

Economic Growth and Olympic Success

Introduction

This research aims to explore the relationship between economic growth and Olympic success by examining the trends in GDP share and medal counts for the United States and China over several decades. By analyzing data on GDP share of the world, proportion of total medals and proportion of gold medals, we seek to understand how economic power influences a nation's performance in the Olympics. This study leverages historical data and correlation analysis to draw connections between economic resources and athletic achievements, providing insights into how countries can leverage their economic strength to enhance their global sporting presence. The findings highlight the significant impact of economic growth on a nation's ability to excel in international competitions, particularly in the context of the Olympics.

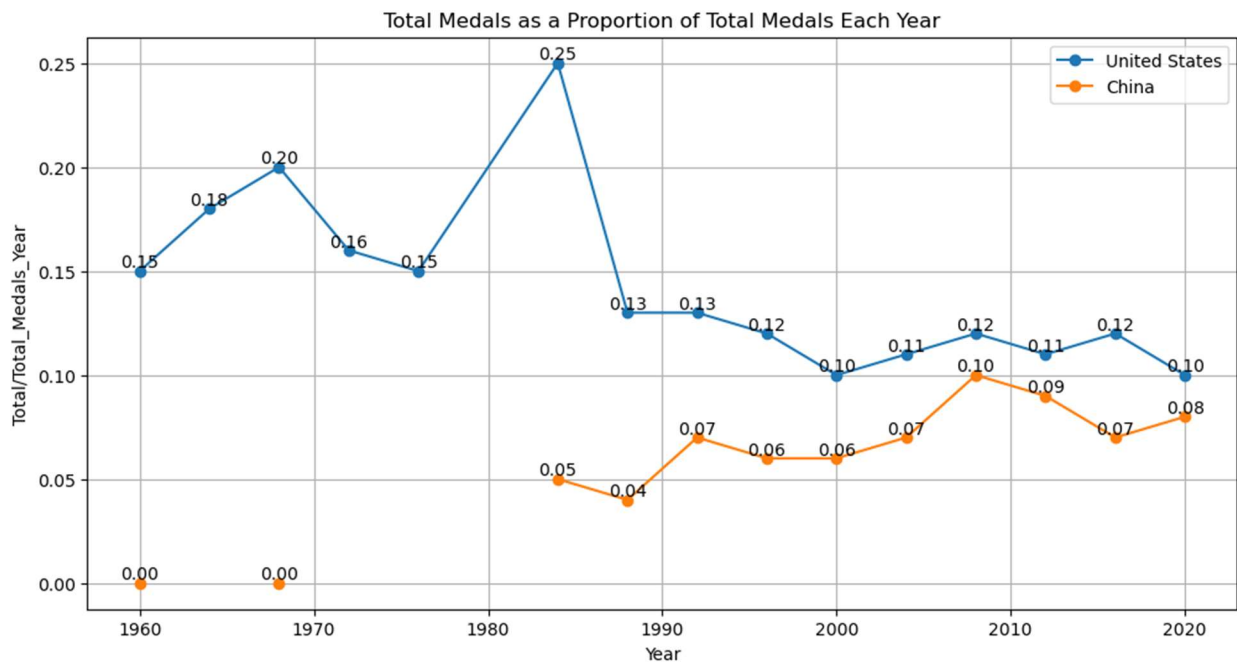
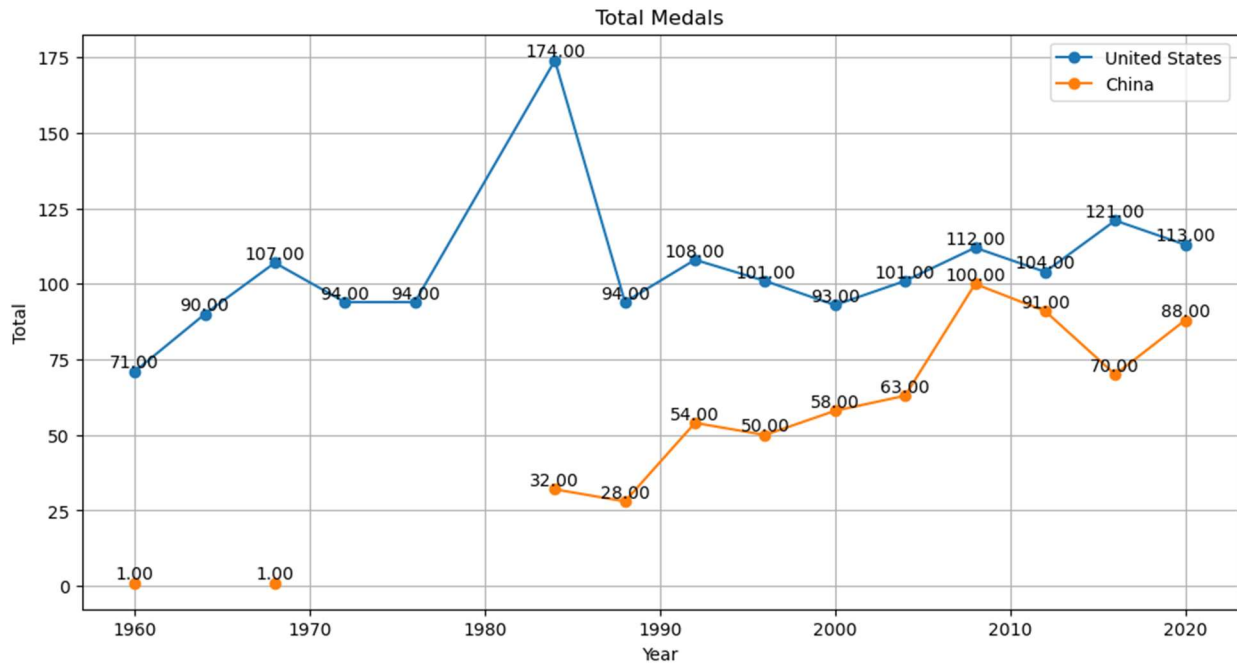
Source of Olympic Data: <https://www.kaggle.com/code/hamdallak/125-years-of-summer-olympics-analysis-visual/notebook>

