

Mega-sporting events: imbroglio of measuring legacies

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ABSTRACT

It is commonly accepted that mega-sporting events are catalysts for socio-economic development in developed and developing countries. They are of great importance today for economists and policymakers concerning the multiple political, socioeconomic, cultural, geopolitical, and environmental issues and effects as well as the Nation branding of the country that hosts them. The human rights dimension is also starting to gain importance because MSE can amplify discrimination and violence. This article examines this conviction by demonstrating how mega-sporting events generate a significant number of material and immaterial effects and legacies which could be both negative and positive. As a result, the organization of mega sporting events poses a real controversy regarding approaches to their evaluation and measurement. The imbroglio of the measurements refers at first glance to the complexity of conceptualization of the concept of "Legacy" as well as to the immaturity of the approaches to its evaluation. The subject is even more interesting for Morocco, a developing country that is co-organizing with Spain and Portugal for the first time in its history a mega sporting event on the scale of the 2030 World Cup. The article examines the possible legacies of what this event will leave to Morocco and Moroccans on an economic, social, environmental, and cultural level.

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1. INTRODUCTION

Since the International Federation of Association Football (FIFA) designated Morocco, Spain, and Portugal to co-organize the 2030 Football World Cup, the event was considered an ambitious social project for the Moroccans. Indeed, the Moroccan public authorities have a lot of hope for a positive return on investment resulting from the numerous ex-post dimensions of this mega sporting event, the organization of which would cost between 15 and 20 billion dollars for the Morocco-Spain-Portugal tripartite candidacy including Morocco's share amounts

to nearly \$5 billion [1]. This mega event pushes us to ask the question about the heritage that will be bequeathed to Morocco and Moroccans.

Beyond the economic, infrastructural, or sporting aspects, Mega Sporting Events (MSEs) constitute opportunities to promote a country's soft power and showcase its developmental dynamism. Indeed, (MSEs) have become agoras of political expression whose material and immaterial effects or legacies exceed the period limited to the events. Given the importance of these legacies, researchers have been interested in evaluating their different dimensions: economic, sociocultural, and environmental [2]. Nation or destination branding is also important [3]. Indeed, (MSEs) are seen as development catalysts capable of asserting the hegemony and power of host territories. (MSEs) in the Global South are increasingly seen as a means to upsurge the power and prestige of a host step in global relations and to achieve goals development in the social, economic, and political spheres [4].

However, it is appropriate to mention that some researchers have insisted that the impacts of (MSEs) can be of a positive or negative nature [5]. It is far from obvious to consider that (SMEs) always constitute an interesting opportunity for the host country [6]. Thus, the famous aphorism “the winner's curse” [7], calls for reason to review the decision-support instruments and the decision-making modalities for organizing this type of event. That type of development generated by these mega-events is biased in favor of large economic players, some political leaders, and organizations that govern high-performance sports. For example, in FiFa's 2022 annual report which coincided with the organization of the World Cup in Qatar, revenues reached a record level of USD 7.57 billion for the 2019-2022 cycle. This result was obtained despite the Covid-19 pandemic.

Indeed, just and equitable legacies of (MSEs) are only achieved when the voices and interests of the general population are taken into account and prioritized during the process of planning, financing, and implementation. The Mega-Sporting Events Platform for Human Rights, 2018 [8] highlights the fact that (MSEs) can amplify discrimination and violence. It is in this perspective since the 2000s, that the notion of heritage has become a decisive element for any application [9]. The notion of legacy is used with the perspective of measuring the effects or impacts produced by this type of event.

Notwithstanding, the academic literature is characterized by a nuanced approach to the impacts of sporting events. The notion of inheritance is complex due to the multiplicity of dimensions supposed to constitute it [10]. First understood through economic effects (profitability, growth, etc.), the understanding of heritage has diversified to include social, cultural, environmental, and ultimately human rights. [11] underlined the importance of the notion of legacies because “the political decision-makers concerned currently have no common global framework capable of supporting the development of necessary policies and strategies to mitigate the negative impacts and strengthen the positive impacts of (SMEs).” Especially since these events can have harmful repercussions on a societal and environmental scale: potential violations of human rights, violations of labor law as well as considerable ecological footprints. These violations may concern the expropriation of residents, spatial segregation, and the destruction of working-class neighborhoods to allow the construction of sports infrastructures or the establishment of various infrastructures, and the general increase in the cost of land, forced evictions of populations are taking place towards disadvantaged areas, etc. When these events are carried out in developing countries, the problem becomes even more complex given social demands and inequalities. The organization of mega-sporting events is likely to cause significant expenses or even debts for local governments and taxpayers, bringing negative externalities in the form of social problems such as the exacerbation of social economic, and environmental inequalities such as pollution and the destruction of ecosystems and biodiversity.

This article intends to highlight the polysemy of the concept of legacy and the difficulty of its evaluation. From this perspective, we set out to unravel the imbroglia of impact measurement or the evaluation of “legacies” expected after the organization of a mega sporting event. This approach is interesting because the exaggeration of the post-event legacy seems to be a constant [12].

