Do Mega-Sporting Events Foster Long-Term Economic Growth? Evidence from FIFA World Cup Host Countries (1960–2024)

Abstract

This study investigates the macroeconomic impact of hosting mega-sporting events (FIFA World Cup), on economic growth in six host countries (Spain, France, Italy, Mexico, Japan, and the United States) over the period 1960–2024. By adopting a long-run comparative perspective and employing a two-way fixed effects panel data model, the analysis captures both country-specific characteristics and common time effects, ensuring robust and reliable estimation of structural relationships.

The findings reveal a stable and significant long-term relationship between economic growth and key structural variables. Gross capital formation emerges as the most powerful driver of growth, emphasizing the central role of productive investment and infrastructure development. Unemployment negatively affects, suggesting that mega-events may contribute to temporary job creation, although lasting benefits depend on sustained economic integration. Air transport

development also exerts a positive impact, highlighting the importance of international connectivity and strategic infrastructure planning. Our study indicate that mega-sporting events do not automatically generate economic growth; their long-term benefits depend fundamentally on the quality of investments and the coherence of national development strategies.

Key words : Mega-Sporting Events ; economic impact ; Economic Growth ; Panel Data Analysis ; Infrastructure Investment ; Unemployment Dynamics

Introduction

Over the past decades, international and continental sporting events have gained increasing importance in national economic development strategies. Governments competing to host such events frequently justify their bids by emphasizing potential benefits such as economic growth stimulation, job creation, infrastructure modernization, and enhanced international visibility. The public investments involved are often substantial, reaching several billions of dollars, particularly in the construction of sports facilities, transportation systems, and urban infrastructure.

However, despite the scale of these investments, a fundamental question remains highly debated: do sporting events truly generate long-term economic benefits for host countries, or are their effects temporary and often overestimated?

The economic literature provides mixed evidence on this issue. On the one hand, some studies highlight the multiplier effects associated with investment spending and the inflow of international visitors. From a Keynesian perspective, increases in aggregate demand driven by public and private expenditures can stimulate output and employment in the short run. Furthermore, within an endogenous growth framework, capital accumulation and infrastructure improvements can enhance overall productivity and generate persistent effects.

On the other hand, several empirical studies challenge these optimistic arguments. Baade and Matheson (2004) show that the economic impacts of major sporting events are often significantly overestimated in ex-ante evaluations, due to crowding-out effects, substitution effects, and overestimation of tourism-related spending. Similarly, Szymanski (2002) argues that macroeconomic benefits are difficult to identify robustly and tend to be concentrated in specific sectors rather than diffused across the entire economy.

In addition, Sterken (2006) emphasizes that the economic impact of such events depends heavily on a country's ability to integrate them into a coherent and sustainable investment strategy. Allmers and Maennig (2009) further demonstrate that positive outcomes are conditioned by institutional and structural factors, particularly the quality of governance and the effectiveness of public policies.

Despite these important contributions, several methodological limitations remain in the existing literature. First, many studies rely on regional analyses or short-term event-based models, which are not well suited to capturing long-term structural effects. Second, relatively few studies adopt a comparative macroeconomic approach over an extended time horizon. Most existing research focuses primarily on the immediate or short-term impacts of mega-sporting events. Yet, a long-term and cross-country perspective is essential to better understand the structural mechanisms through which such events may influence key macroeconomic indicators in host economies.

In this context, the present study aims to analyze the impact of hosting the FIFA World Cup on GDP growth in six host countries—Spain, France, Italy, Mexico, Japan, and the United States—over the period 1960–2024.

To identify the potential effects of this major event within a comprehensive and dynamic framework, the study adopts a panel data econometric approach. This methodology allows for the simultaneous exploitation of both the time-series and cross-sectional dimensions of the data, while accounting for country-specific heterogeneity. It thus provides a rigorous analytical

framework to assess whether hosting the World Cup contributes to sustainable economic growth or whether its effects remain primarily short-term.

