Understanding Olympic Medal Costs- Funding vs Performance

Written by Kuba Staite in Uncategorized

What is the true cost of a Olympic medal?

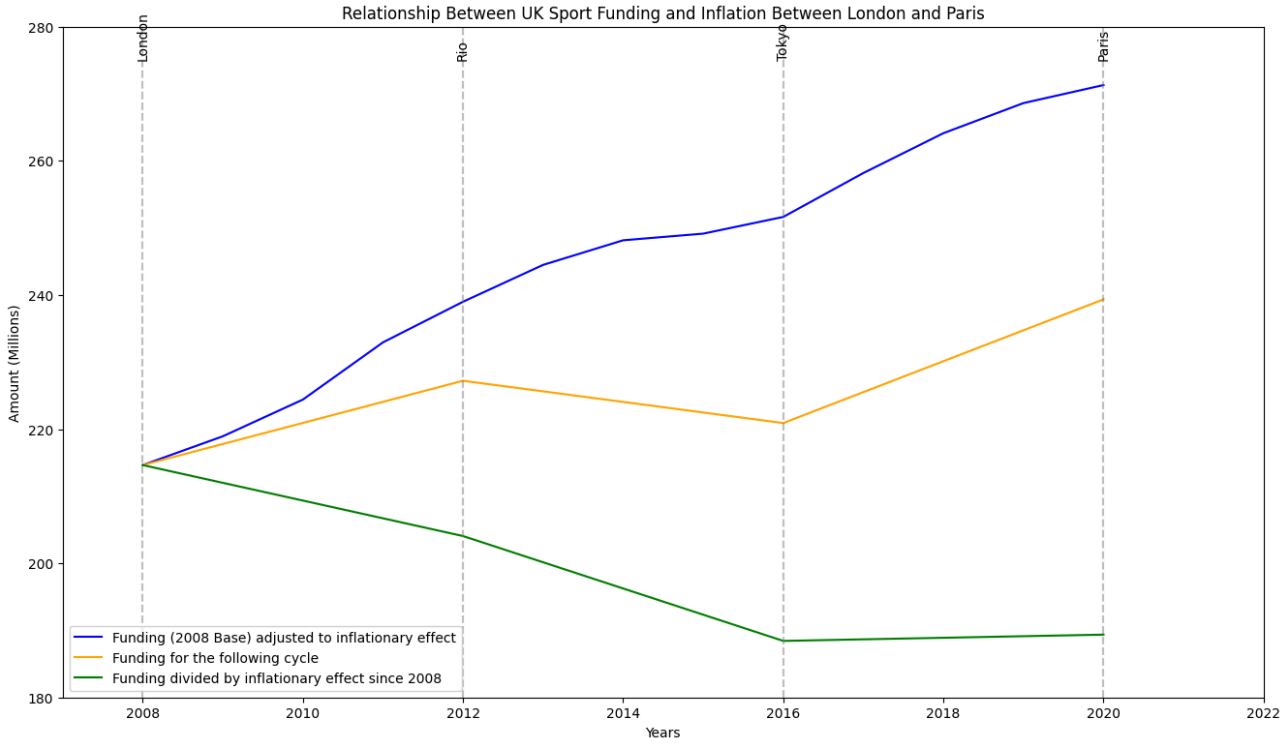
Calculating the cost of an athlete winning a medal at the Olympics is nearly impossible. Athletes spend years self-funding when they are younger. They spend years of commitment just to become full-time athletes. Even with financial support from Sport England, the costs dwarf the funding available.

And the financial reward for winning a medal as a Team GB athlete?

Nothing.

The Olympics is the pinnacle of any sport. This post explores the relationship between financial funding levels in UK Sport and performance at the Olympics.

Funding/Inflation Between London 2012 and Paris 2024



This graph visualises three metrics. The orange line represents the nominal funding provided at the start of each Olympic cycle. For example, funding for London 2012 was allocated in 2008.

