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Article

Economic Impact Analysis of Mega Events for Sustainable Tourism: Insights from the Giro d'Italia and Tour de France

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Abstract: The growing awareness of economic, environmental, and social issues related to tourism highlights the need to identify innovative practices that promote sustainability in tourist destinations. This study investigates mega sporting events and their fundamental role in sustainable tourism; these events contribute to tourism promotion by regenerating and revitalizing host areas. However, the increasing demand for transparency in the management of public resources, aimed at ensuring the economic sustainability of the areas hosting these events, has heightened the focus on monitoring resource allocation. Beyond the use of technological innovations, it becomes essential to study the role of innovation in promoting sustainable tourism management practices to guarantee the economic sustainability of destinations hosting major sporting events. A key tool for planning tourism promotion and ensuring economic sustainability is undoubtedly economic impact analysis. Although numerous methods are available, the integration of multiple approaches enhances both the completeness and accuracy of such evaluations. This study proposes an innovative approach that combines different methods to provide a robust approach for economic impact analysis. This research validates the proposed approach through the analysis of two prestigious cycling competitions: the Giro d'Italia and the Tour de France. The proposed approach enables the identification of areas where targeted investments and strategic improvements can promote sustainable and long-term economic benefits for host regions. It can support decision-making processes to plan tourism promotion and ensure economic sustainability.



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Keywords: economic impact; sporting event; mega event; tourism destination; sustainable tourism; tourism development; tourism innovation; Giro d'Italia; Tour de France; cycling; performance measurement; performance management

1. Introduction

The increasing development of technological innovations has transformed the tourism sector, pushing the concepts of smart tourism and smart destinations (Cardoso et al., 2023; Gretzel et al., 2018). Smart tourism leverages advanced technologies such as sensors, mobile applications, smart meters, and IoT devices, which together create a digital ecosystem that provides competitive advantages and innovative business models (Cardoso & Araújo, 2019). As highlighted in the special issue "Innovations in Sustainable Tourism: Shaping the Future of Destinations" of *Administrative Sciences* (Cardoso et al., 2024), smart tourism can be summarized by the concept of "smartness," an intelligent approach to planning, and managing tourism activities using these technologies. This "smartness" favors operational

efficiency and the social, economic, and environmental sustainability of tourist destinations (Cardoso et al., 2023). Within this framework, the economic dimension plays a key role in fostering investments and developing innovative business models that integrate technological solutions to improve environmental and social impacts. As highlighted by Osterwalder and Pigneur (2010), business models should represent a logic designed to ensure the economic sustainability of enterprises, projects, and events, ensuring their long-term survival (Osterwalder & Pigneur, 2010). This paper investigates mega sporting events because they are recognized as a great challenge in terms of economic sustainability and efficient management.

Mega sporting events are well-documented for their capacity to enhance the image of a destination and contribute to the promotion of tourism (Bull & Lovell, 2007; Varnajot, 2020). These events often regenerate and revitalize cities, thereby improving the quality of life for local residents (Hall, 2004) and the destination as a recognizable tourism brand (de Almeida & Cardoso, 2022). Mega sporting events are identified by several key characteristics; they are unique (distinct from ordinary life experiences), experiential (offering unique sensory and cultural growth), resource-intensive (mobilizing significant financial capital), stimulating (creating new opportunities for local development), and socializing (promoting intense communication) (Roche, 2006). The competition among cities, regions, and states seeking to host these mega sporting events has become increasingly prominent, with numerous studies emphasizing the diverse economic advantages associated with mega sporting events (Burns et al., 1988; Desbordes, 2007; Gratton et al., 2005). In addition to the economic benefits, the literature underscores positive impacts on civic pride, social cohesion, interaction, and cultural understanding (Berridge et al., 2019; Bull & Lovell, 2007; Ferbrache, 2024; Getz, 2008; H. J. Kim et al., 2006). While hosting mega sporting events may also involve negative externalities, such as road congestion and overcrowding (Baldock et al., 2011; Crompton, 1995), citizens often accept these inconveniences in support of political decisions, recognizing the unique, multifaceted economic, social, and environmental benefits (Bull & Lovell, 2007). However, these events must ensure long-term economic, environmental, and social sustainability for future generations (Butler, 1999), as studied under different perspectives in numerous studies (Araujo Vila et al., 2019; Cardoso et al., 2023; Lima Santos et al., 2020). The growing demand for transparency in the management of public resources to ensure the economic sustainability has increased the performance measurement and management (Garengo & Sardi, 2021; Giovando et al., 2021; Sardi et al., 2020, 2023). Furthermore, this aspect, associated with the increasing needs of planning of tourism promotion, has led to the increased utilization of economic impact analysis (Nicolau et al., 2019; Nielsen & Feddersen, 2023; Varnajot, 2020). The body of research exploring this analysis is vast; various authors developed diverse approaches for gathering and analyzing data concerning the economic impact of mega sporting events (Barajas et al., 2012; Barandela & Fernández, 2021; Bull & Lovell, 2007; Crompton, 1995; de Boer et al., 2019; Desbordes, 2007; Makkonen & Mitze, 2023; Nielsen & Feddersen, 2023). While each approach presents both advantages and disadvantages, the integration of more approaches can offer a comprehensive and accurate assessment to support holistic decision-making processes (Bititci et al., 2012; Paolone et al., 2020; Taticchi et al., 2015); this integration also favors a more prudent estimation of an event's economic impact.

In light of this consideration, the objective of this research is to develop an integrated approach for assessing the economic impact of mega sporting events. This approach is tested on two of the most prestigious events in the professional cycling circuit: the Giro d'Italia and the Tour de France. This field was selected due to the unique characteristics of cycling as a sport, which involves minimal infrastructure expenditures, primarily service-related expenses (e.g., promotion, security), and generally does not require ticket sales for

spectators, except in select areas of the competition (Bull & Lovell, 2007; de Boer et al., 2019; Makkonen & Mitze, 2023). The findings outline the main steps in developing an economic impact analysis for mega sporting events, demonstrating how it can be applied in practice. The analysis focuses on the economic impact of these two key events on a specific geographic area: the Piedmont region of Italy.

The subsequent section delves into the theoretical background of the research. Building on this foundation, Section 3 presents the integrated approach for evaluating the economic impact of mega sporting events. Section 4 applies this approach to the Giro d'Italia and the Tour de France, outlining the process for defining and measuring economic impacts. Section 5 bridges theoretical background and results. Finally, Section 6 offers a synthesis of the key contributions, opportunities, limitations, and both managerial and theoretical implications.

