

International Journal of Social Science Exceptional Research

What does the GDP of a country say about its medals tally? Mapping relation between economic development and sporting performance at the Olympics

Bandana Pandey ¹, Vidhanshu Kumar ^{2*}

¹ Dean, SOHSS, Gautam Buddha University, Greater Noida, Uttar Pradesh, India

² Research Scholar, Gautam Buddha University, Greater Noida, Uttar Pradesh, India

* Corresponding Author: **Vidhanshu Kumar**

Article Info

ISSN (online): 2583-8261

Volume: 02

Issue: 06

November-December 2023

Received: 10-10-2023;

Accepted: 13-11-2023

Page No: 195-203

Abstract

Sports and politics are intertwined, and so are sports and economics. While a lot of studies have been conducted establishing sports' role in politics, there is scope of lot more studies on the role of sports in economics and vice versa. This study looks to find out if there is any correlation between economic strength of a country and its performance in sports. Two variables of Olympic Games and the country's corresponding GDP are taken into account and results are analysed using the established method of experimental research. The results of the study clearly show a trend in which dominant economies are also the leading countries at the medals tally of the Olympic Games.

DOI: <https://doi.org/10.54660/IJSER.2023.2.6.195-203>

Keywords: GDP, economic, Olympics

Introduction

Relations between sports and politics and sports and nationalism is well established in academic literature. (Bairner, 2001) ^[1]. There is a complex interconnection between several economic and sports notions. While sports have a growing impact on economics, economic theories also find their place inside the domain of sports.

According to Goddard and Sloane, there are two main reasons why those who study economics should also study sports. Number 1, the professional ways in which the league teams are managed throw light on many good practices that can be adapted elsewhere in other industries too. Second, is the opposite reason – the way some the leagues are organized taking into account rights and anti-competition laws etc, there needs to be a close look at the organization and conduct of these professional leagues and games. (Goddard & Sloane, 2005) ^[3].

Research has also looked at the game theory and how it is used both by the economists and sports students. Economists conventionally utilised theory to predict the trajectory of events based on their goals, motivations, and understanding of what is most advantageous. It utilises numerical models to examine how the strategies of different "players" can affect the gains of others. The term "game" was chosen because it replicates the techniques used by instructors in sporting competitions, but with the use of statistical models. By employing this economic perspective, sports have converted competitions into quantifiable occurrences. A coach can employ a quantitative model to assess the results of a baseball game by inputting numbers that represent the prospective strategies of the opposing team. Game theory can be utilised to design tactics in sports and economics.

Furthermore, there is a correlation between economics and athletics when it comes to the identification of fresh potential. The central emphasis of the 2003 book "Moneyball" and its accompanying film adaptation is the narrative. (Lewis, M, 2015) ^[5]. Former general manager Billie Beane of the Oakland Athletics baseball team employed advanced economic approaches to find talent. Historically, baseball has assessed player performance by utilising metrics such as batting average. As a result of limited financial resources, the Oakland Athletics were unable to keep players that excelled in certain particular domains.

Beane devised a technique that recognised undervalued people in the market who possessed important skills. A previously unorthodox method ultimately yielded remarkable achievement.

Oakley Athletics demonstrated the ability to compete with significantly higher-budget clubs, such as the New York Yankees, by successfully reaching the postseason in both 2002 and 2003. Since 2015, when the New York Mets made it to the World Series, other teams have also tried and succeeded to some extent with this tactic in similar situations. The New York Times drew a parallel between the release of "Soccernomics" by Simon Kuper and Stefan Syzmanski in 2009 and the impact that "Moneyball" had on the sport of baseball. The authors contended that a fresh analysis of existing data is necessary for football, similar to baseball, by establishing connections between football, economics, and well-being. (Kuper, 2009) ^[4]

The book contends that the individuals responsible for European football administration exhibit a deficient understanding of fundamental business principles. If this situation remains unchanged, it is probable that clubs and national teams from growing economies like China and India will eventually outperform them. Despite the significant amount of money involved in football, many clubs still have financial difficulties. In fact, existing research contradicts the belief that expensive player transfers lead to success on the pitch.