The blue line adjusts for inflation, using 2008 as the base year. It reflects the level of funding required to maintain equivalent purchasing power.

The green line shows the real value of funding. This is done by dividing nominal funding by cumulative inflation since 2008. This allows comparison between years of budgets. Without this simple adjustment for inflation

Nominal Funding

- London £214,641,470
- Rio £227,212,724 (5.8% Increase)
- Tokyo £220,906,834 (2.8% Decrease)
- Paris £239,344,884 (8.3% Increase)

Real Funding

- London £214,641,470

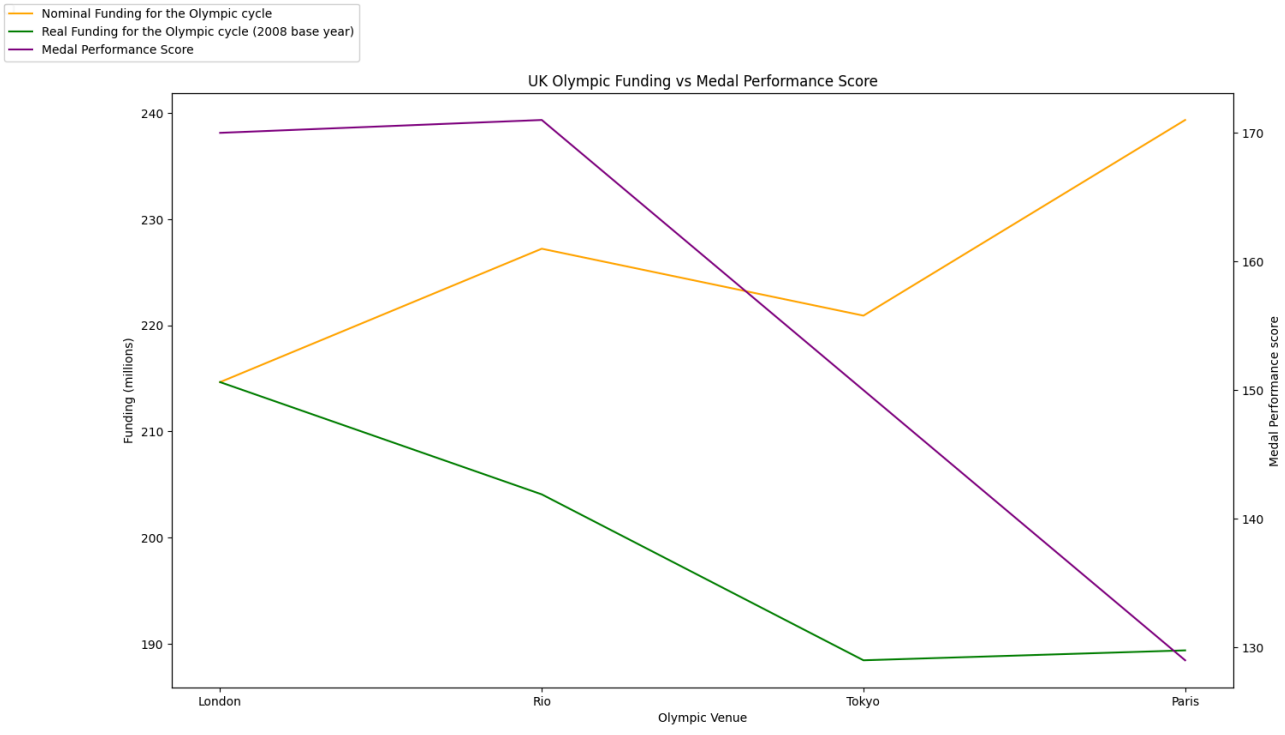
- Rio £204,062,826 (4.9% decrease in purchasing power compared to 2008)
- Tokyo £188,427,219 (12.2% decrease in purchasing power compared to 2008)
- Paris £189,362,210 (11.8% decrease in purchasing power compared to 2008)

This gives us an idea of the real reduction in funding for both Rio and Tokyo cycles. For Paris, there was essentially the same funding as to the previous cycle.