2. Theoretical Background

The economic aspects of mega sporting events are essential to ensure the economic sustainability of destinations hosting major sporting events. Beyond the use of technological innovations (Cardoso et al., 2023; Gretzel et al., 2018), it becomes essential to study the role of innovation in promoting innovative tourism management practices to guarantee the economic sustainability of destinations hosting major sporting events. In response to these demands for transparency in public resource management, there is a growing need for greater insight into how resources are allocated (Nicolau et al., 2019; Nielsen & Feddersen, 2023; Varnajot, 2020). A key tool for planning tourism promotion and ensuring economic sustainability is undoubtedly economic impact analysis (Crompton, 1995; Gratton et al., 2005). The widespread application of economic impact analysis has led to greater attention on numerous sporting events (Andersson et al., 2016; Drakakis et al., 2021; Dwyer & Forsyth, 2019; M. K. Kim et al., 2017; Kim, 2021; Nicolau & Santa-Maria, 2017; Pedauga et al., 2022). These studies often investigate methodological aspects (Dimitrovski et al., 2023). A common point of contention is the multiplier effect (Hunter, 1988). Hunter argues that multipliers tend to overstate the benefits to businesses and that the use of economic impact studies encourages unjustified investment of public funds. Crompton, however, disagrees with Hunter's outright rejection, asserting that while economic impact analysis has its limitations, it remains a powerful and valuable tool when applied thoughtfully and with integrity (Crompton, 1995).

Some studies specifically address the economic benefits of mega sporting events (Desbordes, 2007; Gratton et al., 2005). Until the late 1990s, hosting such events was often viewed as a financial burden, primarily due to the large debts incurred following the 1976 Montreal Olympics and, later, the 2004 Athens Olympics. For example, the Athens Olympics left Greece with a significant budget deficit, exceeding the European Union's 3% limit and increasing national debt. However, views on the financial implications of such events have remained divided, with several successful examples, such as the 1984 Los Angeles Olympics and the 1992 Barcelona Olympics, demonstrating positive economic impacts. Mega sporting events like the Barcelona and Los Angeles Olympics, the Adelaide Grand Prix, the Calgary Winter Olympics, and the Commonwealth Games in Victoria can also elevate the profiles of non-capital cities. The 1992 Barcelona Olympics, for example, helped Spain promote an alternative tourism product, shifting focus from mass coastal tourism and positioning Barcelona as a leading European destination (Desbordes, 2007; Gratton et al., 2005).

Local authorities frequently invest significant funds in sporting events, which generate substantial additional spending (Crompton, 1995; Gratton et al., 2005; Mules & Faulkner, 1996). Since only governments typically have the resources to host such events, it is

generally believed that they increase tourism spending and enhance a destination's image, thereby contributing to increased visitation during off-peak seasons. In their analysis of Olympic impact studies, [Kirkup and Major \(2006\)](#) emphasize that the economic benefits of the Olympic Games are largely related to tourism, which becomes the lasting legacy of the event ([Kirkup & Major, 2006](#)). This tourism legacy has been a core argument for hosting the Tour de France in both London and Kent. As demonstrated by some authors, the Tour de France has a clear positive impact on the local economy, with residents generally expressing strong support for the event ([Balduck et al., 2011](#); [Bull & Lovell, 2007](#); [Desbordes, 2007](#)).

In recent decades, the number of mega sporting events has significantly increased, paralleled by intense competition among cities and states eager to host them. The literature often highlights the widespread belief that hosting mega sporting events is extremely beneficial ([Desbordes, 2007](#); [Roche, 2006](#)). According to [Gratton et al. \(2005\)](#), governments worldwide have adopted national sports policies that include organizing mega sporting events. The benefits of such events are often seen in urban regeneration ([Hall, 2004](#)), sports legacies, tourism, image enhancement, as well as social, cultural, and economic gains ([Gratton et al., 2005](#)).

International research has primarily focused on the economic impacts of mega sporting events like the Olympics, the FIFA World Cup, and the Tour de France. Some studies also explore the perspectives of local residents. One interesting study examined the perceptions of Canterbury residents during the 2007 Tour de France ([Bull & Lovell, 2007](#)). The results described that the majority of residents were aware of the event, and many intended to watch the race or engage in related activities. Despite some negative impacts, there was overwhelming support for hosting the event, citing positive outcomes such as city promotion, increased tourism, and local economic development ([Desbordes, 2007](#)). Another noteworthy study examines the estimated willingness to pay of citizens to host the Tour de France in Denmark in 2022 ([Nielsen & Feddersen, 2023](#)). The findings of this study reveal Danish households' willingness to pay for hosting the initial three stages of this iconic cycling event, with particular attention to how physical distance from the event influences their willingness to pay.

Unlike the Olympics and the FIFA World Cup, which require significant investment in permanent infrastructure, cycling tours like the Giro d'Italia or the Tour de France incur primarily intangible costs, such as promotion, associated events, and security management. Consequently, these costs are less visible, offering an advantage for hosting such events ([Bull & Lovell, 2007](#); [de Boer et al., 2019](#); [Makkonen & Mitze, 2023](#)). In addition to the main race, major cycling tours feature free cultural, musical, and sporting events in the weeks leading up to the race, broadening the experience and attracting larger audiences. Unlike the Olympics or World Cup, which occur once every four years, major cycling tours are annual events. For instance, the Tour de France includes 21 stages covering approximately 3500 km on public roads, with 22 teams, each consisting of eight riders. A key feature of these events is the movement from one city to another over 3 weeks, with most stages starting in one city and finishing in another.

The economic evaluation of mega sporting events can be conducted using a variety of approaches for data collection and analysis. To identify the most appropriate method for economic impact analysis, a comprehensive literature review was conducted to examine the primary methods for evaluating the economic impact of mega sporting events. The main approaches are input–output (it evaluates the direct, indirect, and induced impact of an event by considering the monetary flows through the economy of the event area), public accounting (it estimates the event's impact on the broader economy of a specific area through macroeconomic data, focusing on key indicators), demand assessment (it evaluates the tourism demand generated by the event using surveys and interviews to collect data

on spending), benchmarking (it assesses the activity performance by comparing it to established reference standards), and multipliers (it defines the chain effects generated by the initial spending of an event, using multiplier analysis to estimate indirect impact).

All approaches have certain advantages and disadvantages (Table 1). For example, the use of multipliers has numerous limitations. These include (a) simplified assumptions: the multiplier method often assumes that relationships within the economy remain constant, which may not be realistic; (b) leakage effects: induced economic effects may not remain within the local area, as part of the spending may flow to other regions; and (c) data quality: the accuracy of calculations depends on the availability and quality of economic data.

Table 1. Advantages and disadvantages of economic impact analysis approaches.