By placing the (SMEs) from the angle of a social project, the organizers raise a lot of hope, even though the large number of unknowns linked to the candidacy, and then to the organization, justifies caution. The notion of heritage is rarely considered in a long-term strategy leading to thinking about it from the first stages of application projects to tackling it as soon as the event is obtained by implementing programs and ensuring follow-up beyond the sole period of its progress. The ultimate goal according to them is that the event should, wherever possible, leave a lasting positive legacy and raise the standard for future events while promoting human rights. The failures of several events such as the (Summer Olympic Games in Montreal, Athens, and Beijing) reinforce this call for caution. Given the above, in this article, we try to address the thorny question of evaluating the legacies of (SMEs). The focus is whether or not it is appropriate for a country to organize and host such events. For some, the latter constitutes a powerful lever for economic and social development, for others, they appear to be a real economic, financial, social, cultural, and ecological disaster [13]. These controversies arise largely from the fact that evaluating the economic and social impact of (SMEs) on host cities and countries is a very difficult exercise because the numerous social-economic externalities and environmental are very difficult to evaluate so not fall into the trap of what is commonly called (Large Useless and Imposed Projects). He believes that current measurement instruments are ineffective. According to him, there is a predominance in evaluating monetary

impacts at the expense of non-monetary impacts. According to him, the first fear of the organizers of (SMEs) is the problem of white elephants which designate these gigantic infrastructures which are of no use after the closure of the event. While the real problem lies in measuring non-tangible indicators such as the carbon footprint, citing the example of the 2010 Football World Cup in South Africa, approximately 2.8 million tons of CO₂ were generated. Carbon Market Watch, for its part, estimated that the World Cup organized in Qatar in 2022 could have released more than 5 million tons of CO₂ into the atmosphere – or more than 5% of the country's annual emissions in 2019.

Another point relating to the legacy concerning non-sporting infrastructures (motorways, airports, high-speed lines, wastewater treatment plants, etc.), is related to their long-term effects. Are they serving those who need them most? In this perspective, he places the social dimension which includes happiness, well-being, the common good, the general interest, and social utility, as well as the ecological dimension (climate, biodiversity, water, soils, etc.) in the first order. Economics should only come last as a simple means of achieving overall coherence of programs. To this end, the question of monetary/non-monetary indicators arises to measure inheritance. How to measure the qualitative, the subjective, the non-market. According to him, conditions must be met: an ethical requirement around the idea of social justice. A democratic requirement around a citizen construction of indicators and not on the initiative of experts alone. Indeed, there are dimensions of social utility that are rather difficult to quantify: social bond, quality of life, social recognition, quality of human relations, etc.

Indeed evaluating the intangible heritage which includes the image on the international scene and the strengthening of national unity is problematic because it is challenging to make predictions, as this type of inheritance involves great subjectivity in its evaluation. These events are deemed to produce emotions that would strengthen national pride, national identity, and the social integration of minorities [14]. Brazil risks leaving a legacy around the rejection of this type of event. Street protests denounced the economic waste of scarce resources while basic needs were not met. Concerning the Paris 2024 Olympic Games, debates were initiated following the use of CROUS housing and the forced movement of populations to other regions [15]. The desired showcase effect had the opposite effect with the pollution of the Seine, rats in the city of Paris, and a fine controversy triggered by the opening ceremony.

Given the above, we can note the delicacy of understanding the concept of “heritage” because of its complexity and multidimensionality. To this end, we will try to answer the following question: *why do approaches to measuring mega-sporting event legacies constitute a real imbroglio?*

2. METHODOLOGY

We are based on the documentary analysis of several books, academic articles, and conference proceedings which have focused on the question of evaluating the legacies of mega sporting events, in particular those that have been based on longitudinal studies. We have structured our article as follows: firstly we tried to divert the two key concepts of our research “mega sporting event” and “legacies”. Then we reported on the most popular approaches for evaluating the assets of mega sporting events. Finally, we extracted an analysis grid to make projections on the possible legacies that will be bequeathed to Moroccans after the organization of the 2030 World Cup.

3. MEGA-SPORTING EVENTS: GENESIS, PRESENTATION, AND CHARACTERISTICS

The definition of (SMEs) is a *«large-scale sporting events that attract the attention and participation of thousands or even millions of people around the world. They are of the ambulatory type of fixed duration which attracts a large number of visitors, have a strong media reach, are accompanied by high costs, and have a significant impact on the built environment and the population»*. This definition excludes recurring events, in an identical location for each edition. These events include competitions such as the Olympics, FIFA World Cup, Tour de France, Super Bowl, and many others. These events are often organized by international sports organizations such as the International Olympic Committee (IOC) or FIFA, in collaboration with governments, businesses, and local organizations [16].

The definition of (SMEs) include the importance of public investments induced by this type of project. They define them as *“significant national or global competitions which generate a high level of participation and media coverage and which often require significant public investment in dedicated event infrastructure – for example, stadiums to stage the events – and general infrastructure, such as roads, accommodation units or public transport networks.”* [17]. “Megas” can transmit promotional messages to billions of people through television and other globally developed telecommunications formats. Business practices in this global industry have economic, social, and environmental impacts. Typically, the economic impacts should not be underestimated: it is an industry whose international reach and power are unrivaled [18].

Despite the diversity of names, “major one-time sport event”, “large-scale sports event”, “mega sports event”, “major sport event”, “special event” or even more recently “giga sport event”, a definitional framework is

established around two dimensions which refer in a way consubstantial with forms of impacts. The first characterizes the international scope of the event. It is well illustrated by the Roberts, 2004 definition: «*The mega-event has a discontinuous, original, international character with an extraordinary global composition, capable of reaching millions of people around the world through media coverage. The second dimension emphasizes the predominantly economic, communicational, and tourist forms of impact*».