Gaining a more profound understanding of the connection between sports and economics helps enhance our perception of how sports can be employed to foster economic growth. A considerable segment of the sports sector, with the capacity to bring about beneficial societal transformation, has not been given sufficient consideration. Grassroots sports, specifically, foster the inventive aspect of economies and possess immense potential. According to the World Economic Forum, the sport sector that has the most potential to assist society is the one that does not receive sufficient support from different stakeholders. However, the Creative Economy might potentially alter its stance if it acknowledges the economic and social advantages of boosting investments in grassroots athletics. In this context, innovative public-private partnership models could provide positive outcomes.

The Olympic Games: Moreover, it is commonly known as the Summer Olympics. The Summer Olympic Games, also known as the Olympiad, were first established in 1896. The event is a quadrennial multi-sport international competition. The Olympic Games, a global sporting event, take place once every quadrennium. Sports primarily seek to foster personal growth and cultivate global unity. The Winter and Summer Games are organised separately. London served as the host for the 2012 Olympic Games, making it a significant event of remembering. A total of 302 unique events were recorded, featuring participants from 204 nations and territories competing in 26 different sports. The Olympic Games began some 2,300 years ago. The source of inspiration for this event is the ancient Olympic Games, which took place in the Olympia region of Greece. The origins of the Games have been the topic of different speculations, however some argue that they emerged from the worship of gods and developed into a competition involving physical and artistic skills. Nonetheless, the ancient Olympic Games were terminated in 393 as a result of the host region being engulfed in warfare. The ancient Olympic Games, which had been dormant for 1,500 years, were revived in the late nineteenth century upon the request of French academic Baron Pierre de Coubertin. The International Congress in Paris unanimously endorsed his proposition to resume the Olympic Games in 1894. The

first Olympic Games were held in Athens, Greece, two years later. The five-ring insignia, which he created as the symbol of the Games and represents the union of the five continents, enjoys widespread recognition. The International Olympic Committee (IOC) is tasked with the role of supervising the host city and organising the Olympic Games. The third-place finisher receives a bronze medal, the first-place finisher receives a silver medal, and the third-place finisher receives an Olympic medal. This practice has been observed since 1904. Greece, France, Great Britain, Australia, and Switzerland are the sole countries to have participated in every Summer Olympic Games. The organising of high-profile sporting events like the Olympics has the capacity to impact a country's diplomatic prestige and soft power. (S. Murray, 2018) ^[6]

Economics of hosting Olympics Games: Hosting the Olympic Games yields significant economic advantages by fostering the growth of various sectors. These include the enhancement of workforce and volunteer capabilities, the creation of career prospects, the expansion of the tourism and events industry, the stimulation of the business sector, the elevation of global reputation, and the strengthening of diplomatic relations. Metropolitan areas invest substantial financial resources to assess, organise, and present a proposal to the International Olympic Committee (IOC). According to a research paper by Council for Foreign Relations, the expenditure associated with the activities of planning, engaging advisors, coordinating events, and doing essential travel typically ranges from \$50 million to \$100 million. Tokyo allocated a substantial sum of \$150 million towards its unsuccessful campaign for the 2016 Olympics, and around half of that amount for its triumphant bid for the 2020 Olympics. In contrast, Toronto determined that it lacked the financial means to invest \$60 million required for a bid for the 2024 Olympics. Upon selection as the host city, there is an approximate period of ten years for preparation to accommodate the arrival of athletes and tourists. The Summer Games have a far greater scale, drawing in a multitude of international tourists, numbering in the hundreds of thousands, to witness the participation of over ten thousand athletes in over three hundred events. In contrast, the Winter Games feature fewer participants, under three thousand, competing in around one hundred events. The primary requirement is the establishment or enhancement of highly specialised sports infrastructure, including cycle tracks, ski-jumping arenas, the Olympic Village, and a venue of sufficient capacity to accommodate the opening and closing ceremonies. Tokyo allocated a substantial sum of \$150 million into its unsuccessful bid for the 2016 Olympics, whereas Toronto determined that it lacked the financial means to pursue its candidature for the 2024 Olympics. Additionally, there is typically a requirement for broader infrastructure, particularly in the areas of housing and transportation. In order to comply with the IOC's regulations, towns selected to host the summer games must possess a minimum of forty thousand hotel rooms. Consequently, Rio had to build an additional fifteen thousand hotel rooms to meet this requirement. Infrastructure such as roads, train lines, and airports require improvement or construction. Collectively, these infrastructure expenses vary from \$5 billion to more than \$50 billion. Several nations rationalise these expenditures with the expectation that the investments will endure beyond the conclusion of the Olympic Games.