Approach	Advantages	Disadvantages
Input–Output	It provides a comprehensive view of economic interactions and captures both direct and indirect effects.	It may overestimate effects, require updated data, not recognize the effects, and be complex implement.
Public Accounting	It offers a broad perspective on the event’s economic influence.	It may overlook localized effects and fail to capture non-monetary benefits and to define the events effects.
Demand Assessment	It provides detailed insight into spectator behavior and spending patterns.	It may suffer from biases in survey data and lack of representativeness.
Benchmarking	It facilitates comparison with other events, offering a performance context.	It may not fully account for contextual differences between events, leading to incomplete comparisons.
Multipliers	It estimates the broader economic impact of event-related spending.	It may lead to overestimates or inaccuracies due to complex calculations based on assumptions.

As highlighted by numerous authors, the triangulation of these economic impact approaches can contribute to achieving more robust and reliable outcomes (Bull & Lovell, 2007; Crompton, 1995; Desbordes, 2007; Gratton et al., 2005; Hunter, 1988; Nicolau et al., 2019). The triangulation of diverse data sources can further enhance the validity of the results by enabling a comprehensive and accurate assessment of the economic impact of the event (Yin, 2018).

To address these limitations, data from various sources can be employed, including the following:

- ✓ Economic data collected through surveys administered to participants, local residents, and spectators, providing direct insights into their spending and experiences.
- ✓ Official economic data obtained from governmental agencies and national or regional statistical institutes to evaluate the event’s impact on the local, regional, or national economy. These data may include employment statistics, income levels, and tax revenues.
- ✓ Data on indirect and induced economic effects gathered from government sources, industry organizations, and market studies to assess the event’s broader economic implications. This source includes data from related sectors such as tourism, hospitality, retail, and transportation.
- ✓ Detailed economic data specific to the event, collected from organizers and sponsors, offering financial insights to evaluate the overall economic impact.
- ✓ Economic data obtained via automated monitoring and digital technologies, such as tracking people flows, financial transactions, and other event-related indicators using big data systems, IoT sensors, and tracking analytics.

- ✓ Data from prior academic studies on the economic impacts of similar events, which can serve as reference points for comparison and further analysis.

3. Materials and Methods

This section proposes a guideline for economic impact analysis of sporting events based on rigorous research design. It illustrates the objectives and the overall strategy guiding the processes of data collection and analysis (Yin, 2018). The research design is critical to ensuring that the study's findings are valid, reliable, and generalizable. Specifically, the design ensures validity by guaranteeing that the findings effectively address the research objectives, reliability by ensuring that the results are consistent and reproducible, and generalizability by allowing the findings to be applied to other contexts. A robust research design is essential for systematically addressing the research questions and producing credible results (Yin, 2018).

The proposed methodological steps for evaluating the economic impact are as follows:

- ✓ Phase 1: Define the Impact of Sports on the Target Area, the Regulatory Framework, the Event Features, and the Public Expenditure.
- ✓ Phase 2: Mapping the Actors that Determine the Economic Impact.
- ✓ Phase 3: Develop a Framework for Representing the Economic Impact.
- ✓ Phase 4: Defining the Direct, Indirect, and Induced Effects.
- ✓ Phase 5: Determining the Net Economic Impact.

Phase 1: Define the Impact of Sports on the Target Area, the Regulatory Framework, the Event Features, and the Public Expenditure.

This phase involves the analysis of several key aspects and sources to establish the context and foundation for the study. First, the role of the sport in the area hosting the event is examined, including factors such as the historical significance of the sport, contribution to GDP, and trends in sports participation. The main sources for this analysis include ministerial reports, institutional reports, and research papers. Second, the regulatory framework governing the sporting event is analyzed, covering international, national, regional, and local regulations. The main sources are the official regulatory documents at various jurisdictional levels (international, national, regional, and local). Third, the characteristics of the sporting event are described, including its target audience, associated parallel events, timing, and location. Relevant information is collected from regulatory documents (international, national, regional, and local), sports activity programs, contracts between the event organizers and the principal, official event calendars, and descriptions of venues and race routes. These documents are integrated with semi-structured interviews with representatives of the principal, public authorities, and tourism promotion companies. Additional insights are gathered from the official websites of the key parties involved, including the principal, event organizers, public authorities, and tourism promotion companies. Finally, the expenditure incurred by the principal in organizing the event is considered. The main sources include regulatory documents (international, national, regional, and local), contracts between the event organizers and the principal, territorial promotion contracts, and financial reports from public authorities. These are further supplemented by semi-structured interviews with representatives of the principal, public authorities, and tourism promotion companies.

Phase 2: Mapping the Actors that Determine the Economic Impact.

This phase should be developed in collaboration with the principals, public authorities, event organizers, and tourism promotion companies. It aims to identify the actors that emerge during the research process. This activity is particularly useful in the early stages

of a study, when the researcher is exploring an undefined or complex field and seeking to understand the connections between various elements.

Phase 3: Develop a Framework for Representing the Economic Impact.

The economic impact framework developed by [Crompton \(1995\)](#) is employed to analyze the economic impact of events, projects, or activities within a specific territory. This framework aims to identify how expenditures associated with an event generate economic benefits for the local community. The framework identifies three types of effects. The direct effect refers to the immediate impact of spending by actors in the event area (e.g., money spent on accommodations, restaurants, transportation, and entertainment). The indirect effect encompasses the subsequent rounds of spending by economic agents who use the immediate expenditures to meet the increased demand created by the event. This is particularly relevant for spending related to spectators, with the assumption that their expenditures are generated exclusively by those attending the event. The induced effect reflects the impact on revenues generated in all sectors due to changes in income and spending levels of residents in the event area, linked to the event.

Phase 4: Defining the Direct, Indirect, and Induced Effects.

The data sources for this phase include various documents, such as the territorial promotion contract, management and financial reports by the contract principal, and reports from tourism observatories, electronic payment systems, etc. In addition to these documents, data are also collected through interviews based on questionnaire conducted with spectators such as other researchers on a similar topic ([Benages & Maudos, 2024](#); [Desbordes, 2007](#); [Nielsen & Feddersen, 2023](#)). The survey was designed to identify spectators with an interest in the events and to assess their economic impact, excluding individuals who were not interested in the event and therefore not relevant to the scope of the research. The interviewers administer questionnaire during the event to spectators near the start and finish areas, using digital tools ([Forza, 2002](#)). The questionnaire includes the following sections: sample profile, type of expenses, and further information (see Appendix A).

Phase 5: Determining the Net Economic Impact.

According to [Crompton \(1995\)](#), the economic impact is estimated through the ripple effect of spending in the local economy, evaluating the economic impact of the initial spending on economic activities. To determine the net economic impact, the calculation involves deducting the event-related expenses incurred by the organizers from the gross impact. The final calculation of the net economic impact is expressed as follows:

Net economic impact = Direct Effect + Indirect Effect + Induced Effect – Public Expenditure

This approach allows for a comprehensive assessment of the net economic impact, capturing both direct and cascading benefits for the local economy.