So how can we distinguish between a normal event and a “mega-event”? Müller, 2015 identified four essential dimensions characterizing mega-events, namely, tourist attractiveness, media reach, cost, and urban transformation, from which he proposes his consolidated definition: “Mega-events are ambulatory occasions of a fixed duration that: (1) attract a large number of visitors, (2) have a high media reach, (3) are accompanied by high costs (4) and have a large impact on the built environment and the population” Thus according to the meaning he intended, for an event to be truly “mega” it must be broad on each of the four dimensions mentioned. However, this definition is limited in that it does not specify the threshold of width from which we begin to speak of a mega-event. With this in mind, he developed a rating matrix to classify events according to their size. However, it would be appropriate to mention that these (SMEs) are the heritage of a very ancient tradition that dates back to Roman times.

Mega-sporting events are the legacy of “ludi circenses” in Latin «circus games” which were the favorite entertainment of the Romans. ¹ In Rome, no less than fifty days were devoted to them, and the spectacle building where they were performed, the Great Circus, the Circus Maximus, had a capacity of 150,000 seats. The circus games were therefore sporting spectacles and the chariot races formed the heart of the event: horse racing competitions, athletic events like boxing, wrestling, and racing. He highlights that these ludi circenses were religious ceremonies and marked the Roman year as major state rituals. Juvenal's famous formula immortalized the great importance of these games: *the Romans had only two concerns: “Bread and games”*. Chariot races aroused the same enthusiasm throughout the Roman Empire that is to say in a large part of the inhabited world, from Lusitania to Constantinople, from Brittany to Africa [19]. Depending on the times, the inhabitants of Tarragona, Lyon, Arles, Carthage, Rome, Alexandria, and Antioch, only spoke of these chariot races, at least according to many writers, and all this had the consequence of exasperating many intellectuals, as today [20]. In late Antiquity, games and spectacles were a component of Roman cultural identity and at the same time, they were more than that. Indeed, the rituals and ceremonies of the ludi were so essential to the Empire's existence that the Christian emperors were unwilling or unable to abolish them.

Nowadays, globalization has not spared the sporting sphere. Indeed, sporting events are today completely globalized, because they bring teams of different nationalities, sports clubs, or individual athletes into competition. As sporting events are broadcast on television all over the world and in real-time, they are therefore globalized. Furthermore, the emergence of NICTs (new information and communication technologies) thanks to which sports images can be transmitted instantly at any time and anywhere in the world. The context of the event is the opportunity for stakeholders to establish economic, financial, and commercial relationships aimed at achieving maximum profit through marketing and sports management strategies. The host country sees in the organization of mega-events the opportunity to revive its economy through the promotion of the tourism sector, the improvement of the balance of payments, the creation of jobs, and the development of infrastructure, logistics, and transport. It is also an opportunity to stimulate the well-being of the population and strengthen the country's brand image in the world. The importance of sports-related activities represents approximately 3% of global economic activity [21]. Globally, the sports market represented more than €1,000 billion in 2021, or 1.35% of global GDP.²

The globalization of the sports economy is exploited by those who are involved in a sort of parallel sports economy based on accounting and financial rigging, embezzlement, match-fixing, corruption, and dirty money laundering, etc. Practices towards which globalized sport tends to drift more easily than others – or at least more visibly. The financial excesses of sports never flourish as much as with globalization allowing them to escape all control by moving all over the world. This raises the question of the regulations necessary to maintain the ethical quality of sporting events. Thus, the problem of evaluating the impacts of mega-sporting events on the economy, well-being, and society is far from unanimously agreed neither in its methodological dimension nor in terms of the probability of the existence of impacts on host countries. For the economic community, it is about understanding how major sporting events can contribute to economic growth, job creation, improved infrastructure, and public services, as well as the promotion of creative industries and tourism. It is also crucial to assess the impacts on the quality of life, health, and well-being of local populations, by examining the social and environmental impacts of mega sporting events. Finally, it is essential to take into account the direct and indirect costs linked to the preparation and hosting of mega-sporting events, as well as the long-term impacts on the

¹ LUDI is a general term bringing together the different shows and competitions of the circus and the amphitheater (ludi circenses), as well as those of the theater (ludi Scenici) and the stadium. A Dictionary of Greek and Roman Antiquities (1890).

² Novascopie – Les tendances du sport 2022

environment and local communities. This will provide a better understanding of the issues surrounding the holding of these events and provide recommendations for effective planning and management of mega sporting events in the future. We will also focus on mega-sporting events, which can be defined as cultural and sporting festivals of sufficient size and scope to affect entire economies and which require media attention designed on a global scale. This raises the question of the transformations and impacts that can take place on the economy of the host territory.

(SMEs) are projects in which decision-makers take the gamble of investing for multiple reasons, the most convincing being the promise of a considerable economic windfall, estimated by economic impact studies. Through the organization of such events, public decision-makers hope to produce a substantial economic boost and achieve significant economic growth by counting on economic revenues generated directly by elements such as ticket sales, increased employment opportunities for local people, long-term foreign direct investment, as well as profits from inbound tourists [22]. They therefore rely on *ex ante* studies to estimate the economic impact of mega-events and justify their decisions. Thus, the organizers of the 2022 World Cup in Qatar have counted on nearly six billion dollars in return on investment. According to the Center for Sports Law and Economics (CDES) at the University of Limoges, the Paris 2024 Olympic Games are expected to generate between 6.7 and 11.1 billion euros in net economic benefits in the Paris region, with an intermediate scenario forecasting 8.9 billion euros of net economic impact.

The social promise is often among the arguments put forward by public decision-makers wishing to apply to host a mega-event. These protests are seen as opportunities to solve social problems, such as unemployment, housing, empowerment, and improving facilities and services for disadvantaged people. Also, it is considered to be a means to increase feelings of satisfaction among citizens, strengthen the identity and image of the territory improve social cohesion, and also to optimize the legacy of the event in terms of social utility [23].