Approximately 85 percent [PDF] of the money for the Sochi 2014 Games, which exceeded \$50 billion, was allocated to constructing non-sports infrastructure from the ground up. Over 50% of the \$45 billion budget for the Beijing 2008 Olympics was allocated to the development of trains, roads, and airports, while approximately 25% was dedicated to environmental restoration initiatives.

Research Objectives

Sports have an impact on economies too. The main objective of this research is to find out whether there lies any relation between economic prosperity and performance at sports. To analyse this broad objective, the following Research Questions were

1. Is there a relation between GDP of a nation and its performance at the Olympic Game.
2. Does a country with greater GDP fare better at the Olympic Games?
3. Does a country that rises the ladder of GDP also rises in winning medals at the Olympics?

Research Methodology:

To conduct this research Experimental Research is most suited approach. Experimental research is a scientific investigation that employs two sets of variables. The initial set serves as a fixed reference point, which you utilise to quantify the disparities of the subsequent set. Quantitative research methodologies, such as experimental approaches, are utilised. Experimental research is an effective technique for comprehending cause-and-effect interactions. It enables us to manipulate variables and examine their effects, which is essential for comprehending how various elements impact the conclusion of a study.

However, the significance of experimental research extends beyond that. It is an essential technique for numerous scientific and academic investigations. It enables us to experiment with hypotheses, innovate new goods, and achieve revolutionary findings. Experimental research has numerous advantages. Researchers have greater control over factors in order to get desired outcomes. The efficacy of experimental research is not influenced by the subject or industry. It can be implemented by any industry for the aim of conducting research. The results are precise. Upon doing a thorough analysis of the outcomes, you can then utilise your findings to make informed applications to analogous concepts or circumstances. You can discern the causal relationship and consequential impact of a hypothesis. Researchers can conduct a more comprehensive analysis of this relationship to uncover further insights. Experimental research is an optimal initial step. The data you gather serves as a fundamental basis for generating more ideas and carrying out further action-oriented research.

Sampling and Data Collection

In this research, Olympic games medals tally and corresponding GDPs of countries are analysed to establish a causality. Summer Olympic Games medals tally from 1988 onwards to 2021 are collected. We look at the top ten medal winners in each Olympics and rank the countries from 1 to

10. Then we collect the GDP figures of each country in the top ten list according to the Olympic year. Thus the two variables are GDP and medals tally rank. We plot these two variables in a clustered chart bar to compare values across the variables. For Medals tall, the website of International Olympic Association, IOA is used. IOA is the chief organsier of the Olympic Games. For GDP data, historical data of the World Bank is analysed and its shown here. It is also important to note here that during the period of this data samples, some countries have broken down and new countries formed. Fo example USSR broke down by 1992 and Russia and other CIS countries were formed. On the other hand, East and West Germany had combined into one country by 1992. There figures are mentioned according to their historical existence.

Findings and Discussion:

Here we plot below all the Olympic Games under study from 1988 to 2020-21 and plot their variable graphs. The results are displayed and discussed here under.

1988, Seoul Olympics

Table 1

Most Medals in 1988	GDP in 1988
1. Soviet Union	2,600
2. East Germany	120
3. United States	5,500
4. South Korea	224
5. Hungary	47
6. Bulgaria	29
7. Romania	70
8. Cuba	18
9. Poland	95
10. Czechoslovakia	65

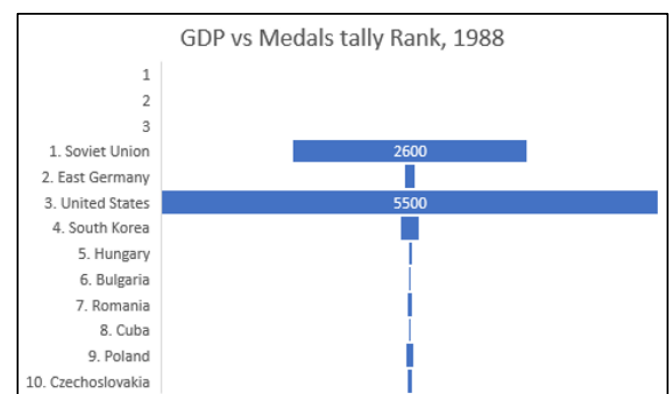


Fig 1: Medals tally Rank and GDP in 1988

As we can see in this Graph, Soviet Union has topped the medals tally ranking as number 1 and it also has the second highest GDP in the top ten countries. USA, which has the highest GDP has come in the third place. This is the time when socialist countries were doing strong and though their GDP numbers were small, they had relatively better performance at the Olympics as shown by the countries like East Germany, Hungary, Cuba etc.