Beyond estimating the overall impact on growth, this study also seeks to identify the specific economic mechanisms through which mega-sporting events may influence macroeconomic performance. The analysis therefore goes beyond aggregate effects and focuses on the transmission channels underlying this relationship. Three main mechanisms are examined:

First, the accumulation of productive capital, measured by gross capital formation, which reflects the scale of investments made, particularly in infrastructure and equipment.

Second, the development of air transport infrastructure, considered a key indicator of international connectivity and economic attractiveness.

Third, labor market dynamics, which allow for the assessment of potential effects on employment and economic activity.

The objective of this research is therefore twofold. On the one hand, it aims to determine whether hosting a mega-sporting event is associated with a significant and lasting impact on economic growth. On the other hand, it seeks to identify the nature of this impact: does it primarily arise from long-term structural investments, or from short-term effects linked to tourism flows?

I. Literature Review

1 Mega-Sporting Events and Economic Growth

The economic analysis of mega-sporting events lies at the intersection of Keynesian aggregate demand theory and endogenous growth models.

From a Keynesian perspective, public expenditures associated with hosting an international event can stimulate aggregate demand through a multiplier effect. Investments in sports infrastructure, transportation systems, and urban development projects can temporarily boost economic activity, promote employment, and support consumption. In this context, mega-events are often viewed as short-term economic stimuli capable of accelerating economic cycles.

In the long run, endogenous growth theory provides a complementary framework. According to this approach, the accumulation of public capital and improvements in infrastructure can enhance total factor productivity and generate sustained economic growth (Barro, 1990). If

investments related to mega-sporting events are effectively integrated into a coherent and forward-looking development strategy, they may produce long-lasting structural effects on the host economy.

2 Limited or Overestimated Effects

Despite these theoretical foundations, a significant strand of the literature adopts a more critical perspective regarding the actual economic benefits of mega-sporting events. Baade and Matheson (2004) demonstrate that ex post economic impacts are generally much lower than ex ante projections. They highlight the presence of crowding-out effects, substitution of expenditures, and the overestimation of tourism-related inflows.

Similarly, Szymanski (2002) concludes that aggregate macroeconomic effects are difficult to identify in a robust manner, and that the benefits of mega-events tend to be concentrated in specific sectors rather than generating a significant impact on overall national growth.

Allmers and Maennig (2009), through the analysis of several major sporting events, find that positive effects are generally modest and highly dependent on the structural conditions of the host country, including institutional quality and economic context.

3 The Role of Infrastructure and Institutions

A more recent strand of the literature adopts a conditional perspective, suggesting that the economic impact of mega-sporting events depends largely on the quality of investments and the institutional environment. Sterken (2006) shows that the effect on economic growth varies according to a country's ability to transform temporary infrastructure into productive and sustainable assets.

In a similar vein, Rose and Spiegel (2011) find that hosting the Olympic Games may be associated with an increase in international trade flows. However, they argue that this effect is more likely to reflect an institutional signal—indicating openness and credibility—rather than a direct consequence of event-related expenditures.

4 Methodological Limitations

Although the literature on mega-sporting events is extensive and has provided valuable insights into their economic and social impacts, several methodological limitations remain.

First, a large proportion of existing studies focuses on regional or sectoral analyses, often examining specific locations or particular industries such as tourism or hospitality. While these

approaches are useful for identifying localized effects, they do not always capture the broader macroeconomic impact at the national level. This narrow focus may therefore limit the understanding of structural transformations affecting the overall economy.

Second, many studies concentrate primarily on short-term effects, typically measured around the immediate period of the event. However, investments associated with mega-events—particularly in infrastructure and human capital—are likely to generate delayed effects that can only be fully understood within a long-term perspective. The lack of extended temporal analysis may thus lead to an underestimation or misinterpretation of the true economic impact of these events.

II. Methodology

This study examines the economic impact of mega-sporting events, with a particular focus on the FIFA World Cup, on the economic performance of host countries. The analysis is based on a balanced panel dataset consisting of six countries: Spain, France, Italy, Mexico, Japan, and the United States, covering the period from 1960 to 2024.

The data used in this research are drawn from the official World Bank database, which ensures reliability, international comparability, and methodological consistency. This database provides harmonized macroeconomic indicators over a long time horizon, thereby offering a solid empirical framework for assessing the structural effects of mega-sporting events on economic growth. In addition, all econometric estimations and statistical tests were conducted using EViews 12, a widely used software for panel data and time-series econometric analysis.