3.1 Quid of “legacies” of Mega-Sporting Events

3.1.1 Impact, legacy, effect, or inheritance?

Interest in studying the impacts of (SMEs) materialized in the 1980s with several studies seeking to understand their potential positive and negative consequences using several methods. The concept emerged in the field of sports management during the 1990s, when questions about the costs and benefits of organizing them were first raised not only from financial and economic perspectives but also from social and environmental [24]. However, it was not until the year 2000 that the IOC asked candidates to host the Olympic Games to prepare a legacy as part of the candidacy process, something done by the city of Sydney, but not followed by the organizing committee. The issue was only taken seriously during the London 2012 Games, where organizers ensured they had a plan for each construction project coordinated by the Legacy Trust UK [25] Legacy tracking will only be mandatory since the Winter Olympic Games in 2026.

With the omnipresence of the term heritage, recurrent in debates around international sport as illustrated by its presence in the Olympic Charter or its systematic presence in application files for the organization of events international, several research works, mainly Anglo-Saxon have used it to analyze the meaning of priorities as well as the scope of events. Initially, those using an economic approach notably studied the induced benefits [26].

The notion of inheritance is semantically complex. Through its two official languages, English and French, the IOC officially translates legacy into «*héritage*». However, the term “*héritage*” also exists in English and refers to other aspects. While the term “legacy” would be more suited to analyzing the relationships between the present and the future, and would correspond to the French term “legacy”, that of inheritance, accepted in the Olympic language, would refer more to the links between the past and the present and would coincide more with the term “patrimony”, echoing “*héritage*” in its Anglo-Saxon translation [27]. It would therefore refer to an accumulated and continuous capital of historical, symbolic, cultural, political, and moral objects while its legacy equivalent would abstract this past. Therefore, approaching «*héritage*» from the angle of “legacy» can be converted into heritage in the very long term. The general definition of heritage refers to the link between the past and the transmission of a collective good in the present, favoring a historical approach. However, this transmission does not imply a definitive object but rather a heritage resulting from a construction process [28].

According to several authors, the term legacy could be the one that best refers to «*héritage*» and remains dominant in the literature. However, it is simplistic to reduce «*héritage*» to legacy, to the extent that several authors do not make a distinction between heritage and legacy. International translations can create ambiguity and make consensus-building difficult. It is also necessary to provide important semantic precision between the terms “effect”, “impact” (or fallout), and “legacy”. The notion of effect, the least circumscribed, allows us to evoke the consequence of an event in its most heuristic dimension, that is to say, the least formalized. The distinction between “impact” and “legacy” then operates mainly on the register of temporality [9]. In other words, an effect that materializes through the encounter with a territory, an organization or a public will take the form of an impact that will itself become a legacy if it is established over the long term. We will essentially use the notion of impact for two reasons. Firstly, it seems more recurrent in the literature linked to GESI and precedes the legacy dimension, precisely because the latter aims to encompass a variety of impacts if we refer to [14] definition: «*set of material*

and immaterial structures, planned and unplanned, which appear during an event and which follow it». The notion of legacy is much broader than that of impact which was previously favored and refers to both material and immaterial dimensions. It particularly encompasses urban development, behaviors, beliefs, knowledge and networks, the environment, governance, etc. It seems that it is becoming more and more broad and encompassing. Scientific literature has long focused on the economic impact of the Olympic Games and their urban planning aspects. Social heritage has more recently attracted attention at the same time as social change has become one of the objectives of organizing the Games. It refers to plural dimensions that affect, for example, the transformation of certain practices, notably the engagement of populations in physical practice; it also concerns other, more intangible dimensions, such as people's support for the event and the happiness felt, the image of the host city, social inclusion, etc.

The absence of a consensus regarding the meaning of terms, in particular that of legacy, makes a homogeneous scientific understanding all the more difficult and requires distinguishing between approaches to grasp the knowledge produced. They are all the more uncertain as they do not appear immediately after the organization of a major sporting event, and can extend over at least twenty years [26]. Their tangible (hard) and intangible (soft) character implies extending the effects of a mega sporting event to experiences, networks, or even cultural goods, which remain difficult to analyze because they are relevant to the informal sphere[9]. The angles of analysis of the effects of major sporting events can be multiple, taking into account the social, cultural, psychological, sporting, symbolic, political, environmental, health, and geopolitical dimensions. The definition of [24] makes it possible to bring together prior points of view around a global definition of legacies, understood as "all that remains and can be considered as a consequence of the event in its environment". If this diversity of conceptions makes the researcher's task difficult, it also complicates that of organizers who have difficulty translating this notion into action.

The contradiction between the importance of building the social legacy of a sporting event. They define what social heritage is through this formula: a "potential to strengthen, in the host territory, social cohesion and citizenship, capacity to generate capacity and education, to develop activity physical fitness for all and sports culture, to participate in the structuring of organizations, to promote the territory and to create bridges between sport and other fields of public action. Based on this definition, they present a methodological system that uses both quantitative and qualitative tools. The implementation of these tools is always done in targeted locations which also makes it possible to understand the contrasting effects of social heritage. Indeed, a sporting event cannot have a significant overall effect on the entire country, the researchers have chosen to ensure more detailed and localized monitoring of the effects whatever they may be and whatever their intensity. The difficulties in reporting the social benefits of major events are inversely proportional to the ease of showing their economic difficulties. Indeed, mega events involve increasingly large budgets which leave colossal debts. Table 1) below summarizes the main definitions proposed by several authors since the concept took off in the early 1990s.

