

8. LIMITATIONS

The limitation of our research paper is that it relies on historical data rather than current data, as India has yet to host the Olympics in 2036. Similarly, due to the unavailability of certain data, certain regression variables such as GCF, investment rates and FDI were omitted.

In the short run, there is an ambiguous correlation between the FDI inflows, tourism revenue and GDP growth. Since only four host countries were considered, it considered data from only four years, showing indicative but inconclusive results. The limitation of our research paper is that it relies on historical data rather than current data, as India has yet to host the Olympics in 2036. Similarly, due to the unavailability of certain data, certain regression variables such as GCF, investment rates and FDI were omitted.

9. CONCLUSION

From the study it can be concluded that the costs of hosting the Olympics will be a major factor in determining the success of the Games. Recovery and revenue generation through a tourist surge and media deals act as a vital opportunity for employment generation. This is consistent with our quantitative methodology. India has submitted the bid to host the Olympics in Ahmedabad in 2036. In the union budget of the previous 5 years, there has been an increasing emphasis on sports infrastructure development in India, with 900 crores allocated to Khelo India and the overall sports budget increasing from 3396.96 crore rupees in 2022-23 to 3442.32 crore rupees in the 2024-25 budget. All previous host countries have witnessed tremendous cost overruns compared to the costs initially proposed, which will hold true for India as well. Urban planning that has been set in motion at least 7 years before the onset of the Games will lead to better outcomes. One important point to note is the huge cost differences between developed and developing countries. Underutilisation and eventual desertion of newly constructed infrastructure specifically made for the games have been significant drawbacks of hosting the games. After the 60% drop in tourism since the pandemic (2020), a welcome consequence of hosting the Olympics would be the rise in tourism, though insignificant to the costs. The past record of cities hosting the Olympics reveals one trend: while the tangible benefits such as constructing infrastructure, generating employment, and transforming urban districts vary in extent and priority, the intangible ones such as enhancing national pride, enhancing cultural visibility, mobilising youth, and projecting a global image tend to leave lasting legacies that extend far beyond the closing ceremony.

APPENDIX

Table A-1: Gross Capital Formation (% of GDP)

Year	Host City	Country	GC
		Type	F
2000	Sydney	Developed	26
2002	Salt Lake City	Developed	22
2004	Athens	Developed	25
2006	Torino	Developed	22
2008	Beijing	Developing	42
2010	Vancouver	Developed	23
2012	London	Developed	16
2014	Sochi	Developing	22
2016	Rio de Janeiro	Developing	15
2018	PyeongChang	Developed	31
2020	Tokyo	Developed	25
2022	Beijing	Developing	43

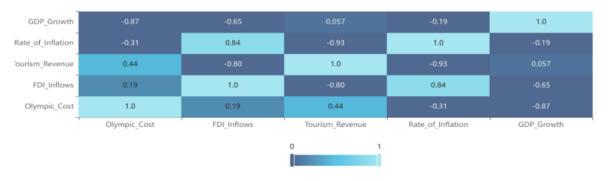
Source: Compiled by authors; World Bank

Table A-2: Correlation Analysis

Games	Olympic Cost	FDI Inflows	Tourism Revenue	Rate of Inflation	GDP Growth
Beijing 2008	52.7	18.4	3.6	5.93	9
Rio 2016	13	70	1.2	8.74	-3.6
Paris 2024	9.1	15.9	10.7	1.2	0.7
London 2012	13.3	6.3	12.9	2.57	2.2

Source: Compiled by authors; Olympics.com, Banco Central Do Brasil and Statista

Table A-3: Heatmap showing Spearman's Correlation



Source: Compiled by authors; Olympics.com, Banco Central Do Brasil and Statista

Table A-4: Regression Analysis of Logged Outrun Cost and GDP Annual Growth Rate for Summer and Winter Olympics

Olympics Games	Logged Outturn Costs (US Billion Dollars)	Logged GDP Annual Growth Rate (%)
Tokyo 1964	-1.203972804	2.459588842
Grenoble 1968	0	1.504077397
Munich 1972	0.09531018	1.458615023
Sapporo 1972	-2.302585093	2.128231706
Montreal 1976	1.960094784	1.774952351
Innsbruck 1976	-2.302585093	1.526056303
Moscow 1980	2.041220329	1.435084525
Lake Placid 1980	-0.693147181	1.203972804
Los Angeles 1984	-0.223143551	1.974081026
Calgary 1988	0.182321557	1.481604541
Barcelona 1992	2.451005098	-0.105360516
Albertville 1992	0.741937345	0.405465108
Lillehammer 1994	1.223775432	1.62924054
Atlanta 1996	1.547562509	1.335001067
Nagano 1998	0.78845736	-0.262364264
Sydney 2000	1.648658626	1.360976553
Salt Lake City 2002	0.993251773	0.530628251
Athens 2004	1.131402111	1.686398954
Torino 2006	1.547562509	0.587786665
Beijing 2008	2.116255515	2.272125886
Vancouver 2010	1.16315081	1.131402111
London 2012	2.821378886	0.405465108
Sochi 2014	3.363841595	-0.356674944
Rio 2016	3.161246712	-1.193922468
Pyeong Chang 2018	1.223775432	1.064710737
Tokyo 2020	2.617395833	-1.410986974
Beijing 2022	2.163323026	1.098612289
Paris 2024	2.163323026	0.09531018

Source: Compiled by authors; The Oxford Olympics Study 2024 and World Bank

Table A-5: State/UT-Wise Details of Funds Released for the Development of Sports Infrastructure Under Khelo India Scheme

Khelo India State/ UT	Funds released (in Rs. crore)
Andhra Pradesh	21.91
Arunachal Pradesh	148.91
Assam	43.68
Bihar	20.34
Chhattisgarh	19.66
Delhi	69.99
Goa	4.24
Gujarat	426.13
Haryana	66.59
Himachal Pradesh	17.48
Jammu and Kashmir	18.84
Jharkhand	9.63
Kamataka	109.11
Kerala	50.00
Ladakh	13.58
Madhya Pradesh	94.06
Maharashtra	87.43
Manipur	46.71
Meghalaya	15.28
Mizoram	31.73
Nagaland	45.75
Odisha	34.25
Puducherry	8.75
Punjab	78.02
Rajasthan	107.33
Sikkim	24.64
Tamil Nadu	20.40
Telangana	17.77
Tripura	32.30
Uttar Pradesh	438.27
Uttarakhand	23.78
West Bengal	22.22
Total	2168.78

Source: Compiled by authors; Ministry of Youth Affairs and Sports

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