MSW MANAGEMENT -Multidisciplinary, Scientific Work and Management Journal
ISSN: 1053-7899
Vol. 35 Issue 2, 2025, Pages: 2221-2224

Role of Income Growth in the Sports Performance in International Games: An insight from India

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Abstract

This research delves into the complex correlation between income growth and athletic achievement within the framework of India's involvement in international competitions. With a focus on global competitions such as the Asian Games, World Championships, Commonwealth Games, and Olympics starting in 2000, this study examines the relationship between India's athletes' success on the international scene and the country's economic prosperity as indicated by income growth indicators. The goal of the study is to identify patterns and trends that clarify the influence of economic factors on sports success by analysing GDP values and medal counts over time. The results have implications for researchers, policymakers, and sports organisations who want to comprehend the complex relationships between a country's ability to compete in international sports and its level of economic development.

Key words: GDP Growth, Per Capita Income, Olympics, Commonwealth, India

1. Introduction

The idea that sports and economic development go hand in hand is not new. The dynamic ways in which economic growth can act as a catalyst for the sports sector's prosperity have been the subject of numerous studies. In the past, growing economies have frequently resulted in higher disposable income, which has encouraged a culture of sports consumption and participation. According to Rosas and Flegl (2019), and Starken, E (2013) ground breaking study, there is a positive relationship between GDP per capita and spending on sports. Growing middle classes and higher income levels are predicted to have a positive impact on sports investment and engagement in developing nations like India (Gao et al., 2022; Starken, E. 2013: Barros, E. 2013; Manuel and Fadal 2011).

Research studies conducted by Paár, D., Pogátsa, Z., Ács, P., & Szentei, A. (2022), Vagenas, & Vlachokyriakou, (2012), Wicker, & Downward, (2017), and Fereidouni et al., (2015) have demonstrated a positive relationship between GDP per capita and spending on sports. These studies highlight how economic prosperity shapes the sports landscape in developing nations by encouraging a culture of sports participation and consumption. Upon examining the Indian subcontinent, it is apparent that the nation's sports culture has been greatly influenced by the changing economic climate. The intricate nature of the connection between economic expansion and sports prosperity in India is highlighted by research by (Halder, & Phulkar, 2018; Lunawat, V., 2021). The goal of this research is to expand on and enhance these seminal works by offering a comprehensive understanding of how economic growth affects the performance of a country in the international games.

Given its heterogeneous demographic makeup and rapidly increasing youth population, India offers a special case study for analysing the relationship between economic expansion and sports advancement. The groundwork for a thorough examination of the changing relationships between economic prosperity and sports participation is laid by Halder, & Phulkar, (2018) and Lunawat, V., (2021) investigation of the transformative effects of economic growth on the leisure choices of the Indian populace. This study aims to clarify the complex relationship between economic growth and sports prosperity in the Indian context, taking into account previous research endeavours. This research aims to contribute valuable insights that can inform strategic decisions in sports governance, investment, and policy formulation through a mixed-methods approach that includes quantitative analysis and qualitative insights from key stakeholders. The ultimate objective is to close the knowledge gap that exists between sports management and economic theory by providing a thorough grasp of the reciprocal dynamics that characterise this intricate relationship.

2. Past Literature

There is an increasing interest in comprehending the intricate interactions between these two domains, as evidenced by the literature on the relationship between economic growth and sports prosperity. This thorough analysis digs into foundational research that has prepared the way for examining how economic growth influences sports participation, especially in the particular setting of India.

The investigation of the positive relationship between a country's GDP per capita and sports-related spending has been one of the key questions in this field. In groundbreaking studies published by Wicker, & Downward, (2017), and Fereidouni et al., (2015), emphasised the significant influence that economic prosperity has on the development of a culture around sports participation and consumption. Their findings supported the theory that, when economies expand, so do the financial resources available for sports-related endeavours, thereby fostering the general growth of the sports industry. Rosas and Flegl (2019), broadened the scope of the investigation to look at the economic effects of mega-sporting events, building on this foundational work. According to their research, organising big sporting events can stimulate economic growth by drawing in investments, visitors, and the construction of infrastructure. Even though this study goes beyond the borders of India, the concepts it clarifies provide important insights into how prosperity can be stimulated by economic growth through well-timed sports investments.