Source of GDP Data: <https://fred.stlouisfed.org/series/GDP#0>

Trends in Medals

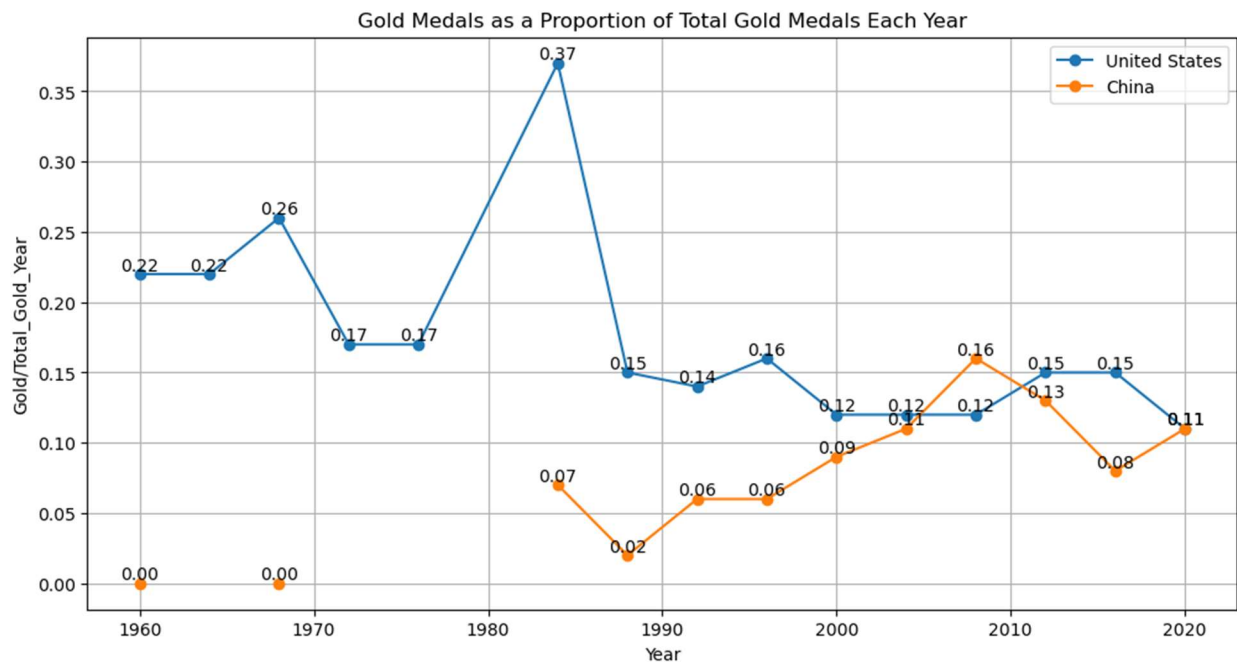
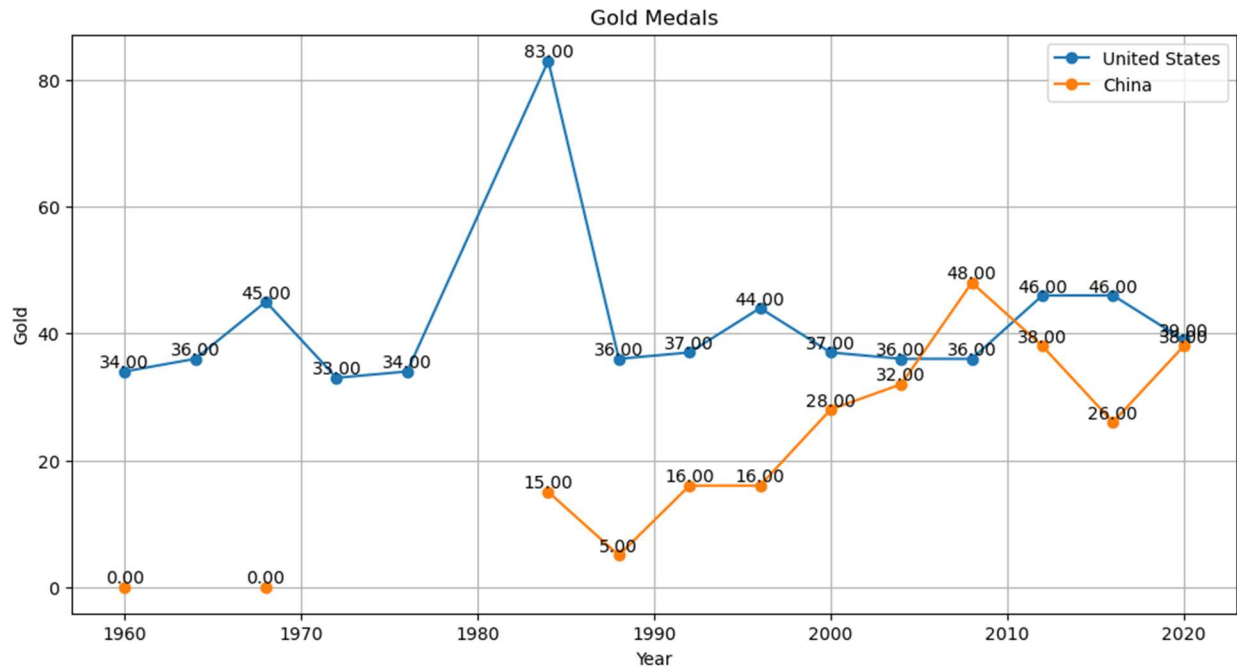
Proportion of Total Medals Each Year

- **United States:** The proportion of total medals won by the United States shows variability but remains relatively stable, indicating consistent overall performance at the Olympics. Despite some fluctuations, there is no clear long-term downtrend.
- **China:** The proportion of total medals won by China shows a clear upward trend, demonstrating improved overall performance at the Olympics in line with its economic growth. This consistent increase reflects China's growing competitive edge on the global stage.