1992, Barcelona Olympics

Table 2

1992	
1. Unified Team (former Soviet republics)/Russia	200 (only Russia), 2600*
2. United States	6540
3. Germany	2100
4. China	314
5. Cuba	18.6
6. Spain	570
7. South Korea	305
8. Hungary	51.3
9. France	1537
10. Australia	347.3

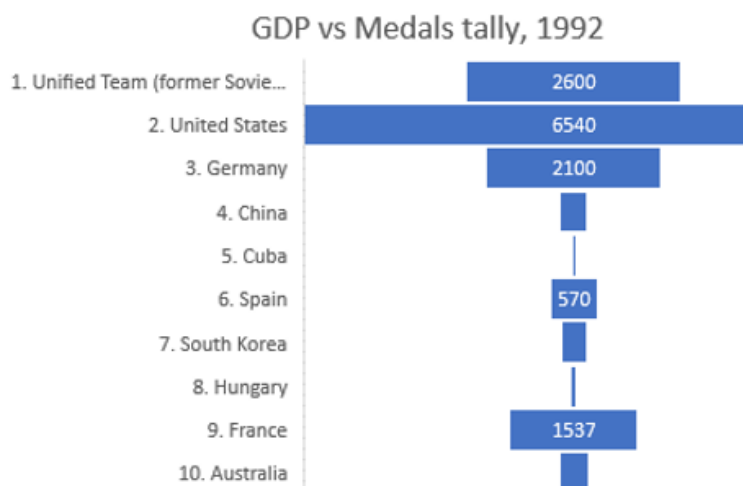


Fig 2: Medals tally Rank and GDP in 1992

The above chart also shows a similar pattern to 1988. Though Soviet Union is now broken into many countries, the Unified Teams that they represent in Barcelona tops the ranking followed by USA and Germany (now East and West Germany have unified as one country). This chart is also unique because it clearly shows the One, Two and Three rank

holders in GDP also occupying the top three positions at the medals tally of the Spain Olympics. Though, they are not in same order, but in order of 2,1, and 3.

Also significant to note here is that China has sneaked into the top ten and its GDP is also continuously rising.

1996 Atlanta Olympics

Table 3

1996	
1. United States	7,812
2. Russia	388
3. Germany	1,848
4. China	652
5. France	1,488
6. Italy	1,223
7. Australia	396
8. Cuba	18
9. Ukraine	48
10. South Korea	417

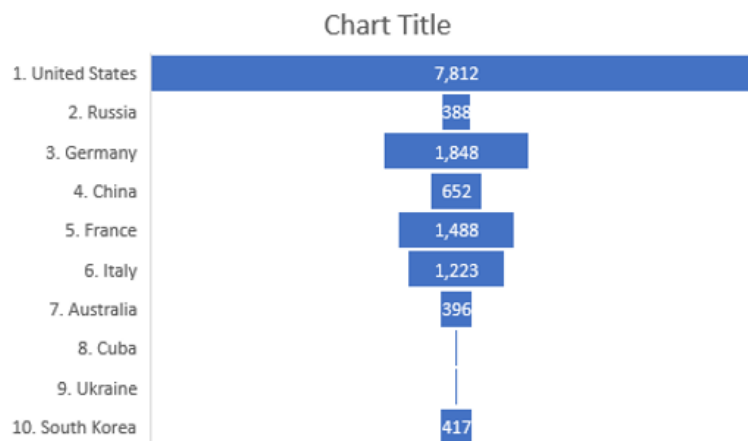


Fig 3: Medals tally Rank and GDP in 1992

From 1996, we start to see the dominance of USA rising and while Russia starts to lose its number one position. This is the first time that in this data set we get to see the number one GDP holder also occupying the number one rank in the Olympics. USA with 7812 Billion USD GDP is by far the

number 1 economically and it also holds the number one rank in the medals tally. Russia is number two in medals ranking but number 7 in terms of GDP of the top ten medals winning countries. Germany, the number 2 in GDP is at the number 3 place in the medals ranking.