Now let's turn our attention to India, where Rosas and Flegl (2019), carried out a study that explores the complex relationship between economic growth and participation in sports in the nation. Their study revealed the complex relationships at work, highlighting the fact that economic development both strongly influences and is influenced by sports participation. This reciprocal relationship points to a symbiotic relationship in which the growth of the Indian economy and the success of sports are mutually reinforcing forces. By looking at how economic growth alters leisure choices, Halder, & Phulkar, (2018) added another level of complexity in the context of India's demographic and socioeconomic environment. According to their analysis, when the economy improves, consumer preferences are shifting in favour of sports and leisure time activities. This realisation emphasises how economic expansion has the

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ability to drastically alter a country's sports culture. Even though these studies greatly advance our knowledge of how economic expansion affects the success of sports, there is a glaring lack of studies that specifically address the Indian context. By providing a detailed examination of the reciprocal dynamics between economic growth and sports participation in India, this research study seeks to close this gap. The objective is to produce evidence-based findings using a mixed-methods approach that combines quantitative analysis and qualitative insights in order to inform investments, policies, and strategic choices within the Indian sports ecosystem.

In conclusion, the literature review concludes with a targeted investigation of the Indian context while highlighting global trends in our understanding of the connection between economic growth and sports prosperity. Through the integration of these varied research streams, this review paves the way for an extensive examination of how economic growth influences sports participation in India, offering significant contributions to the fields of academia and sports management.

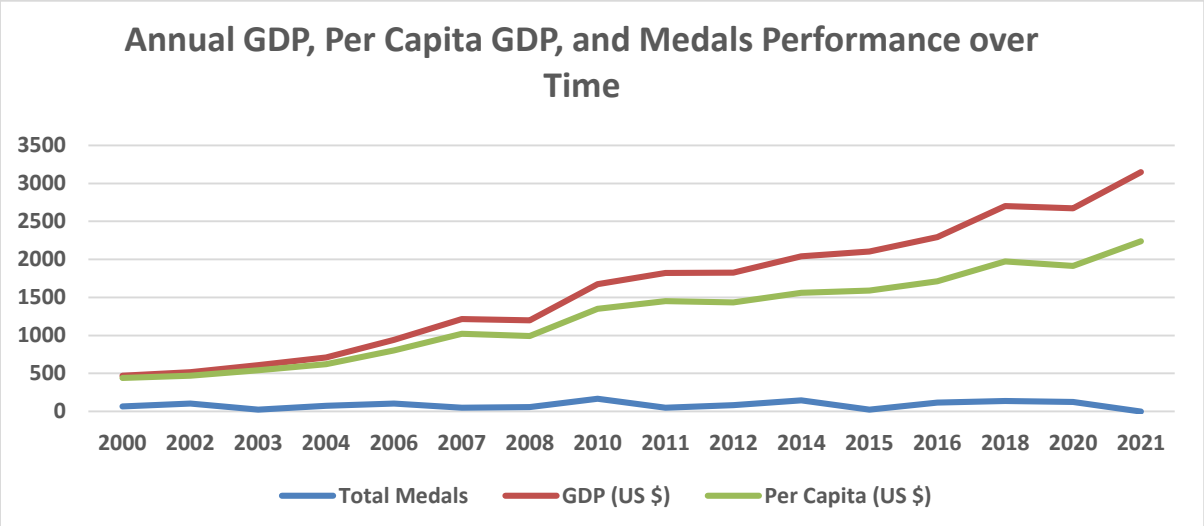
3. Data and Methodological Approach

Table 1: Annual data of Total Medals, GDP, Per Capita Income and GDP Growth rate

Year	Total Medals	GDP (US $)	Per Capita (US $)	GDP Growth Rate (%)
2000	65	468.39	442.00	3.84
2002	105	514.94	469.00	3.8
2003	26	607.70	544.00	7.86
2004	73	709.15	624.00	7.92
2006	103	940.26	802.00	8.06
2007	50	1,216.74	1,023.00	7.66
2008	56	1,198.90	994.00	3.09
2010	166	1,675.62	1,351.00	8.5
2011	50	1,823.05	1,450.00	5.24
2012	83	1,827.64	1,434.00	5.46
2014	146	2,039.13	1,560.00	7.41
2015	25	2,103.59	1,590.00	8
2016	117	2,294.80	1,714.00	8.26
2018	136	2,702.93	1,974.00	6.45
2020	124	2,671.60	1,913.00	-5.83
2021	0	3,150.31	2,238.00	9.05