Table 1. The diversity of definitions of the concept of "legacy" from 1991 to 2018

Author	Definition of Legacy
[29]	"The physical, financial, psychological or social benefits permanently conferred on a community or region as a result of the organization of an event. The term can also be used to describe a negative impact, such as debt, displacement of people, pollution, etc. "
[30]	"Permanent improvements to the built environment. Social improvements, of course, may benefit some people more than others."
[31]	"The legacy of the Games does not belong exclusively to the former host cities of the Olympic Games: it must rather be understood in a global and universal sense as the legacy of the Olympic Games"
[33]	"Something received from the past, usually of value for the present and, indeed, most certainly for the future" (p. 43), and "something to build on for the future"
[24]	"A long-term impact on the Olympic city and its surrounding region and possibly on the host country. Although the term "legacy" has a positive connotation, the value of an impact can be both favorable and less positive.
[35]	"Any development created as part of the preparations for the hosting of the Olympic Games, even if it is demonstrated that the development may have emerged over time, independently of the event. »
[14]	"All the economic effects linked to the Olympic Games, after the closing ceremonies, which would not have taken place without the Games. Transitory advantages must be distinguished from permanent advantages. The most famous transitional benefit is the "economic impact" that occurs through investments in infrastructure and tourism spending during the Olympics. "Legacy is "all outcomes that affect people and/or space and are caused by structural changes resulting from the Olympic Games". Legacy is a consequence of structural change. Furthermore, translating this definition from a practical point of view, the result could be a neutral, positive, or negative legacy. This reminds us that outcomes can be unintentional, affecting people (or multiple parties involved) and/or space (the environment) whether a city, a country, or nature, which are affected by material or immaterial changes and which are caused by the Games (the event) often in an indirect way.
[34]	"The tourism legacy of an Olympic Games is multifaceted and broadly based. Its effects are both short and long term. It encompasses visiting the host city and country for many years before and after the Games. It is a legacy whose benefits extend beyond the host city to the host region and country. Indeed, its benefits go beyond sport. It represents more than an economic

gain; it can provide a substantial increase in share capital. For these reasons, Games hosts can greatly benefit from a well-planned and coordinated tourism leveraging strategy.”

3.1.2 The different approaches to measuring the legacies of mega-sporting events

The synthesis that we have produced of the definition of inheritance as being “more than economic gain; it is also a substantial improvement in social capital, it is a structural change which affects people and space (city, region, and State) and is part of both the short and long term” we would like to be very useful for understanding theories seeking to highlight the impacts of sporting events. The search for common points between studies therefore quickly finds its limits. Economists of various tendencies only understand the sporting spectacle through some of its benefits. They only manage to have an incomplete vision of this economic phenomenon. This observation was made by L.S. Davidson (19 years old), who expresses it graphically. Thus the economist responsible for the impact study would be like an ant mounted on the back of an elephant depending on the observation point chosen, it will be able to scientifically deduce very different conclusions on its object of study without ever being able to have a complete representation. Empirical models are statistics, not economic theory. Two types of approaches must be distinguished here. First of all, the simple statistical monitoring of economic activity consists of the quantification, at regular intervals, of various economic variables and aggregates (calls for tenders, consumption, employment, added value, etc.), the implementation of an economic observatory could be of great use in this case. This approach is purely descriptive but does not highlight the role of sporting events in the local economy.

a) Empirical approach referring to econometrics

Econometric models go beyond simple statistical collection and must make it possible to verify the existence of a relationship between the evolution of economic aggregates and the phenomenon studied. For example, we find econometric approaches such as the computable general equilibrium model (CGE): Sydney 2000 Olympic Games. These complex models include hundreds of equations that trace the macroeconomic balance of a territory. They can be used to simulate the reaction of the local economy to various exogenous shocks such as an international sporting event [7].

Statistical tests are then carried out, to check whether there is a link between turnover, added value, employment (dependent or explained variables) and the presence of the sporting spectacle in the territory (explanatory variable expressed as form of dummy variable has the correct sign, and is found to be statistically significant, then the hypothesis that sport has an impact on the economy of the community cannot be rejected repeatedly. tests of this type, over a time series, determine whether economic activity increases after the construction of a stadium or the reception of a new professional team. The relationship tested can be formalized as follows:

$$VA = f(POP, TREND, STAD, FOOT, BASE)$$

VA: is the regional added value;

STAD is a dummy variable reflecting the presence of a renovated stadium, it takes the value 0 (zero) before and 1 (one) after the renovation or construction of a new stadium by the city;

FOOT and **BASE** are two variable dummies respectively marking the presence of a professional American football team and a baseball team, they are worth one (1) in the presence of a team and otherwise zero;

POP is the population of the territory;

TREND is a variable reflecting long-term trends.

The relationship was tested over the period 1965-1978 in eight urban areas of the United States. Ordinary least squares regressions did not statistically detect an increase in economic activity associated with a new stadium or sports franchise. A similar test could be carried out for an exceptional sporting spectacle; this would return the STAD, FOOT, BASE dummies with a SAME dummy variable taking the value zero before and the value one after the city gets to host the event. It is such an analysis of the football World Cups of 1998 in France and 2006 in Germany undertaken. The authors conclude that there is no conclusive link from an econometric point of view between the hosting of the Football World Cup, on the one hand, and tourism, employment, and national income of countries hosts, on the other hand. They show, from a summary table reproduced below (see Table 2), that these results are consistent with those found in most similar studies carried out on other major sporting events. [32] conclude a review of the literature on the econometric approach to clubs and events with these words: “Many studies (...) have examined the economic impact of stadium construction. These studies found that a new stadium provides little if any, economic stimulus to the communities in which it is located. Others looked at mega-sporting events such as the Super Bowl, World Series, and All-Star Games. Again, these researchers found that the event organizers' estimates exaggerated the actual economic impact by up to ten times.