After presenting the methodological steps derived from the literature review, the paper applies the proposed approach to two of the most prestigious international professional cycling tours: the Giro d'Italia and the Tour de France. The analysis focuses on the economic impact of some stages of these two key events on a specific geographic area: the Piedmont region of Italy. The paper tested this approach on these areas because it held these two prestigious international professional cycling tours in the same period: 2024. Furthermore, as highlighted in the Introduction, this study focuses on this sporting domain because cycling events possess unique characteristics within the context of mega sporting events: (a) minimal costs associated with constructing permanent physical structures; (b) costs primarily related to services (e.g., promotion, security); and (c) no ticket sales for spectators, except in specific competition areas.

As noted in resolutions D.G.R. n. 1-6858 and n. 1-7497 of 2023 from the Piedmont Regional Council as well as numerous researches and reports (IRES, 2023; Istituto Credito Sportivo e Sport e Salute, 2024; Osservatorio Sport System italiano Banca IFIS, 2023), the Giro d'Italia and the Tour de France represent two of the world's most significant sporting events in terms of public following, participation by top cycling champions, media coverage, and economic impact, including tourism. These events are also part of the UCI World Tour professional calendar; they are global events. The Giro d'Italia 2023 achieved a global audience of 694 million viewers, with 23,285 h of TV broadcasts and a media-driven economic return exceeding EUR 55 million. The Tour de France 2023 reached a global audience of approximately 2 billion viewers.

4. Results

Following the guideline described in the previous section, this section presents the economic impact analysis of the Giro d'Italia and the Tour de France.

Phase 1: Define the Impact of Sports on the Target Area, the Regulatory Framework, the Event Features, and the Public Expenditure.

According to the social economic research institute report commissioned by the Piedmont Region, titled "Piedmont: European Region of Sport 2022" (IRES, 2023), Piedmont boasts a long and well-established sporting tradition. This tradition has deep roots, starting with the founding of the Italian Alpine Club in 1865, the first Italian ski club in 1906, and extending to the world's oldest cycling race, the Milan-Turin, first held in 1876. More recently, Piedmont hosted mega international events such as the 1997 World Ski Championships and the 2006 Winter Olympic Games. This historical sports tradition is supported by numerous sports associations and thousands of participants and fans across various disciplines; it is within this context that Piedmont earned the title of "European Region of Sport" for 2022.

In recent years, Piedmont has hosted numerous international sporting events such as the Giro d'Italia and the NITTO ATP Finals. The objectives of the "Piedmont European Region of Sport" project were varied, including strengthening the region's image as an area with a strong sporting vocation, increasing international visibility of Piedmont for tourism and sport, and stimulating sports practice among residents. A survey conducted by Italian national institute of statistics highlights that Piedmont has 308,388 athletes, 4187 sports clubs, and 62,011 sports operators, with a number of athletes higher than the national average.

On 1 October 2020, the Piedmont Regional Council approved a law regarding "Regulations on the promotion and sports facilities," which repealed five sector-specific laws, including the key one for the regional sports system, enacted on 22 December 1995, n. 93, which had defined the region's sports policies for about 25 years. It recognizes the social, educational, formative, and economic role of sports practice and considers physical activity a fundamental value for promoting human growth, improving lifestyles, and promoting mental and physical well-being, health protection, social relationships, inclusion, and equal opportunities. In line with the principles of the European Union, the Piedmont Region directs its policies and actions toward goals such as the promotion, diffusion, and development of physical and recreational sports for all age groups, as well as using sports as a tool for territorial promotion, including for tourism and economic development. The Piedmont Region pursues these goals through continuous interaction with local authorities the sports system the health, educational sectors and other relevant bodies. In recognition of this value, the Piedmont Region was proclaimed the "European Region of Sport 2022".

In 2022, the Piedmont Region allocated approximately EUR 65 million to the territory to develop activities like sports facilities and event promotion. Given the significant financial intervention and the intent to continue investing in the sports sector, the importance of

planning activities is clear. As outlined in the Multi-Year Sports Events Program for 2023–2025, mega sporting events in the period include the ATP Finals in Tennis, the Giro d'Italia 2024, the Tour de France 2024, the 2025 Winter Universiade, and the 2025 Special Olympics World Winter Games.

The three-year intervention program includes “Measure B.5 Mega Sporting Events”. The objective for Measure B.5, concerning mega sporting events, is to enhance the regional sports brand and strengthen Piedmont’s role in the local, national, and international sports system. According to the three-year program, mega sporting events should see the Piedmont Region at the forefront of supporting initiatives and organize the entire event and related activities to promote the regional brand. This new approach requires the Piedmont Region to operate within the committees or structures responsible for event organization with a proactive role. From a tourism perspective, the two main macro-areas are related to hospitality during pre-season training camps for clubs or national teams and mega events or sports-related manifestations in disciplines such as golf, alpine skiing, tennis, paddle, cycling, and motorsports.

The reference framework for determining the type of sports event, extracted from the 2023/2025 Piedmont Region’s Program for promoting physical-motor activities and sports facilities, identifies the following (Roche, 2006):

- ✓ Large events: international events (e.g., Olympics, Paralympics, Football World Cup, European Football Championship, UEFA Champions League, Superbowl, Formula 1, Tennis—Wimbledon, and NBA).
- ✓ Special events: Events related to specific sports disciplines, considering the hosting region’s context, culture, and sports traditions (e.g., Rugby World Cup, Golf—Ryder Cup, Cricket World Cup, ATP Finals in Tennis, Special Olympics, Universiade, World or European Basketball Championships, World or European Volleyball Championships, Giro d'Italia, and Tour de France).
- ✓ Relevant events: National and international events characterized by the fulfillment of certain qualifying parameters, defined independently by the funding body.
- ✓ Events: National and international manifestations.
- ✓ Local events: Territorial manifestations.

Mega sports events are classified under the first three categories: large events, special events, and relevant events. Several events have been included in the Regional Program, such as the Giro d'Italia and the Tour de France. These two events will be the subject of study in the research, below are illustrated the main regulations (Table 2).

The main regulations concerning the Giro d'Italia and the Tour de France 2024 are regional law, regional council resolution (D.G.R.), and directorial determination (D.D.) (see Appendix B). The description of two cycling events is described below.

As established by D.G.R. n. 1-7497/2023/XI, the Giro d'Italia is designated as a “special event”. The Giro d'Italia is among the most prestigious professional road cycling stage races, held annually in Italy. The event is a part of the UCI World Tour calendar and is organized by RCS Sport. Founded in 1909 by journalists Tullio Morgagni, Eugenio Camillo Costamagna, and Armando Cougnet, it is one of the three premier Grand Tours, alongside the Tour de France and Vuelta a España, and a key event in the International Cycling Union’s World Tour circuit. In 2023, the Giro d'Italia achieved remarkable global reach, with 23,285 h of television coverage viewed by 694 million people. The event’s digital presence was equally significant, with 211 million website views and a social media community of 4.7 million users reaching 262 million accounts. The Giro d'Italia delivers extensive international visibility through aerial television coverage broadcast in 190 countries.