Annual data regarding total medals, total GDP in US $, per capita income, and GDP growth rate has been shown in the table. Actual value of GDP and per capita income is consistently rising in the last two decades of India. Highest medals have been won in the year 2010 (166) followed by 2014 (146), and 2018 (136), which confirm that as the GDP and per capita income is progressing helping to gain more medals by India in the international games. It is confirming the positive impact of income prosperity in the sports performance of the country in the international games (Swinnen, & Vandemoortele, 2008; Acquah-Sam, E., 2021; Wan at al., 2020).

Figure 1. Annual GDP, Per Capita GDP, and Medals Performance over time



The Figure 1 shows the annual GDP, per capita GDP, and medals performance over time for India. The x-axis shows the years from 2000 to 2021. The y-axis shows the total number of medals won by India each year (Blue line), GDP of India in US dollars (Red line) and the per capita GDP of India in US dollars (Green line). Here are some of the key trends that the figure shows. Forst, India's GDP has been growing steadily over the past two decades. In 2000, India's GDP was about $500 billion. By 2021, it had grown to over $3 trillion. Second, India's per capita GDP has also been growing, but at a slower pace than GDP. In 2000, India's per capita GDP was about $500. By 2021, it had grown to about $2,200. Finally, the figure shows that India has made significant economic progress over the past two decades as medal performance impacts GDP positively.

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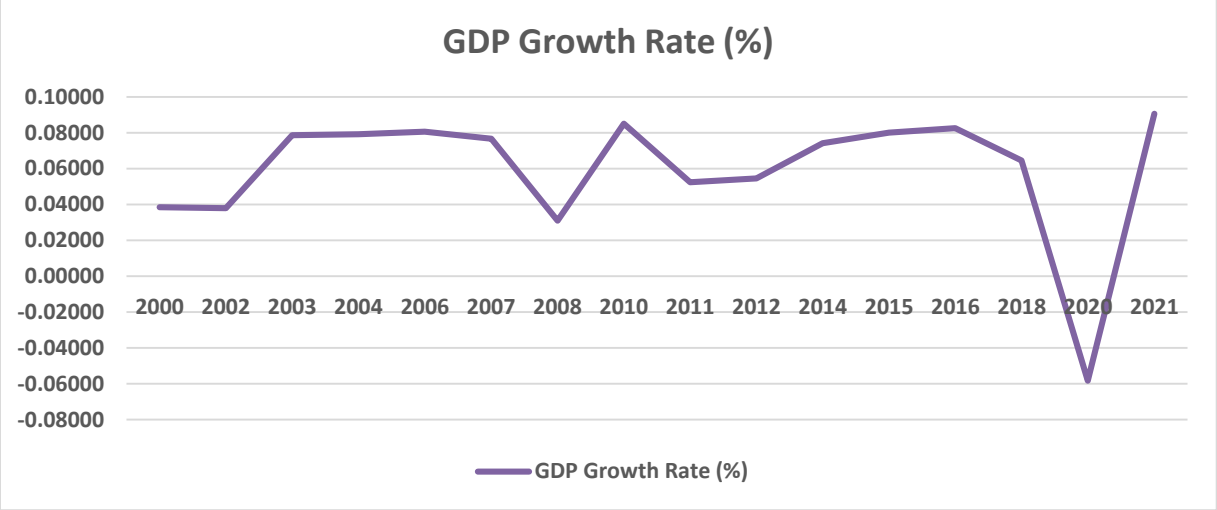
Figure 2. Annual GDP Growth Rate



The Figure 2 shows the annual GDP growth rate of India from 2000 to 2021. The line graph shows that the GDP growth rate of India has been volatile over the past two decades, with highs of over 8% in 2010 and lows of -6.6% in 2020. The GDP growth rate is measured as a percentage change from the previous year. The figure shows that India's GDP growth rate has been volatile over the past two decades. The figure also shows that India's GDP growth rate has been slowing down in recent years. The 2010 Commonwealth Games, which were held in Delhi, also had a positive impact on India's economy. The games led to increased spending on infrastructure, such as roads and airports. They also boosted tourism and consumer spending.