The difference between the Blue and Orange lines illustrates nicely that the nominal level of funding hasn't increased in line with inflation since 2008. In reality, the level of funding has decreased by 11.8% (adjusted for inflation) since 2008 which is very significant for budgets.

Overall, while nominal funding has fluctuated, real funding has declined steadily, indicating that Team GB's Olympic preparations have been under increasing financial pressure in real terms.

Funding vs Medal Performance



This graph is very similar to the previous one. Now, it includes a purple line that represents a 'Medal Performance Score'. Medal performance is

measured using a 4–2–1 weighting system (Gold = 4, Silver = 2, Bronze = 1), popularised by the New York Times. This system more accurately reflects the quality of medal results.

The Nation Medal table at the Olympics is sorted in order of medal value. They first consider the number of Gold medals. Then they look at Silver, followed by Bronze. Because medals differ in value, I chose to implement a weighted system to show quantitatively the total performance. Here, Medal performance is measured using a 4–2–1 weighting system (Gold = 4, Silver = 2, Bronze = 1), popularised by the New York Times. This system more accurately reflects the quality of medal results.

Comparing the purple Medal Score line to the yellow nominal funding line, no clear correlation is seen. However, comparing it to the green real funding line, a downward trend emerges — with both funding and performance decreasing from 2016 onward.

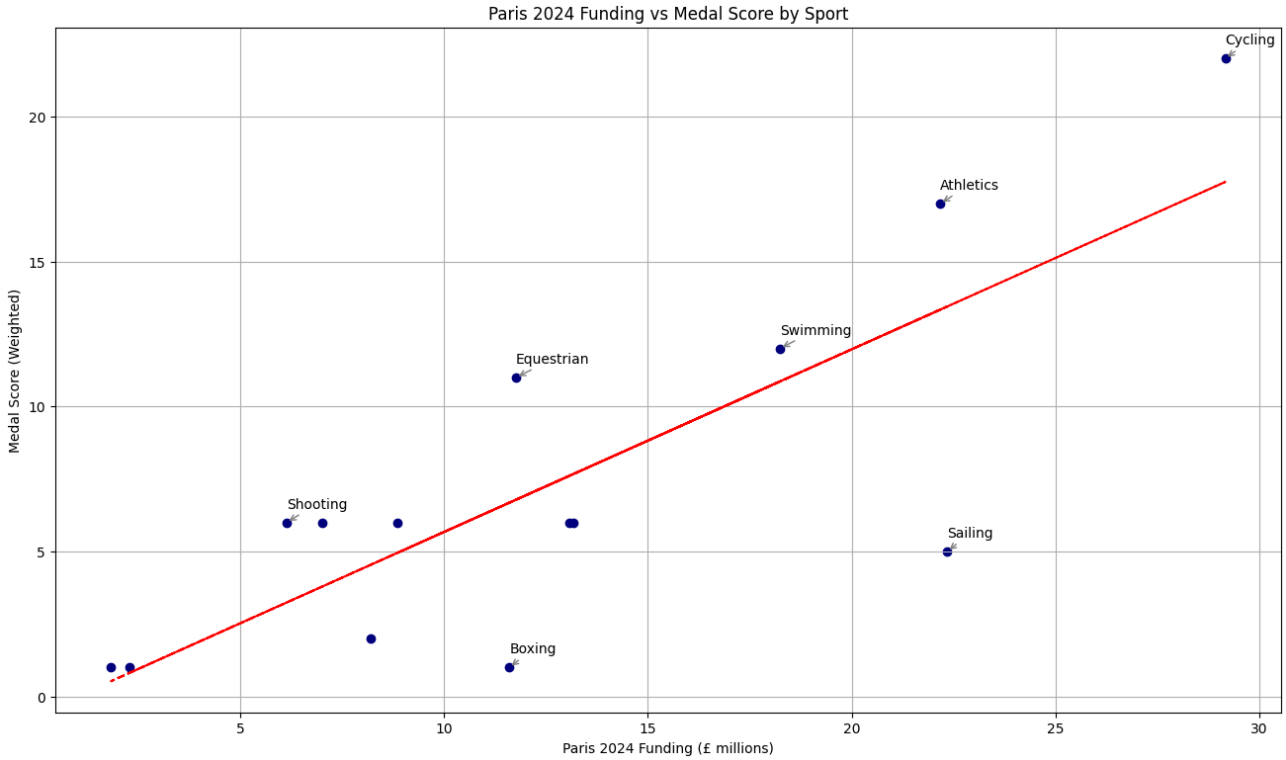
- London Medal Score 170
- Rio Medal Score 171 (0.5% increase since London)
- Tokyo Medal Score 150 (11.8% Decrease since London)
- Paris Medal Score 129 (24.1% Decrease since London)