2000 Sydney Olympics

Table 4

2000	
1. United States	10,285
2. Russia	259
3. China	1,211
4. Australia	419
5. Germany	1,965
6. France	1,558
7. Italy	1,178
8. Cuba	18
9. South Korea	427
10. Netherlands	504

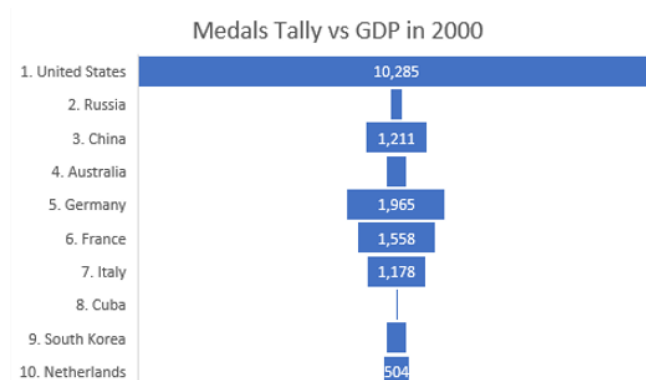


Fig 4: Medals Tally Rank and GDP in 2000

Once again in this figure the number one country by GDP is also the number one country by medals tally rank. This phenomenon seems to be taking the dominating position by now. Usual countries by GDP France, Germany and Italy also

occupy high positions in the medals tally, and so does Russia which despite being number 9th GDP on the top ten medals tally list, manages to hold on to the second spot.

2004, Athens Olympics

Table 5

2004	
1. United States	11,734
2. China	1,649
3. Russia	761
4. Australia	618
5. Japan	4,521
6. Germany	2,734
7. France	2,113
8. Italy	1,825
9. South Korea	888
10. Great Britain	2,301

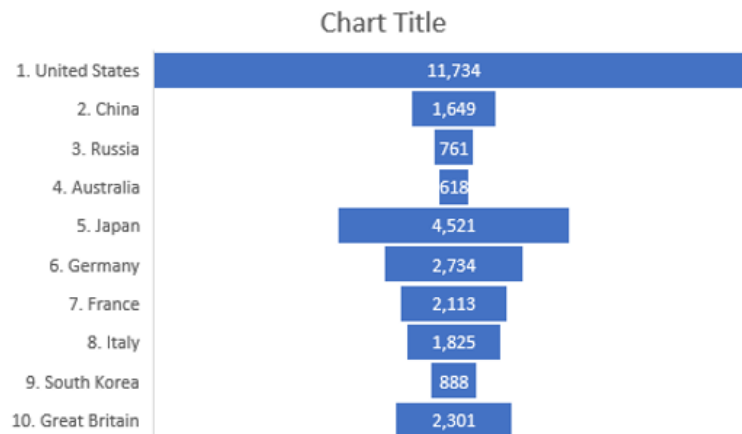


Fig 5: Medals Tally Rank and GDP in 2004

Once again USA tops in both the variables but we also see for the first time China rising to the number two spot in the medals tally ranking. Russia is relegated to the number 3 spot while the usual GDP high countries like France, Germany and Italy once again feature prominently in the top ten medal

winners list. We also see countries like South Korea and Australia matching their GDP growth with betterment in medal rankings. This is also the year when we don't see any small economy punching above its weight in the medals tally.

2008, Beijing Olympics

Table 5

2008	
1. China	4,558
2. United States	14,719
3. Russia	1,669
4. Great Britain	2,787
5. Germany	3,666
6. Australia	1,056
7. South Korea	1,002
8. Japan	4,849
9. Italy	2,313
10. France	2,863