Table 2. Overview of econometric studies on the economic effects of sports and sports equipment

Author	Regions studied	Periods	Dependent variable	Independent variables	Study results
[36]	9 American cities	1965-1983	Income Trade turnover	Population, dummies: new or renovated stadium, existence of a sports club, existence of a baseball club	Significant negative effects, or no significant positive effects
[37]	9 American cities	1965-1983	Income Trade turnover	Population, dummies: new or renovated stadium, existence of a sports club, existence of a baseball club	The effects on national income and trade uncertain, even negative
[40]	37 American cities	1969-1994	Income per capita	Population, Income, stadium capacity, on Dummies, New teams in the last 10 years, existence of a team, Construction of a stadium in the last 10 years, Single or multiple use stadium	Possible negative effect of stadiums and teams on income
[45]	Norway city of Calgary	1991-1997 1981-1983	Number of nights spent by Norwegian tourists in Norway Number of nights spent by foreign tourists in Norway Occupancy rate in Calgary	Retail trade volume, Price index, Domestic final demand	Significantly negative effect of the 1994 Winter Olympics on the number of Norwegian overnight stays, no effect on foreign overnight stays. No effect of the 1998 Calgary Olympics on hotel demand in Calgary
[32]	The 75 largest American cities (1969-1991)	1973-1997	Job growth	Population Income per capita, Nominal income, Taxes, Dummy for the oil shock, Regional Dummy	No significant effect on employment of Super Bowl games
[41]	37 American cities	1969-1996	Income per capita	Population, nominal income, taxes, dummy for oil shock, dummies for regions and years, on income, trend variables, dummies for entry exits of teams within 10 years, for the existence of a team, for the construction of a new stadium, stadium capacity, dummy for single or multiple use	Possible negative effect of stadiums and teams on income
[41]	37 American cities	1969-1996	Income per capita	IDEM Costes & Humphrays (2000a)	Major League Baseball and Major League Soccer strikes have had no significant effect on local income
[32]	American city hosts the All Star Game (Baseball)	1973-1997	Job growth Taxable sales	Population, real income per capita, nominal income, taxes, dummy for oil shock, dummies for regions	Job loss in 10 of the 21 cities studied, Loss of around 8,000 jobs. No significant change in taxable sales
[32]	The 75 largest American cities (1996-1997)	1996-1997	Job growth	Population, real income per capita, nominal income, taxes, dummy for oil shock, dummies for regions	No significant effect on employment either on the Los Angeles 1984 Olympics or the Atlanta 1996 Olympics
[42]	39 American cities	1996-1997	Income per capita	plus dummies for participation in end-of-season matches	No significant effect on income from participation in end-of-season matches
[22]	The 20 countries in the world with the highest GDP	1971-2000	GDP growth	Growth of past years, dummies for the years before, during and after the Olympic Games and the Football World Cup	Significantly lower growth during the World Cup
[43]	37 American cities	1969-1998	Salaries in the service sector, salaries in the	Population, income, stadium capacity, dummies for team entry for more than 10 years, and for team exit for more than 10	Overall negative effect of internships and teams on wages and employment

			hospitality industry, salaries in the restaurant sector, salaries in the leisure sector, jobs in the service sector, jobs in commerce	years, existence of a stadium for more than 10 years, single or multiple use	
[44]	All counties of Georgia in the USA	1985-2000	Job Wages	Share of the 8 sectors, population	Significant positive effect of the 1996 Olympics on employment in the Olympic regions, no significant effect on wages
[32]	13 host cities of the 1994 FIFA World Cup	1970-2000	Growth rate Income	Income, wages, taxes & a dummy for the oil shock	Six cities with a negative impact. A total loss of 9026 billion dollars
[39]	German Regions	1961-1988	Regional GDP Regional employment	Share of agriculture and industry, commerce and transport, and other services Jobs, population, dummies for the oil shock and urbanization	Positive and significant effect of the 1972 Olympic Games on the Olympic regions, but no significant effect on employment
[38]	75 urban districts of Germany	1998-2007	Regional unemployment rate	Population, dummy for districts previously in East Germany, dummy for World Cup 2006, share of agriculture, forestry and fishing, of the manufacturing sector, commerce, the hotel industry, transport	No significant short-term effect of the 2006 World Cup on employment at match venues
[38]	75 urban districts of Germany	1961-1988 1960-1990	Regional employment Employment	Population, income, dummies for the oil shock of 1974 and 1982, dummies for the regions of the GDR, Dummy for the 1974 Football World Cup, Part of the agricultural and manufacturing sectors, in the transport and commerce sector Deferred employment Real GDP, real wage levels, dummy for the oil shocks of 1974 and 1982, dummies for the 1974 Football World Cup	No significant short-term or long-term effect of FIFA WC 1974 on employment in host regions No significant effect on overall employment in Germany

The objective will be to find out how to make these results compatible with those obtained through the use of theoretical models which will be presented subsequently, and which generally lead to significant economic benefits. The econometric approach is demanding in terms of information; this requires the availability of chronological data which are very often not available at the local level. Misspecification and multi-collinearity errors are problems that should not be neglected. Furthermore, if a statistical relationship can be detected, the econometric test does not allow a causal relationship to be deduced. Being a robust method for approaches of the type frequently used in long-term economic impact studies, some specialists prefer short-term analytical models that not only quantify economic impact but attempt to account for the process by which it is generated.