As highlighted in D.G.R. n. 41-6334 and referenced in D.G.R. n. 1-6858/2023, the Tour de France is an annual professional road cycling stage race primarily held in France. Exceptionally, the 2024 edition commenced with a Grand Départ in Italy. The Tour de France is a globally significant sporting event, drawing extensive media coverage, large audiences, elite athletes, and substantial economic benefits, particularly in tourism. The event is a part of the UCI World Tour calendar and is organized by Amaury Sport Organisation. Hosting stages of the Tour de France outside France is a rare opportunity, underscoring the significance of the 2024 Grand Départ in Italy, coinciding with the 20th anniversary of Marco Pantani's death, the 1998 Tour champion from Cesena. The 2024 race began on 29 June with the first stage from Florence to Rimini, traversing key locations associated with Pantani. The second stage (30 June) connected Cesenatico to Bologna, while the third stage (1 July) highlighted the Piedmont region. This exceptional event provided an unparalleled international showcase for Piedmont, enhancing the region's media visibility and promoting its image on both cultural and economic fronts.

Both the Giro d'Italia and the Tour de France have increasingly incorporated sustainability initiatives to reduce their environmental impact. For instance, the Giro d'Italia, through its Ride Green project, promotes waste sorting along the race route, ensuring significant recycling of generated waste. The Giro-E, featuring electric-assisted bicycles, raises awareness about electric mobility, contributing to CO₂ emission reduction. In turn, the Tour de France has implemented biofuels in support vehicles, redesigned event logistics with ecological approaches, and emphasized waste separation and recyclable materials. These initiatives demonstrate that these mega sporting events advance sustainability, engage local communities, and raise public awareness about environmental protection.

The main features concerning the stages of Giro d'Italia and the Tour de France 2024 in Piedmont are illustrated in Table 2.

Table 2. Features of Giro d'Italia 2024 and Tour de France 2024 in Piedmont.

GIRO D'ITALIA 2024	
Timing and Location	Presentation Thu. 2 May 2024 Turin
	Stage 1 Sat. 4 May 2024 Venaria Reale—Turin
	Stage 2 Sun. 5 May 2024 San Francesco al Campo—Oropa
	Stage 3 Mon. 6 May 2024 Novara—Fossano
	Stage 4 Tue. 7 May 2024 Acqui Terme—Andora
	Total Distance Covered in Piedmont: Approximately 500 km
Further Events	https://www.giroaditalia.it/ https://www.piemontesport.org/it/eventi/calendario-eventi
TOUR DE FRANCE 2024	
Timing and Location	Stage 3 Mon. 1 July 2024 Piacenza—Turin
	Stage 4 Tue. 2 July 2024 Pinerolo—Valloire (France)
	Total Distance Covered in Piedmont: Approximately 250 km
Further Events	https://www.letour.fr/en/ https://www.piemontesport.org/it/eventi/calendario-eventi

The public expenditure concerning the Giro d'Italia and the Tour de France 2024 is illustrated in Table 3.

Table 3. Public expenditures for the events.

	GIRO D'ITALIA 2024	TOUR DE FRANCE 2024
Piedmont Region		
Expenditure for the Event	¹ EUR 8,052,000.00	² EUR 1,701,462.42
Expenditure for Event Promotion ³	EUR 118,455.67	EUR 236,911.33
Public Authorities		
Start/Finish Locations	⁴ EUR 328,200.00	
Start/Finish Locations in Turin	EUR 118,189.15	EUR 434,190.72
Start Locations in Pinerolo		EUR 112,282.20
Total Public Expenditure	EUR 8,616,844.82	EUR 2,484,846.67

¹ D.G.R. n. 20-7886/2023/XI. ² D.G.R. n. 1-685/2023. ³ D.G.R. n. 22-8200/2024/XI. ⁴ D.G.R. n. 23-7623/2023. Average amount of expenditure reported expenditures reported of start/finish locations in 2023.

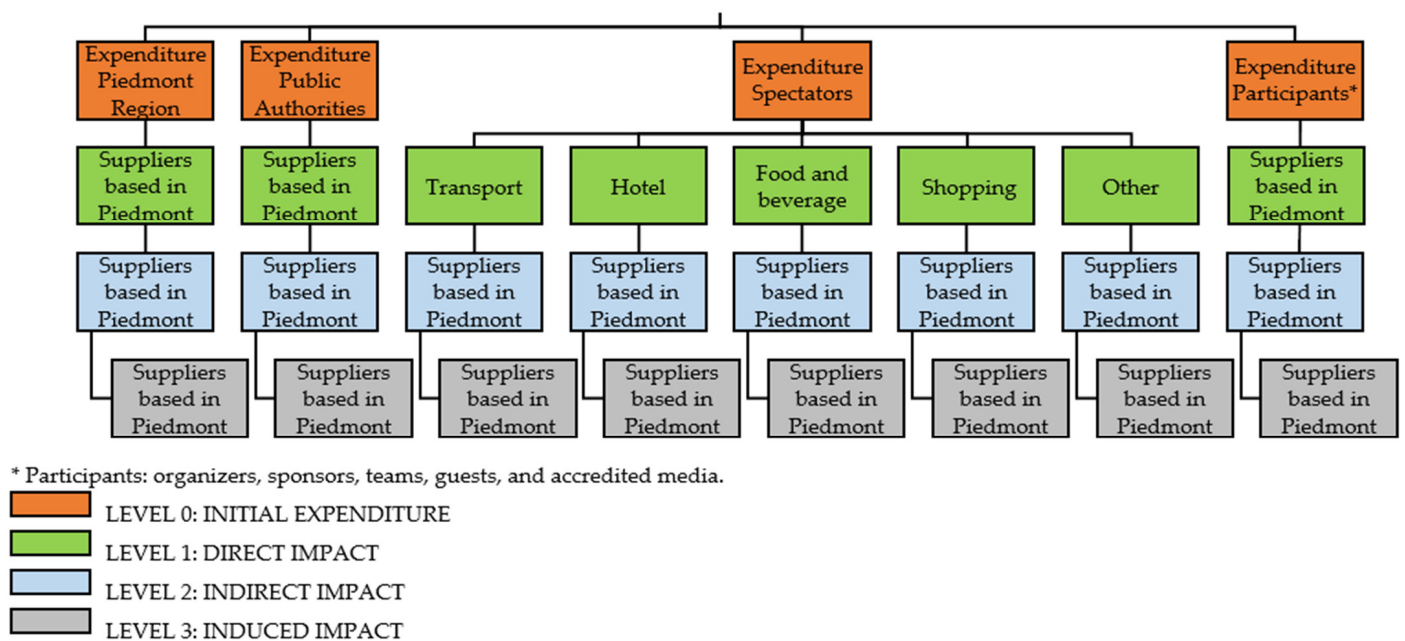
Phase 2: Mapping the Actors that Determine the Economic Impact.