Proportion of Gold Medals Each Year

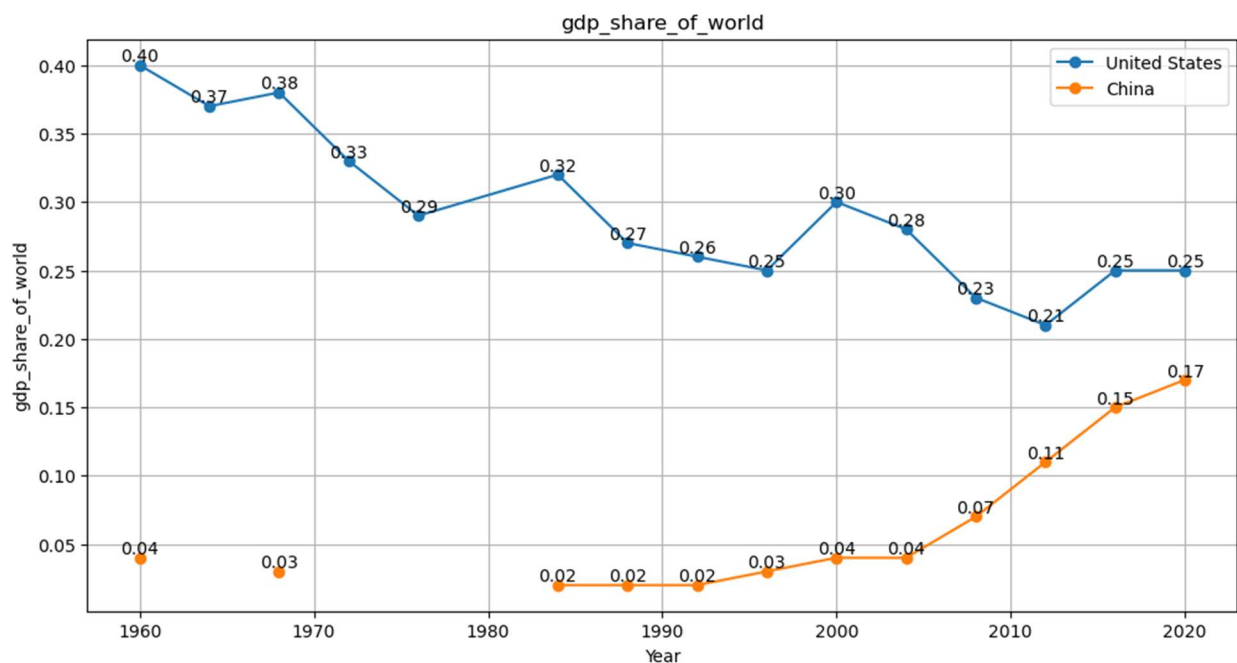
- United States:** The proportion of gold medals won by the United States exhibits some decline or stabilization at lower levels compared to historical peaks. While the United States continues to win a significant share of gold medals, there is a noticeable decrease from earlier years.
- China:** The proportion of gold medals won by China is on a clear upward trend, reflecting significant improvements in their Olympic performance. This upward trend aligns with China's economic rise.



These observations confirm that while the US may have some variability and a potential downtrend in gold medals, its total medal count remains strong. In contrast, China is experiencing a consistent and significant upward trend in both gold and total medals.

Trends in GDP Share of the World

- **United States:** The GDP share of the United States shows a clear long-term downtrend, decreasing from 40% in 1960 to 25% in 2020. This reflects a relative decline in economic dominance over the period.
- **China:** The GDP share of China is on a significant upward trend, growing from a negligible percentage in 1960 to 17% in 2020. This dramatic increase reflects China's rapid economic growth and rising global economic influence.



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- **Correlation Analysis:** The correlation matrix highlights strong positive correlations between the variables. Notably, there is a 0.77 correlation between GDP share of the world and the proportion of gold medals each year, indicating a potential link between economic power and Olympic success.

| | gdp_share_of_world | Gold/Total_Gold_Year | Total/Total_Medals_Year |
|-------------------------|--------------------|----------------------|-------------------------|
| gdp_share_of_world | 1.000000 | 0.767200 | 0.845472 |
| Gold/Total_Gold_Year | 0.767200 | 1.000000 | 0.963425 |
| Total/Total_Medals_Year | 0.845472 | 0.963425 | 1.000000 |

- **Economic Influence:** The data suggests a correlation between a country's economic power and its Olympic success. The United States, with a high GDP share, consistently wins more medals, while China's rising GDP correlates with its increased medal counts.

- **Historical Performance:** The United States had a strong Olympic presence from 1960 to 2000. China's performance significantly improved post-2000, aligning with its economic growth and strategic investments in sports.

Conclusion

The analysis underscores the interplay between economic power and sports success. Both the United States and China demonstrate that robust economic resources can enhance a nation's Olympic performance.