The empirical approach relies on a panel data modeling framework, which combines both the time-series and cross-sectional dimensions of the dataset. This methodology offers several advantages: it allows for controlling unobserved country-specific heterogeneity, increases the statistical power of the tests, and reduces potential biases arising from omitted variables.

The estimated model is a two-way fixed effects model, specified as follows :

$$GDP_{it} = \alpha_i + \lambda_t + \beta_1 GCF_{it} + \beta_2 UNEMP_{it} + \beta_3 AIR_{it} + \beta_4 TOUR_{it} + \varepsilon_{it}$$

Where :

- ì denotes the country,
- t denotes time,

- α_i captures country-specific fixed effects,
- λ_t captures time fixed effects,
- ε_{it} represents the idiosyncratic error term.

The choice of the fixed effects model is based on the realistic assumption that country-specific structural characteristics are correlated with the explanatory variables. In this context, the use of a random effects model would imply a strict exogeneity assumption that is unlikely to hold. As emphasized by Wooldridge (2010), when individual effects are correlated with the regressors, fixed effects estimators are consistent and therefore preferable. This approach is widely adopted in empirical studies involving long-term panel data analysis.

Before estimating the model, an essential step consisted of examining the stationarity properties of the variables, in order to avoid issues related to non-stationarity in the presence of long-run macroeconomic data. To this end, several panel unit root tests were conducted. The results reveal a mixed integration structure, with some variables being stationary in levels and others becoming stationary after first differencing. This configuration justifies the use of panel cointegration tests to verify the existence of a long-run equilibrium relationship.

Pedroni residual cointegration tests, including both within-dimension and between-dimension statistics, were applied to assess the existence of a stable long-term relationship between the dependent variable and the explanatory variables.

In addition, a set of diagnostic tests was performed to ensure the econometric robustness of the model. The correlation matrix analysis revealed no evidence of severe multicollinearity, as none of the correlation coefficients exceeded the commonly accepted critical thresholds in the literature.

However, cross-sectional dependence tests, namely the Breusch–Pagan LM and Pesaran CD tests, indicated the presence of significant correlations across countries. This result is economically consistent, given the existence of international interdependencies and common macroeconomic shocks.

To address potential issues of heteroskedasticity and intra-country correlation that may affect the estimates, we employed cluster-robust standard errors using the White cross-section method. This approach accounts for potential dependence of observations within each country over time. Such corrections are particularly recommended in macroeconomic panel analyses

characterized by a large time dimension and a high likelihood of within-unit correlation (Cameron and Miller, 2015).

III. Results and Discussion

1 Descriptive Analysis of Variables

Table 1. Descriptive Statistics

Variable	Mean	Standard Deviation	Min	Max	Jarque-Bera (p-value)
GDP Growth	3.083	3.258	-10.94	12.88	0.000
Gross Capital Formation	2.353	7.549	-29.27	42.24	0.000
Air Transport	1.09E+08	1.97E+08	2.4E+06	9.42E+08	0.000
Tourism Receipts	9.645	5.787	1.14	20.44	0.000
Unemployment	8.034	4.897	2.06	26.09	0.000

Source : Authors

The descriptive statistics provide an initial overview of the dynamics and dispersion of the variables included in the model. The sample consists of 390 observations derived from a balanced panel covering six FIFA World Cup host countries over the period 1960–2024, ensuring a broad and homogeneous empirical basis.

The GDP growth rate exhibits an average of 3.08%, reflecting overall positive economic performance across the study period. However, the relatively high standard deviation (3.26) indicates substantial volatility, suggesting that the economies under consideration are exposed to business cycle fluctuations and global macroeconomic shocks. The observed extreme values, ranging from a minimum of –10.94% to a maximum of 12.88%, further confirm the presence of pronounced contraction and expansion phases.

Gross capital formation shows significant dispersion, with a standard deviation of 7.55, indicating considerable variability in investment levels across countries and over time. This heterogeneity is beneficial from an econometric perspective, as it provides sufficient variation to robustly estimate its impact on economic growth.