The actors responsible for the initial expenditure and the subsequent direct impact are as follows:

- ✓ Piedmont Region (contracting authority)
- ✓ Public Authorities (involved in the event)
- ✓ Spectators
- ✓ Organizing Staff
- ✓ Event Sponsors
- ✓ Athlete Teams
- ✓ Accredited Media
- ✓ Guests

Phase 3: Develop a Framework for Representing the Economic Impact.

The economic impact framework describes the scheme of how expenditures associated with an event translate into economic benefits for the local community (see Figure 1).

**Figure 1.** Economic impact framework.

The direct economic impact of the participants was calculated by multiplying the total number of participants by the average daily expenditure, obtained from the interviews (see Table 7), which is EUR 115.19. For the Giro d'Italia, the participants (organizers, sponsors, teams, guests, and accredited media) were 7959, while for the Tour de France, the participants were 5700. To validate the data collected from the questionnaires, a verification was carried out through triangulation with the data published annually by the Bank of Italy's Tourism Observatory ([Banca d'Italia, 2023](#)). As stated in the Bank of Italy 2023 report, the collected data align with the Observatory's statistics, as it defines the average daily expenditure of Italian visitors as EUR 115.51.

Table 7. Direct effect of the initial expenditure by participants.

	GIRO D'ITALIA 2024	TOUR DE FRANCE 2024
Average Daily Expenditure	EUR 115.19	EUR 115.19
Number of Participants	7959	5700
Days in Piedmont	7 ¹	2 ²
Total Expenditure by Participants	EUR 6,417,580.47	EUR 1,313,166.00

¹ Seven days of stay (3 days for team presentations and 4 days for the stages). ² Two stages (location n. 1 for the arrival and location n. 1 for the start).

The direct effect of the initial expenditure is the sum of the expenditures incurred by the Piedmont Region, public authorities, spectators, and participants in the event area (see Table 8).

Table 8. Direct effect of initial expenditure.

	GIRO D'ITALIA 2024	TOUR DE FRANCE 2024
Expenditure by Piedmont Region	EUR 118,456	EUR 236,911
Expenditure by Public Authorities	EUR 446,389	EUR 546,473
Expenditure by spectators	EUR 27,511,922	EUR 6,877,981
Expenditure by participants	EUR 6,417,580	EUR 1,313,166
Total direct effect	EUR 34,494,347	EUR 8,974,531

After defining the direct effect, it quantifies the indirect and induced effects on the regional economy through the input–output matrix ([Leontief, 1970](#)), following the tables provided by the Italian National Institute of Statistics at the regional level. This effect includes the increase in demand for goods and services along the entire production chain of the products and the increase in the economic availability of the residents in the event area (see Table 9).

Table 9. Indirect and induced effects.

	GIRO D'ITALIA 2024	TOUR DE FRANCE 2024
Direct Effect	EUR 34,494,347	EUR 8,974,531
Of Which Direct Value Added ¹	EUR 15,038,535	EUR 3,912,636
Of Which Direct Fiscal Impact ²	EUR 10,670,654	EUR 2,776,226
Indirect and Induced Effect	EUR 41,393,216	EUR 10,769,438
Of Which Direct Value Added	EUR 16,750,262	EUR 4,357,982
Of Which Direct Fiscal Impact	EUR 10,737,949	EUR 2,793,735

¹ Value added measures the growth of the economic system in terms of new goods and services available. ² The fiscal impact, direct, indirect, and induced, refers to the monetary revenue from taxes generated by the event. It takes into account the value added tax as well as income taxes such as the personal income tax, the corporate income tax, and the regional business tax.

Phase 5: Determining the Net Economic Impact

The final calculation to determine the net economic impact generated in the Piedmont Region involves subtracting the public expenditure incurred for the event from the gross economic impact. This calculation also describes the net economic impact (see Table 10).

Table 10. Net economic impact.

	GIRO D'ITALIA 2024	TOUR DE FRANCE 2024
Direct Effect	EUR 34,494,347	EUR 8,974,531
Indirect and Induced Effect	EUR 41,393,216	EUR 10,769,438
Public Expenditure	EUR 8,616,845	EUR 2,484,847
Net economic impact	EUR 67,270,718	EUR 17,259,122

This economic impact analysis describes the economic sustainability of the mega sporting events analyzed with an important return on investment that can support further events. This section confirmed and validated the approach proposed.

5. Discussion

The increasing development of technological innovations has transformed the tourism sector, pushing the concepts of smart tourism and smart destinations (Cardoso et al., 2023; Gretzel et al., 2018). Smart tourism leverages advanced technologies that create a digital ecosystem that provides competitive advantages and innovative business models (Cardoso & Araújo, 2019). These technologies can give information to improve the planning and management of sustainable tourism (Cardoso et al., 2024). They favor operational efficiency and the sustainability of tourist destinations (Cardoso et al., 2023). Within this scenario, the positive economic dimension allows investments in innovative business models that integrate technological solutions. As highlighted by Osterwalder and Pigneur (2010), business models should represent a logic designed to ensure the economic sustainability of an event, including mega sporting events. These events have a profound and multifaceted economic impact on destination area (Bull & Lovell, 2007; de Almeida & Cardoso, 2022; Varnajot, 2020). They also serve as powerful tools for fostering a sense of community, promoting diversity, and encouraging social inclusion by celebrating a variety of cultures and traditions. Moreover, they play a vital role in promoting healthy, active lifestyles, which not only have physical and mental health benefits but also improve the overall well-being of local populations. Furthermore, these events contribute to enhancing the tourism appeal of the host region, showcasing its cultural and natural assets to an international audience. However, these events are a great challenge in terms of sustainability and efficient management. They imply the outflow of significant financial resources. Through the inflow of spectators and participants, which includes teams, organizers, athletes, guests, and accredited media, such events generate substantial financial revenue, create employment opportunities, and contribute to urban regeneration in the host area.

These events must guarantee long-term economic, environmental, and social sustainability for future generations (Butler, 1999), as studied under different perspectives in numerous studies (Araujo Vila et al., 2019; Cardoso et al., 2023; Lima Santos et al., 2020). The growing demand for transparency in the management of public resources to ensure the economic sustainability has increased the performance measurement and management. Furthermore, this aspect, associated with the increasing needs of planning of tourism promotion, has led to the increased utilization of economic impact analysis (Nicolau et al., 2019; Nielsen & Feddersen, 2023; Varnajot, 2020).