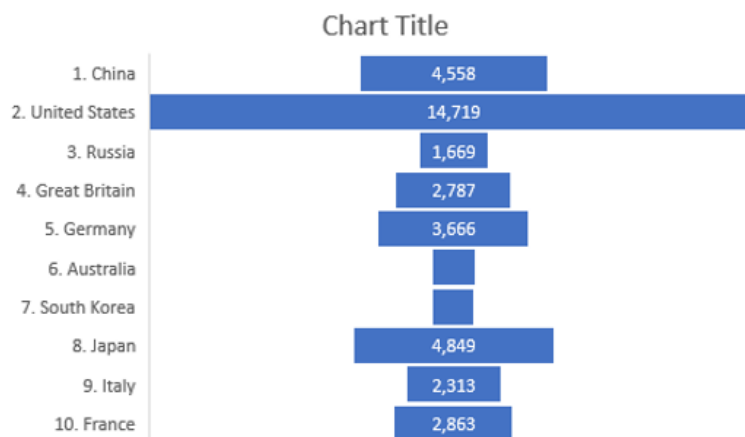


Fig 6: Medals Tally Rank and GDP in 2008

2008 is the year when China hosts the Olympics for the first time and we also see the country topping the medals tally. GDP wise China is at number 3 position in 2008, way behind the

leaders USA, but just behind Japan. This year USA is at number 2 while Russia is at the 3rd spot.

2012 London Olympics

Table 6

1. United States	16,155
2. China	8,617
3. Russia	2,182
4. Great Britain	2,614
5. Germany	3,542
6. Japan	5,964
7. Australia	1,560
8. France	2,734
9. South Korea	1,169
10. Italy	2,071

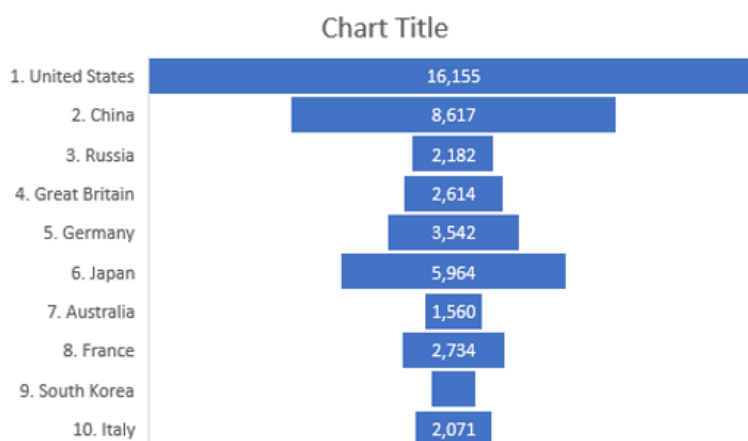


Fig 7: Medals Tally Rank and GDP in 2012

This year the top two countries by GDP are back in the top two list of medals tally. USA is first, and China which has by now become the second country in the highest GDP list also

emerges as number 2 medals tally. Though this is a fall down from 2008 when it hosted the games and topped the medals chart.

2016 Rio Games

Table 7

1. United States	18,624
2. Great Britain	2,650
3. China	11,393
4. Russia	1,283
5. Germany	3,477
6. France	2,465
7. Japan	4,940
8. Australia	1,204
9. Italy	1,850
10. Canada	1,531

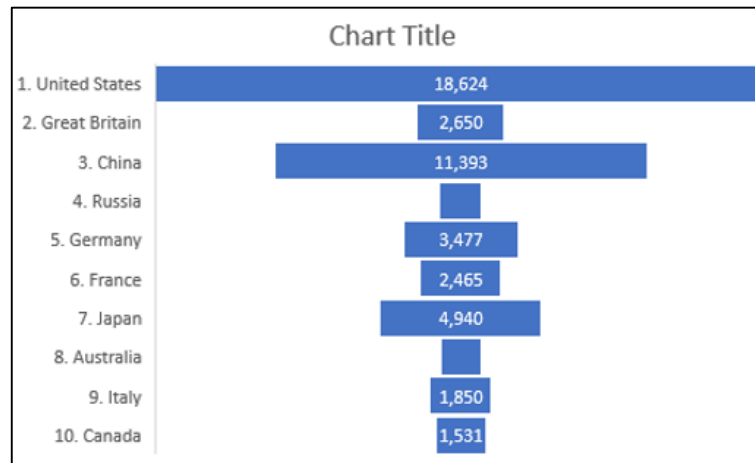


Fig 8: Medals Tally Rank and GDP in 2016

In 2016 the Games are hosted by Brazil. USA has number one GDP in 2016 and it also ranks one in medals tally.