Air transport displays strong positive skewness (2.63) and high kurtosis (9.01), indicating a highly leptokurtic distribution. This pattern reflects the structural expansion of global air traffic over recent decades, with a concentration of observations in more recent periods. Similarly,

tourism receipts and unemployment exhibit non-normal distributions, although their dispersion remains economically consistent with the diversity of national trajectories.

The Jarque–Bera statistics confirm the rejection of the null hypothesis of normality for all variables at the 1% significance level. While this non-normality may pose limitations under strict Gaussian assumptions, it does not undermine the validity of panel data estimations, particularly given the large sample size (high N×T). Indeed, the asymptotic properties of panel least squares estimators ensure their consistency, while the use of robust standard errors helps correct for potential biases arising from heteroskedasticity or non-normality in the residuals,

2 Panel Unit Root Tests

Table 2. Summary of Unit Root Test Results

Variable	Level	1st difference	Order of Integration
GDP Growth	Stationary	-	I(0)
Gross Capital Formation	Stationary	-	I(0)
Air Transport	Non-stationary	Stationary	I(1)
Tourism Receipts	Non-stationary	Stationary	I(1)
Unemployment	Mostly stationary	Stationary	I(0)

Source : Authors

The results of the panel unit root tests reveal a heterogeneous integration structure across the variables. Specifically, GDP growth and gross capital formation appear to be stationary in levels, indicating the absence of a unit root for these variables.

In contrast, air transport and international tourism receipts are found to be non-stationary in levels but become stationary after first differencing, suggesting that they are integrated of order one, I(1).

As for the unemployment rate, it displays a mostly stationary behavior in levels according to the majority of the tests applied.

This mixed order of integration justifies the implementation of a panel cointegration test to assess the existence of a long-run equilibrium relationship between the variables and to avoid the risk of spurious or non-robust regression results.

Furthermore, the rejection of the unit root hypothesis for several variables in levels supports the appropriateness of using a fixed effects panel model, as it ensures the consistency and reliability of the estimated relationships.

3 Pedroni Panel Cointegration Test

Table 3. Panel Cointegration Test (Pedroni): Within-Dimension and Between-Dimension Statistics

Test	Statistic	p-value
Panel v-Statistic	0.239	0.405
Panel rho-Statistic	-5.638	0.000***
Panel PP-Statistic	-7.521	0.000***
Panel ADF-Statistic	-3.942	0.000***

Test	Statistic	p-value
Group rho-Statistic	-7.254	0.000***
Group PP-Statistic	-10.261	0.000***
Group ADF-Statistic	-5.070	0.000***

Source : Authors

Significance level: *** $p < 0.01$

Given the presence of several variables integrated of order one (I(1)), it was essential to examine whether a long-run equilibrium relationship exists among the variables under study. To this end, the Pedroni residual cointegration test was applied, in line with standard methodological recommendations.

The results provide strong evidence leading to the rejection of the null hypothesis of no cointegration. With the exception of the panel v-statistic, which is not statistically significant, all other statistics—both within-dimension and between-dimension—are significant at the 1% level.

These findings confirm the existence of a stable long-run equilibrium relationship among the variables across the countries included in the sample. Despite short-term fluctuations observed over the period 1960–2024, the variables exhibit a common long-term trajectory, evolving jointly over time.

From an econometric perspective, the presence of cointegration eliminates the risk of spurious regression and provides structural validity to the level estimations. As a result, the estimated

coefficients can be interpreted as reflecting long-term economic relationships, rather than merely capturing short-term correlations.

From an economic standpoint, these results suggest that the impact of mega-sporting events is not limited to temporary or cyclical effects. Instead, the underlying mechanisms—particularly those related to capital investment and infrastructure development—appear to be embedded in a long-term structural dynamic, capable of exerting a sustained influence on the growth trajectory of host countries.