a) Conventional approach

This is an analytical approach referring to economic theory which seeks to develop causal path models, regarding more or less identified theoretical models. It should be noted that there is no consensus among economists on the best way to model an economy, which therefore results in a wide diversity of models that vary considerably in their level of complexity. Impact studies based on this approach propose to identify sports expenditures and monitor their evolution in the regional economy by postulating the short-term stability of the economic structure and the behavior of agents. This approach is described as conventional, to the extent that it is widespread and most commonly accepted as constituting the heart of economic impact studies. In this approach, the formalization of relationships between economic agents and industrial sectors is very advanced: dynamic process, simultaneous determination of several variables, taking into account adjustment times and rigidities. This is a set of equations describing regional economic functioning. In some cases, these models constitute a refinement

of approaches using the regional multiplier. In other situations, it involves using computable general equilibrium models whose interest is in taking into account the effects passing through the price system. However, the use of computable general equilibrium models is often recommended in the case of large-scale events likely to cause structural changes in the economy [23].

b) Approach based on benchmarking

Based on a comparison with other past events, whether in other cities or countries, this measure is subject to several criticisms, as the complexity of events in a rapidly changing environment makes it difficult to use serious benchmark criteria to identify potential legacies of future events based on comparison with other past events, whether in other cities or countries. [14] presents three examples of benchmarks. The first concerns the same event in the same country. The second deals with different events in the same country. The third is the case of the same event in different countries. In the first case, the same event creates different legacies if it is organized twice in a city or a nation, as in the case of the Football World Cup. The latter being part of a continuous evolution, new and/or different structures are necessary over time. For the second case, the specificity of each event means that each mega-sporting event creates a different legacy. They have different structural requirements, different social interests, different media exposure, and different space needs. However, some heirlooms are the same and can be used for other events. Finally, in the case of the same event in different countries, for example, the Olympic Games, the legacy generated is also different for each country due to the high degree of freedom granted in deciding how to exploit a legacy effect. This allows the same event to take place but creates a different legacy. One of the limitations of this approach is that the uniqueness and complexity of events in a rapidly changing environment make it difficult to seriously use benchmarks to identify the potential legacy of future events based on a comparison with other past events, whether in other cities or countries or even site in the world.

c) Counter-factual analysis or top-down approach

This involves comparing the economic variables of a city/region, which organized the event with the same variables of the city/region which did not organize the event, this is called “without case”, which makes the difference with the “event case” generating inheritance. This approach, based on econometric measurements, is only useful for measuring the economic legacies of a mega-event. Although strong for a few, the transient economic impact of this type of event cannot generate a lasting legacy. These same events also lead to economic changes in the city from a supply point of view, which are difficult to isolate from general metropolitan development [32].

d) The bottom-up approach

This approach assesses legacy in a “bottom-up” manner based on the example of the FIFA World Cup. It consists of comparing the development of a country without the World Cup (“no case” situation) and its development with the World Cup, without taking into consideration the alternative development that a country would take in the absence of the World Cup (“control case” situation). It is based on three steps, as shown in the figure below. The first takes the form of an analysis aimed at determining whether the potential legacy is linked to the World Cup. The second identifies the different changes linked to the World Cup. The third studies all event structures maintained in the host country in the long term.

e) The Olympic diamond

This is a method coined by [24] based on two classic approaches to the evaluation of public action. It highlights, through a graphic representation called the “Olympic diamond”, four concepts (vertices of the diamond) important for properly defining and managing an Olympic project (objectives, resources, achievements, and results) and five evaluation dimensions (efficiency, effectiveness, economicity, allocative efficiency, and effectiveness) represented by the sides of the diamond. This approach makes it possible to link the two fundamental tasks specific to any Olympic project: the quality delivery of the Games and the preparation of their positive legacy.

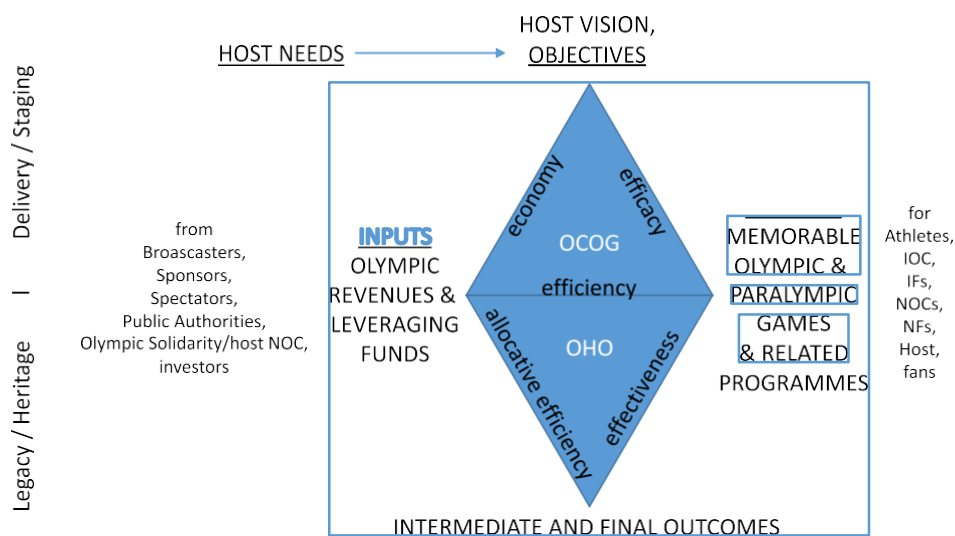


Figure 1. The Olympic Diamond

4. LIKELY IMPACTS OF MEGA-EVENTS ON MOROCCO

It is important to note that empirical work on the impacts of “mega-events” on Morocco is generally rare or even non-existent; the reason is simple: the country has not had the chance to organize events of this scale. The FIFA Club World Cup is an annual football competition organized by (FIFA) between the champion clubs of the six continental confederations, as well as a club from the host country. Morocco was chosen as the host country for the 2013 edition of the competition, which took place in the cities of Marrakech and Agadir.