2020 Tokyo Games (held in 2021 due to Covid)

Table 8

1. United States	21,433
2. China	16,264
3. Japan	5,047
4. Great Britain	2,650
5. ROC (Russian Olympic Committee)	1836.9
6. Australia	1,392
7. Netherlands	907
8. France	2,780
9. Germany	4,242
10. Italy	1,848

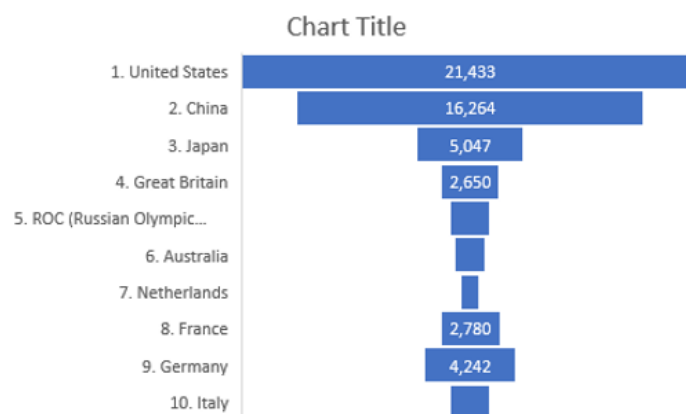


Fig 8: Medals Tally Rank and GDP in 2021

The Tokyo Olympics scheduled for 2020 were postponed by an year due to Covid 19. Held in 2021, it once again saw the top three countries reinstated as number 1,2 and 3 in the medals tally as well. USA, China and Japan held the top 3 positions in both the variables.

Conclusions and Discussion

In this research we looked at the top ten medal winners in each Olympics and ranked the countries from 1 to 10. Then we collected the GDP figures of each country in the top ten list according to the Olympic year. Thus the two variables are GDP and medals tally rank were established. We plotted these two variables in a clustered chart bar and compared the values across the variables to look for any relationship. Some major findings were evident in the overall analysis. They are mentioned briefly below.

- Nine Olympics were measured and out of 9, 6 times the country with the highest GDP was also the number one medals tally rank.
- Two times number 2 GDP was at number 1, while once number 3 GDP country topped the medals tally.
- Host countries have usually done at the Olympics.
- Soviet Union and later Russia has held through to the top three positions despite its GDP falling huge during the 90s as Russia replaces USSR.
- Gradual rise of China was seen – as it grew in DP, so does its performance bettered in terms of medals tally at the Olympics. China was number 11 in medals tally in 1988, entered the top ten in 1992 and has since stayed there, also topping once in 2008. Its GDP numbers have also risen dramatically from 1992 till 2020.
- Though this cannot be theorized yet based on this study alone, the general trend of a correlation between GDP and medals tally at the Olympics is clearly seen.
- Thus all the research questions could be answered in affirmative
- Is there a relation between GDP of a nation and its performance at the Olympic Game. Answer is Yes.
- Does a country with greater GDP fare better at the Olympic Games? Answer is Yes
- Does a country that rises the ladder of GDP also rises in winning medals at the Olympics? Answer is Yes

Limitation and further scope of study: This study has looked at a limited editions of Olympic Games as one variable, this number can be increased to arrive at a more historical sense of the data. Further studies can be done by increasing the variables of both sport and economy – like by including other games, GDP per capita incomes etc.

References

1. Bairner A. Sport, Nationalism and Globalization: European and North American Perspectives (pp 31-34). New York, SUNY Press, 2001.
2. Bougalt J, Lambert J. Media Entertainment and Sport; World Economic Forum Report, 2022
Chen *et al*, (2015)
3. Goddard, John, Sloane, Peter. Economics of Sports, 2005.
4. Kuper, Simon. Soccernomics: why England loses, why Germany and Brazil win, and why the U.S., Japan, Australia, Turkey - and even Iraq - are destined to become the kings of the world's most popular sport. New

York: Nation Books, 2009.

5. Lewis M. Moneyball. WW Norton, 2004.
6. Murray S. Sports diplomacy: Origins, theory, and practice. Routledge, 2018.
7. Siegfried, John, Zimbalist, Andrew. The economics of sports facilities and their communities, Journal of Economic Perspectives, 2000.
8. Accessed from the internet
<https://www.sportanddev.org/latest/news/exploring-link-between-sport-and-economics>
9. The Economics of Hosting the Olympic Games | Council on Foreign Relations (cfr.org)