4 Two-Way Fixed Effects Estimation

Table 4. Two-Way Fixed Effects Model

Variable	Coefficient	p-value
Gross Capital Formation	0.189***	0.000
Unemployment	-0.137**	0.017
Air Transport	4.53E-09***	0.000
Tourism Receipts	-0.143**	0.021
R^2	0.798	
Prob(F)	0.000	

Source : Authors

The estimation results indicate a high explanatory power of the model, with an adjusted R-squared of approximately 0.80, suggesting that nearly 80% of the variation in GDP growth is explained by the variables included in the model. This level of fit reflects the relevance of the chosen specification and the model's ability to capture the fundamental macroeconomic determinants of growth in the host countries under study.

Gross capital formation emerges as the most robust and statistically significant determinant of economic growth. The positive sign and strong statistical significance of its coefficient confirm the central role of productive investment in long-term growth dynamics. This finding is consistent with endogenous growth theory, according to which capital accumulation constitutes a key driver of economic performance.

The unemployment rate, in contrast, exhibits a negative and statistically significant effect on economic growth, in line with standard macroeconomic theory, particularly Okun's law. This

relationship reflects the fact that a less dynamic labor market constrains overall output and limits the economy's ability to fully utilize its productive capacity. While the negative impact of unemployment on growth is theoretically expected, mega-sporting events may contribute to temporary reductions in unemployment and, in some cases, support more sustained employment—provided that their economic benefits are effectively leveraged over time.

Air transport shows a positive and statistically significant impact, indicating that improvements in international connectivity and transport infrastructure represent an important transmission channel through which mega-events influence economic performance. This result highlights the importance of sustainable infrastructure development, rather than short-term economic gains.

Conversely, tourism receipts display a negative and statistically significant coefficient, a result that may appear counterintuitive at first glance. This relationship may reflect the presence of crowding-out effects, sectoral substitution, or the high public costs associated with hosting mega-events, which can offset the direct gains from increased tourism. This finding suggests that tourism should not be considered the primary driver of economic growth associated with mega-sporting events, and calls for a more nuanced interpretation of its role.

5 Estimation (White Cross-Section Cluster)

Table 5. Estimation with Robust Standard Errors

Variable	Coefficient	p-value
Gross Capital Formation	0.189***	0.000
Air Transport	4.53E-09***	0.005
Unemployment	-0.137**	0.021
R^2	0.798	

Source : Authors

To ensure the validity of statistical inference and enhance the robustness of the results, an alternative estimation was conducted using White cluster-robust standard errors at the cross-sectional level. This approach simultaneously corrects for potential heteroskedasticity as well as intra-group correlation of residuals within each country, a phenomenon that is particularly common in long-term macroeconomic panel data.

Given that cross-sectional dependence tests revealed the presence of interdependencies across countries—likely driven by global macroeconomic shocks, common economic cycles, and international trade linkages—the use of clustered standard errors is methodologically justified. Without such correction, conventional standard errors may be underestimated, leading to an artificial overestimation of the statistical significance of the estimated coefficients.

The results from this robust estimation confirm the stability of the main determinants of economic growth. Gross capital formation retains a positive and highly significant coefficient, reinforcing the conclusion that investment constitutes the primary structural channel of growth. Similarly, air transport remains statistically significant at conventional levels, confirming the importance of connectivity infrastructure in driving economic performance. The unemployment rate continues to exhibit a negative and significant effect, consistent with standard macroeconomic theory.

It is particularly important to emphasize that the statistical significance of the key variables persists after correcting for standard errors. This stability of the estimated coefficients indicates that the results are not sensitive to issues of heteroskedasticity or intra-country correlation, thereby confirming the empirical robustness and reliability of the estimated model.

6 Diagnostic Tests

Table 6. General Diagnostic Tests

Test	Null Hypothesis	Result	Conclusion
Jarque-Bera	Normality	Rejected (p=0.000)	Non-normal but acceptable with robust SE
Correlation Matrix	No multicollinearity	Max corr = 0.783	No severe multicollinearity
Covariance Matrix	Positive definiteness	Satisfied	Stable estimates
Breusch-Pagan LM	No cross-section dependence	Rejected	Presence of interdependence
Pesaran CD	No cross-section dependence	Rejected	Cross-country spillovers exist

Source : Authors

The various diagnostic tests conducted confirm the consistency and adequacy of the econometric specification adopted in this study. Although the residuals reject the strict

assumption of normality, this does not undermine the validity of statistical inference. In the context of large panel datasets, the asymptotic properties of least squares estimators ensure their consistency, while the use of cluster-robust standard errors effectively corrects for potential biases arising from heteroskedasticity and non-normality.