The economic impact of the FIFA Club World Cup in Morocco was significant. According to a report from Ernst & Young, the event generated revenue of more than \$280 million for the Moroccan economy. The total economic impact, including indirect effects, was estimated at more than \$670 million. The competition has also had a positive impact on the country's tourism industry, with the arrival of thousands of football fans from around the world. Hotels, restaurants, and other local businesses benefited from the increased demand during the event.

A possible mega-event in Morocco such as the 2030 World Cup, organized by Morocco, raises questions about the probable impacts, both positive and negative, which could result from such an event. Based on the points of view of the various people interviewed via the press, we identified two types of impacts: positive ones and negative ones.

4.1 The likely positive legacies of the 2030 World Cup

- Economic heritage: the Valoris Securities report indicates that Morocco could garner nearly 1.2 billion dollars.
- On the infrastructure level, the renovation and improvement of highway roads are planned as well as the expansion of the High-Speed Train Network to allow easy and fluid circulation of the visitor populations, additional improvements will be made related to the renovation of public lighting;
- The construction of large stadiums, modular ones, and training grounds. The infrastructure of major sports clubs will also be renovated and improved. In this sense, Morocco plans to modernize six football stadiums and build a new one with a capacity of more than 100,000 spectators, for a total cost of around 20.5 billion dirhams. There will be knock-on effects on the well-being of the population and promotion of the sports sector in Morocco;
- Improvement of the hotel infrastructure to meet the expectations of competition teams and visitors. These hotels must meet the standards required by FIFA. In the medium and long term, this will promote the tourism sector in Morocco;
- Health infrastructure was also mentioned in press and media interviews. The state of hospitals in Morocco today does not meet the standards required by the World Health Organization and the indicators required by FIFA: number of beds per patient, number of doctors per patient, human resources, conditions health, health logistics, etc. This will have a positive impact on the health sector in Morocco and therefore improve human development indicators (increasing life expectancy, reduction in mortality, especially among children, etc.);
- Technological improvements: implementation requires extensive 5G coverage, robust data centers, and a rigorous cybersecurity strategy are imperative to keep pace with 4 to 6 million spectators expected across three countries and finally attracting up to 1.5 billion viewers worldwide.

- Tourism heritage: improve the attractiveness of the Moroccan tourism sector and make Morocco a preferred tourist destination;
- Intangible heritage: a consensus was reached on the promotion of intangible capital during and after the organization of the mega-event such as strengthening Moroccan soft power and strengthening its geopolitical position; know-how: we will witness a transfer of know-how and good manners in the field of sport; inculcate the culture of dialogue of civilizations and dissipate the culture of conflict of civilizations; change of mentality: via soft contact of mentalities, learning skills and good manners, open-mindedness and confidence in oneself and one's country; reduction of well-being inequalities and civic engagement.
- Improving good governance: through the cleaning up of administrations, especially in the sports sector, with also the fight against rent-seeking and lobbies that block the emancipation of young athletes and the development of the economy sports in Morocco.

Alongside these positive impacts, the interviewees also mentioned the negative impacts of a possible mega-event in Morocco among the most significant:

- Increase in the cost of land, real estate, and rental costs;
- Disruption of traffic in the kingdom's major cities;
- Deterioration of environmental quality: the environmental system could deteriorate during and following the mega-event (waste, pollution, water stress, etc.)
- Expropriations, displacement of certain populations
- hooliganism and vandalism
- A mega-event in Morocco is an opportunity for some to jump on the moral limits of the event and take advantage of the situation by diverting the funds from the event for their benefit (public markets for example) or seeking to illicit enrichment in markets parallel to the event (black market for tickets for example). This raises the question of the impacts of a mega-event in its relationship with good governance.

5. CONCLUSION

The results of all studies concerning the evaluation of the legacies of mega sports event research remain questionable. Each approach has its strengths and weaknesses. Citing [10], major international sporting events remain valuable indicators of the democratic, societal, and political dynamics at work in our societies. In the case of Morocco, we have shown that Morocco could gain a lot by organizing the World Cup in 2030. But that presupposes the establishment of a climate of good governance. The studies that have been carried out have shown that where the governance system is respected, the gains far exceed the losses and vice versa in a climate where governance is lacking, the consequences of the “megas” were catastrophic.

To this end, the dimensions of the legacies must guide the decision-making process which must take into consideration the specificities of the country as being in development, but also its vision in the matter and consequently the effects sought while involving the population. Undeniably, the socio-economic impact of mega-events is today a subject that interests decision-makers and economists, since the former see it as an opportunity to revive the economy, improve the well-being of the population, and promote the image and reputation of the nation on a global scale. However, economic scientists seize optimism in moderation. Indeed, in certain situations, the expected effects are there, but in other situations, they are not. To this end, the decision to host SMEs must be assessed in the light of social utility: what will remain in the long term of the organization of SMEs in terms of social utility? The success of hosting a major sporting event was based above all on its inclusion in a territorial project with investments oriented towards the improvement of public transport, renewable energies, respect for ecosystems and biodiversity, and water. From an environmental point of view, the decision to accommodate SMEs should also be the subject of an economic calculation extended to externalities. For example, for the priority of the fight against global warming and energy sobriety. If legacy and development are to be equitable and sustainable, they must be planned, financed, organized, and strategically connected to existing social structures and the daily lives of local people.

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