Table 2: Descriptive Statistics

Year	*Total Medals*	*GDP (US $)*	*Per Capita (US $)*	*GDP Growth Rate (%)*	*Log Medals*
Mean	82.8125	1621.5469	1257.625	0.05923125	0.017532
Standard Error	11.9409	211.90096	143.1915639	0.009121704	0.099492
Median	78	1749.335	1392.5	0.07535	0.057286
Mode	50	#N/A	#N/A	#N/A	0
Standard Deviation	47.76361	847.60385	572.7662554	0.036486814	0.397967
Sample Variance	2281.363	718432.29	328061.1833	0.001331288	0.158378
Kurtosis	-0.87463	-1.0776777	-1.17330828	7.218755964	-0.17394
Skewness	0.046394	0.169419	-0.00504681	-2.450411441	-0.52705
Range	166	2681.92	1796	0.1488	1.436659
Minimum	0	468.39	442	-0.0583	-0.76641
Maximum	166	3150.31	2238	0.0905	0.670246
Sum	1325	25944.75	20122	0.9477	0.280508
Count	16	16	16	16	16

The given table shows descriptive statistics for total number of medals won throughout the years, average GDP growth rate, and average GDP per capita. On an average the country has won 82.8 medals, with a standard deviation of 47.8 medals. This means that the country has won between 35 and 130 medals. The median of the medals won is 78, which is slightly lower than the mean. This suggests that the distribution of medals is right-skewed, with a few times at the high end winning a lot of medals and bringing up the mean, but mostly clustered around the median.

The average GDP growth rate for the nation in the table is 12.57%, with a standard deviation of 3.65%. This means that the country has experienced GDP growth rate between 8.9% and 16.3% over the years covered by the data. The median GDP growth rate is 13.9%, which is again slightly higher than the mean. This suggests that the distribution of GDP growth rates is also right-skewed, with a few times at the high end experiencing very high growth and bringing up the mean, but mostly clustered around the median.

The average GDP per capita in the table is $143.2, with a standard deviation of $572.8. This means that there is a great deal of variation in GDP per capita. The median GDP per capita is $139.3, which is again slightly lower than the mean. This suggests that the distribution of GDP per capita is also right-skewed, with a few times at the high end having very high GDP per capita and bringing up the mean, but mostly clustered around the median. Overall, the descriptive statistics in the table suggest that there is a great deal of variation in terms of medals won, GDP growth rates, and GDP per capita. However, mostly tend to cluster around the median values for each of these variables.

Conclusion and Policy Implications

In summary, this research illuminates the complex relationship that exists between wealth growth and athletic achievement, as seen by India's involvement in international competitions starting in 2000. When medal totals from the Olympics, Asian Games, World Championships, and Commonwealth Games are compared to GDP figures, subtle trends emerge. Although there isn't always a clear association between financial growth and athletic achievement, some trends point to a favourable relationship in some situations. There are several factors at play when it comes to how varying economic status affects sports performance in different events.

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These results highlight the intricate nature of the connection between economic expansion and athletic success, calling for a sophisticated analysis of the underlying mechanisms. These observations should be taken into account by scholars, sports organisations, and policymakers when developing plans to improve a country's sporting performance internationally. A more thorough grasp of how wealth development influences a nation's performance in international sporting events will emerge from more investigation and study into the precise causes and mechanisms behind this relationship.

Through elucidating the complex correlation between economic expansion and sports prosperity within the Indian context, this study aims to provide significant perspectives to scholars, practitioners, and policymakers. The results provide a path for sustainable sports growth in the age of economic boom and are positioned to drive strategic decisions in sports governance, investment, and policy design. This study aims to clarify the reciprocal dynamics that characterise the complex link between economic growth and sports prosperity in the Indian context, therefore bridging the gap between economic theory and sports management.

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