Furthermore, the correlation matrix indicates the absence of severe multicollinearity among the explanatory variables. The observed correlation coefficients remain below the commonly accepted critical thresholds in the literature, ensuring the stability of the estimations and the reliability of the individual coefficients.

In addition, cross-sectional dependence tests, including the Breusch–Pagan LM test and the Pesaran CD test, reveal the presence of significant correlation across panel units. This result is economically consistent, as the countries included in the sample are exposed to global macroeconomic shocks, international business cycles, and trade and financial interdependencies. These spillover effects fully justify the inclusion of time fixed effects in the model specification.

IV. Economic Discussion

The empirical results suggest that the economic impact of FIFA World Cups does not primarily stem from direct tourism revenues. Contrary to the arguments frequently advanced in public debates and ex ante evaluations, the immediate benefits associated with the influx of visitors appear to be limited, unstable, and weakly structured in the long term. Tourism-related effects seem to be largely cyclical rather than persistent, and may be offset by crowding-out effects, expenditure substitution, or the substantial public costs incurred in organizing such events.

In contrast, the positive effects associated with gross capital formation indicate that investment constitutes the main macroeconomic transmission channel. Expenditures on transportation infrastructure, urban development, and large-scale facilities emerge as the true drivers of economic growth. When these investments are integrated into a coherent and productivity-oriented development strategy, mega-sporting events can generate sustainable economic gains that extend well beyond the duration of the event itself.

The positive impact of air transport further reinforces this interpretation. Improvements in international connectivity facilitate economic integration, stimulate trade, and enhance the attractiveness of host countries for investors and businesses. Countries that are able to leverage

the organization of a mega-event as an opportunity for international openness and infrastructure modernization tend to experience more persistent effects on their growth trajectories.

Furthermore, the results related to unemployment confirm its central role in economic dynamics. The negative relationship between unemployment and economic growth highlights that reducing unemployment is a key factor in improving macroeconomic performance. In this context, mega-sporting events can contribute, at least temporarily, to job creation in sectors such as construction, services, tourism, security, and event management.

Beyond these short-term employment effects, the infrastructure and investments generated by such events can, if sustainably utilized, support the creation of long-term employment opportunities by stimulating economic activity and private investment. Therefore, the overall employment impact depends largely on the ability of public authorities to transform a temporary investment shock into a sustained and productive economic dynamic.

V. Conclusion

This study aimed to empirically analyze the macroeconomic impact of hosting the FIFA World Cup on the economic growth of host countries, using a comparative panel data approach covering six economies over the period 1960–2024. By adopting a long-term perspective and a rigorous econometric methodology, the results highlight the existence of a stable structural relationship between economic growth and the variables associated with mega-sporting events.

The findings clearly show that investment, as measured by gross capital formation, constitutes the primary driver of the observed economic effects. Economic growth is not primarily explained by the immediate outcomes of the event itself, but rather by the quality, scale, and orientation of the investments undertaken. The development of air transport further confirms the central role of sustainable infrastructure in promoting economic integration and structural modernization, while the effects of tourism appear to be limited and largely transitory.

Moreover, although mega-sporting events may contribute to a temporary reduction in unemployment through the creation of direct and indirect jobs, their long-term impact depends on the ability to transform these short-term opportunities into sustained and productive economic dynamics.

Overall, the results indicate that hosting a mega-sporting event does not constitute an automatic engine of economic growth. Its impact fundamentally depends on the investment strategy adopted and its integration into a coherent long-term development framework. For policymakers, this implies prioritizing high-value-added infrastructure, avoiding investments with limited post-event utility, and grounding decisions in rigorous cost–benefit analyses.

Ultimately, mega-sporting events should be viewed less as autonomous drivers of growth and more as potential catalysts for structural transformation, provided they are embedded within a well-designed and sustainable economic strategy.

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