At first, the decrease in real funding for Rio hasn't affected performance. More silver medals were won, which made up for the reduction in Gold. Team GB were second in the medal table at Rio 2016.

Post 2016, this reduction in funding looks to have had a longer-lasting effect. Some argue that funding in a previous cycle aids in developing younger athletes. Without sufficient funding in youth programs or early athlete programs, athletes can get stuck and ultimately are forced to leave the sport. These athletes are the ones who would be competing in the following Olympic cycle, so as we can see with the trend of the graph, short term, there isn't a problem, but for long-term longevity, there is.

In Tokyo, Team GB's medal score dropped 12%, and again in Paris, it dropped another 12%. They finished 7th in the Medal Table, their worst overall performance since 2004.

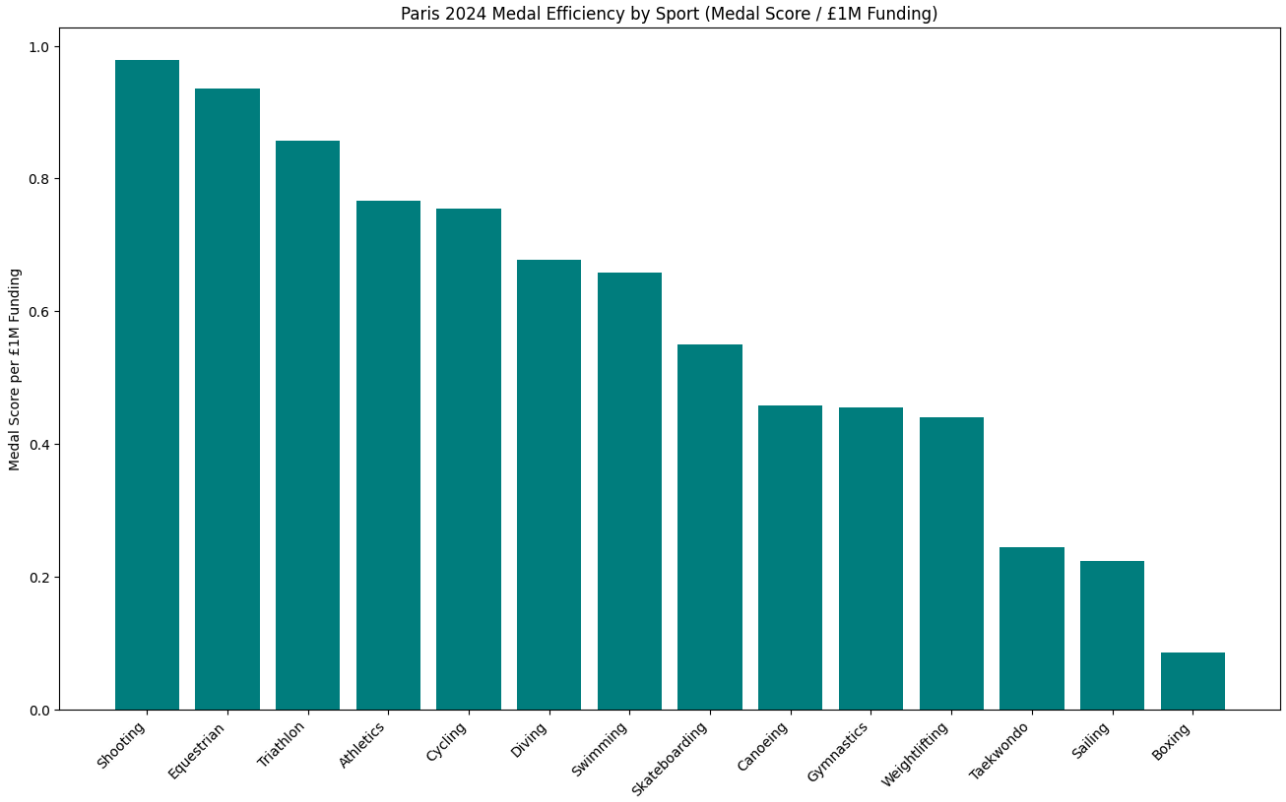
Paris 2024 Funding vs Medal Score by Sport