The body of research exploring this analysis is vast; various authors developed diverse approaches for gathering and analyzing data concerning the economic impact of mega sporting events (Barajas et al., 2012; Barandela & Fernández, 2021; Bull & Lovell, 2007; Crompton, 1995; de Boer et al., 2019; Desbordes, 2007; Makkonen & Mitze, 2023; Nielsen & Feddersen, 2023). While each approach presents both advantages and disadvantages, this paper proposed an innovative integrated approach for assessing the economic impact of mega sporting events; this integration also favors a more prudent estimation of an event's economic impact. This approach has been tested through the Grande Depart of the Giro d'Italia 2024 and the Tour de France 2024 in the Piedmont. By adopting a triangulation that integrates methods as well as multiple data sources and analytical techniques, this study offers a robust and comprehensive means of assessing the economic impact of mega sporting events. The proposed approach is designed to provide decision-makers with a clearer understanding of the potential economic benefits associated with hosting mega sporting event. By calculating direct, indirect, and induced economic impacts, the approach proposed helps to identify areas where investments and improvements could yield long-term benefits for local economy. The approach proposed and tested on the Giro d'Italia and Tour de France is illustrated below (see Figure 2).

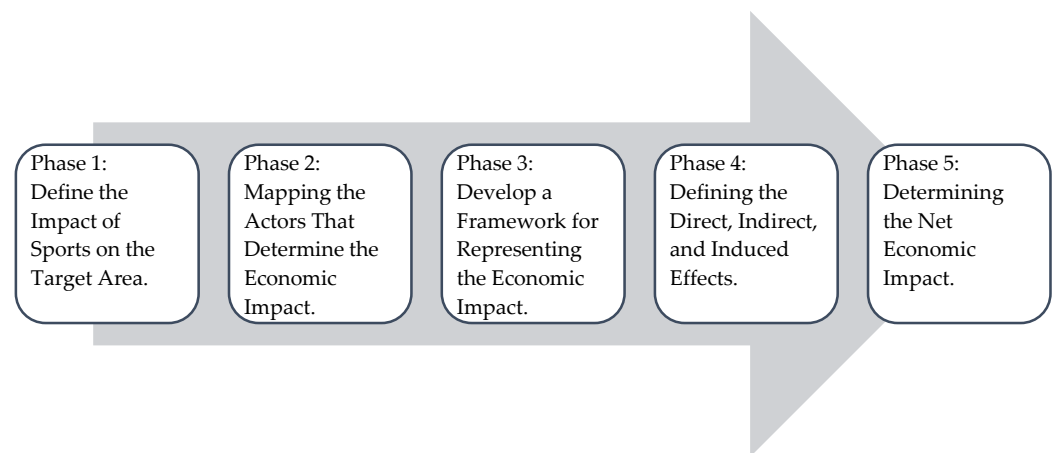


Figure 2. Approach for economic impact analysis.

However, to strengthen the interpretation of these results and enhance their depth, it is crucial to contextualize them by comparing the findings with similar studies and anchoring them within established or emerging frameworks for sustainable tourism development (see Table 11).

Table 11. Previous studies on similar mega events.

Events No. Stages ¹	Gross Economic Direct Impact	No. Interviews	Data Collected Method	Public Expenditure	Source
Tour 2005 (1)	EUR 476,000	757	Questionnaire	EUR 150,000	(Desbordes, 2007)
Tour 2007 (4)	² EUR 150 MM	>1400	Questionnaire	EUR 6 MM	(Collins et al., 2012)
Tour 2015 (4)	EUR 33.6 MM	1520	Questionnaire	EUR 18.1 MM	(Dijk et al., 2015)
Tour 2022 (6)	EUR 12.8–26 MM	760	³ Questionnaire	EUR 21 MM	(Nielsen & Feddersen, 2023)
Giro 2016 (6)	EUR 18.2–19.5 MM	572	³ Questionnaire	EUR 12.4 MM	(de Boer et al., 2019)

¹ Start or finish. ² Including also indirect impact. ³ Willingness to pay.

This table presents an overview of key economic impact analyses conducted on the Tour de France and the Giro d'Italia and published on relevant journals. These studies illustrate how hosting such events can generate substantial economic benefits for local

communities through direct spending, increased tourism, and broader indirect effects on regional economies. Comparing these findings across different editions of the events reveals variations in the scope and magnitude of economic impacts, highlighting that such differences are influenced by local contexts. This variability underscores the importance of adopting a holistic and context-specific approach when analyzing the long-term benefits of mega events. By situating these findings within broader discussions on sustainable tourism, the results can be better interpreted, thus providing more valuable insights for policy-makers and stakeholders involved in the planning and management of future events.

It is important to clarify that economic impact analyses must always account for the specific context. Consequently, cities, regions, and states can rarely adopt findings derived from evaluations conducted in different contexts or events. Such an approach could lead to potential errors in assessing the economic sustainability of an event and, consequently, distort the decision-making process.

6. Conclusions

The importance of smart tourism for sustainable tourism is increasingly evident. The economic aspect thus becomes fundamental to ensure adequate investments in technological innovations and ensure economic sustainability, particularly applied to mega sporting events. In this scenario, economic impact analysis plays a key role in evaluating the economic sustainability of the areas hosting these events. Although numerous methods are available, the integration of multiple approaches is rarely reported. This study proposed an innovative approach that combines different methods to provide a robust economic impact analysis of mega sporting events, validated through the analysis of two prestigious cycling competitions: the Giro d'Italia and the Tour de France. By quantifying the direct, indirect, and induced economic impacts, the proposed approach support decision-making processes to plan tourism promotion and ensure economic sustainability. Economic impact analyses should always be tailored to the specific context in which they are conducted. Public administrators or other commitments are unlikely to directly apply results from evaluations carried out in other settings or under different circumstances. Doing so could result in inaccuracies when evaluating economic sustainability of a mega events and, in turn, lead to error into decision-making processes.

The theoretical and practical contributions of this research lie in presenting an innovative approach that can be applied to evaluate the economic impacts of hosting mega sporting events. This approach is adaptable and can be applied to a wide range of real-world contexts. By establishing a clear and replicable approach, this study empowers future research and provides a rigorous guideline for cities, regions, and states seeking to assess the potential economic impact of sporting events.

The study presents several limitations that warrant further attention. First, the proposed approach has been applied exclusively to multi-stage cycling races, which are characterized by particular logistical and organizational challenges. This narrow focus raises concerns about the generalizability of the findings to other types of events. The approach proposed may not be directly applicable to other sporting competitions or to non-sporting events such as festivals, trade fairs, or conferences, which operate under significantly different structural and economic conditions.

Future research may test the proposed approach across a wider variety of event types, including sporting competitions, festivals, trade fairs, and conferences, in order to better evaluate its generalizability across different contexts. Future studies should also integrate the economic effects of digital engagement, such as the media, social media, and broadcast revenues, which have become increasingly pivotal in determining the financial success of events. In an era where global visibility is largely driven by online platforms, ignoring these

factors risks underestimating the true economic impact of mega sporting events. Finally, future research should also explore the environmental and social impacts of hosting mega sporting events to gain a more comprehensive understanding of their overall value. While this study focused on the economic impact, the broader environmental and social impacts of hosting mega sporting events can also provide valuable insights into their long-term value for the host regions. By broadening the scope of impact analysis to include these aspects, future research can offer a more holistic view of the overall benefits of hosting mega international sporting events, ultimately helping policymakers and organizers maximize the positive impacts for host regions.

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Appendix A

Table A1. Questionnaire.

SECTION I: Sample Profile	
How old are you?	Under 30 31–50 Over 51
Where are you from?	Province of stage Piedmont Italy Out of Italy
Are you here for the sporting event? ¹	YES/NO
How many people are there?	
How many days will you stay?	
Will you attend other stages in Piedmont Region?	
SECTION II: Type of Expenses	
How much do you typically spend on?	
Transport	
Accommodation	
Food and beverage	
Shopping	
Others	
What is your average per capita spending for this event?	
SECTION III: Notes	
Additional information to report	

¹ Filter question: If the respondent answers 'NO', he/she is excluded from the survey.

Appendix B

Table A2. Main regulations concerning the Giro d'Italia and the Tour de France 2024.

REGIONAL LAW
2020 Regional law n. 23—Regulations on the promotion and sports facility planning.
REGIONAL COUNCIL RESOLUTION—D.G.R.
2022 D.G.R. n. 41-6334 SUBJECT: Regional Law 23/2020. Grand Depart Tour de France 2024. Approval of the Memorandum of Understanding draft and initial provisions. Total regional expenditure of up to EUR 1,341,370.00.
2023 D.G.R. n. 43-6805 SUBJECT: Regional Law 23/2020, Article 5. “Adoption of the Three-Year Program 2023/2025 for the promotion of physical-motor activities and sports facility planning”.
2023 D.G.R. n. 1-6858 SUBJECT: Regional Law 23/2020. Grand Depart Tour de France 2024. D.G.R. 41-6334 of 22 December 2022. Approval of the cooperation contract draft with the Emilia-Romagna Region and the Metropolitan City of Florence. Total regional expenditure of up to EUR 1,701,462.42.
2023 D.G.R. n. 1-7497/2023/XI SUBJECT: Regional Law 23/2020. Three-year Program 2023–2025 for the promotion of physical-motor activities and sports facility planning, as per D.C.R. n. 282-15261 of 27 June 2023. Guidelines for the selection of the “Grand Depart del Giro d'Italia” cycling event for 2024 within Measure B.5 “Mega Sporting Events”.
2023 D.G.R. n. 23-7623/2023/XI SUBJECT: Regional Law 23/2020. Multi-annual program as per D.C.R. n. 282-15261 of 27 June 2023. Integration to the implementation program for the promotion of physical-motor activities 2023/2024 as per D.G.R. n. 34-7037 of 12 June 2023. Total regional expenditure of up to EUR 1,126,667.58, of which EUR 459,167.58 for 2023 and EUR 667,500.00 for 2024 (for municipalities EUR 295,102.08 for 2023).
2023 D.G.R. n. 32-7745/2023/XI SUBJECT: Regional Law 23/2020. Approval, in continuity with D.G.R. 41-6334 of 22 December 2022, and D.G.R. n. 1-6858 of 15 May 2023, of the memorandum of understanding draft to be signed, under Article 15 of Law 241/1990, with the City of Turin for the organization of the event named “Grand Départ of the Tour de France 2024”. Total regional expenditure of EUR 1,701,462.42.
2023 D.G.R. n. 20-7886/2023/XI SUBJECT: Regional Law 23/2020. D.C.R. 27 June 2023, n. 282-15261 approving the Three-Year Program 2023–2025 for the promotion of physical-motor activities and sports facility planning. Selection of the cycling races “Milano-Torino”, “Grand Depart Giro d'Italia”, and “Gran Piemonte” for 2024 within Measure B.5 “Mega Sporting Events”. Maximum regional expenditure of EUR 4,418,000.00 in 2024 and EUR 4,000,000.00 in 2025 (EUR 4,052,000.00 + EUR 4,000,000.00 for the Grand Depart Giro d'Italia 2024).
2024 D.G.R. n. 22-8200/2024/XI SUBJECT: Regional Law 23/2020. Multi-annual program as per D.C.R. n. 282-15261 of 27 June 2023. Provisions for starting a single project for promoting the image of the regional territory related to the Grand Depart of the Giro d'Italia and Tour de France 2024, respectively as per D.G.R. n. 1-6858 of 15 May 2023, and D.G.R. n. 20-7886 of 11 December 2023. Total regional expenditure of EUR 447,000.00.
DIRECTORIAL DETERMINATION—D.D.
2023 D.D. 123/A2106B/2023 SUBJECT: Regional Law 23/2020. Grand Départ Tour de France 2024. D.G.R. n. 41-6334 of 22 February 2022, and n. 1-6858 of 15 May 2023. Commitment of expenditure for the Emilia-Romagna Region amounting to EUR 1,701,462.42, of which EUR 650,832.42 from account 153690/2023 and EUR 1,050,630.00 from account 153690/2024.
2023 D.D. 452/A2106B/2023 SUBJECT: Regional Law 23/2020—Multi-annual program as per D.C.R. 282-15261 of 27 June 2023—Implementation program as per D.G.R. n. 34-7037 of 12 June 2023, integrated with D.G.R. n. 23—7623 of 30 October 2023. D.D. n. 391 of 10 November 2023 “Supplementary call for Measure B.1.1. limited to municipalities that have been hosts of international cycling race stages (start/finish)”. Assignment of contributions. Commitment of EUR 282,216.52 from account 153690/2023 of the 2023 budget.
2024 D.D. 93/A2106B/2024 SUBJECT: Regional Law 33/2023, Article 18. D.G.R. n. 20-7886 of 11 December 2023. D.D. n. 477 of 19 December 2023. Assignment of communication and promotion services for Piedmont and its territory during the “Grand Depart del Giro d'Italia 2024” cycling competition to RCS Sport S.p.A. Reduction of the reservation and simultaneous commitment of EUR 4,052,000.00 from account 141085/2024 and EUR 4,000,000.00 from account 141085/2025.

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