This graph compares the amount of Paris 2024 funding allocated to each sport with its corresponding medal performance score, using the same 4–2–1 weighted system. Each dot represents a sport that had at least 1 medal won, and the red line is a line of best fit calculated by order of least squares.

We can see that there is a strong positive correlation (0.8 coefficient). The gradient of the line of best fit is 0.63. This means that to expect an increase in a medal score by 1, £1.58 million of additional funding is needed. Any sports above this line are overperforming, whereas any below are underperforming.

Paris 2024 Medal Efficiency by Sport



What is now clear are the sports that performed more efficiently than others. Notably, sports such as shooting, equestrian and triathlon have demonstrated high returns on investment, whereas others have underperformed relative to their funding levels. Ultimately, each sport has vastly different costs for equipment and needs for resources, so this isn't a clear-cut answer.

For example, in Sailing, the lowest cost class of boat, the ILCA, has a boat cost of £8000. Sailors in the 49er or Nacra 17 class can expect to pay 3 times that amount to just get started. This is before even considering maintenance and transportation costs. Compared to the equipment cost for Diving, Swimming or Athletics where it is an essentially insignificant cost relative to coaches or travel.

Medals also don't show the potential of the incredible Team GB athletes who had some bad luck on a day, who consequently just missed out on medals. There is always an athlete who comes fourth, they are still a world class athlete but dont get the recognition like a medalist would.

Future Improvements

Future models would benefit from including other performance drivers. These are GDP per capita, number of athletes sent, athlete development

programs, or quality of coaching staff. These additional controls would allow for a more comprehensive understanding of what truly drives Olympic success.

The current dataset covers only a few Olympic cycles, which restricts the reliability of the findings. Incorporating data from earlier cycles would strengthen the statistical power of the analysis to help capture long-term trends.

Incorporating data from other Olympic nations would allow to compare relative funding efficiency. Comparing medal outcomes per unit of funding across countries could uncover best practices or highlight structural inefficiencies in certain national programs.

Conclusion

This analysis shows a clear link between public funding and Team GB's Olympic medal success. While we can't say for certain that money guarantees medals, higher funding in elite sport plays a major role in helping athletes reach the podium.

However, the dataset only covers a handful of Olympic cycles, and looking at total funding at the national level doesn't represent the vastly different costs of each sport. Without comparison to other countries, we don't know if, as a nation, we are comparably efficient with our funding or not.

This project offers a starting point for understanding how investment affects sporting success. It shows that data-driven funding decisions can make a real impact, not just in winning medals, but in building lasting success.