Explanation of the Structural–Interpretive Model of the Direct Effects of Sports on the Macroeconomy of Iranian Metropolises

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Abstract

The aim of this study was to explain a structural–interpretive model of the direct effects of sports on the macroeconomy of metropolises in Iran. This research was applied in purpose, qualitative in terms of data type, exploratory in data analysis method, present-oriented in time perspective, and field-based in data collection. The statistical population consisted of faculty members and individuals managing public sectors related to economic development, such as municipal managers, city council members, and directors of the Departments of Sport and Youth in several major provinces. The theoretical (purposive) sampling method was applied until theoretical saturation was reached, which was ultimately achieved after nine interviews. In the structural–interpretive modeling stage, a Delphi panel was formed with five experts specializing in the field of sports economics, and the components were subsequently scored. In total, 34 open codes were identified and categorized into six axial codes and one selective code representing the direct effects of sports on metropolises. Structural–interpretive modeling was performed using the MICMAC software, and the results showed that sports services and sports competitions were the most influential components, while sportswear production was the least influential factor among other components affecting the macroeconomy of metropolises in Iran. Considering the direct impact of sports on the urban economy of large cities, it appears essential that policymakers and city officials pay increased attention to the development of sports in major urban areas.

Keywords: *Sports, urban economy, metropolis, economic impacts*

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1. Introduction

The economic footprint of sport has evolved from being a niche subject of interest to a recognized driver of urban regeneration, employment creation, and social transformation. In contemporary economies, particularly in rapidly urbanizing and transitioning contexts, sport functions as a complex system linking cultural identity, infrastructure development, and new economic activities [1, 2]. Large cities and metropolitan regions increasingly view sport not merely as leisure but as a strategic industry with the capacity to stimulate local economies, attract investment, and create employment [3, 4]. The economic pathways of sport range from infrastructure construction and event hosting to consumer spending on sportswear and equipment, new service sectors, and knowledge-driven activities such as data analytics and technology-enabled innovation [5, 6].

One of the earliest recognized contributions of sport to local economic development is through facility construction and regeneration of urban spaces. The building of stadiums, arenas, and recreational complexes transforms neglected urban districts into vibrant hubs, attracting commerce, hospitality services, and real estate development [1, 2]. This dynamic is not exclusive to global sports hubs; cities in

emerging economies also experience growth when investing strategically in sports venues [7, 8]. Moreover, localized facilities—such as community gyms and aquatic centers—offer everyday economic value by creating jobs and fostering micro-entrepreneurship [9, 10].

Another direct economic channel comes from sporting events, ranging from small-scale community competitions to international mega-events. Hosting sports competitions generates revenue through ticket sales, merchandising, local sponsorship, and broadcasting rights [11, 12]. Even modest events can have measurable effects on local businesses, increasing demand for accommodation, restaurants, and retail [3, 13]. When strategically planned, events also support long-term urban development, enhancing transportation networks, urban branding, and tourism appeal [14, 15].

Consumer markets linked to sports are another significant contributor to metropolitan economies. The sportswear industry exemplifies how urban economies can capture global value chains by producing, marketing, and retailing sports apparel, footwear, and equipment [16, 17]. Rapid digitization and e-commerce expansion have further amplified this sector, enabling local entrepreneurs and global brands to serve diverse consumer segments [18, 19]. Moreover, technological advances in wearable gadgets and smart equipment are transforming both the sports experience and the associated manufacturing and service ecosystems [20, 21]. These industries generate employment not only in production but also in design, marketing, logistics, and technology support [5, 22].

Employment creation is a core and direct economic benefit of the sports sector. Job categories span a wide spectrum—from coaches, referees, and sports psychologists to professionals in data analytics, digital marketing, and performance optimization [3, 10]. Expanding professional and semi-professional leagues also drive talent mobility, with player transfers creating transnational financial flows and new business models [12, 19]. At the community level, inclusive sports programs have shown to support vulnerable and marginalized groups by generating employment and fostering social mobility [23, 24].

Technology and innovation add another layer to sport's urban economic potential. Artificial intelligence (AI), big data, and analytics are now integral to performance evaluation, fan engagement, and event management [6, 20]. These advancements expand the economic horizon of sports far beyond physical infrastructure and merchandise, creating knowledge-intensive jobs and attracting investment in tech-driven solutions [21, 25]. AI integration also enhances the efficiency of event logistics, safety management, and consumer personalization, supporting sustainable economic benefits [14, 26].

Additionally, sports play a key role in urban branding and cultural capital development, which indirectly influences economic resilience. By hosting events and building strong sports identities, cities improve their attractiveness to investors, skilled labor, and tourism [1, 2]. In developing economies, sport has been used strategically to project modernity, unity, and global competitiveness [3, 19]. For example, sport-led regeneration projects have revitalized depressed urban areas, improving infrastructure and encouraging private sector participation [4, 9].

Scholarly attention has also turned to the governance and policy dimensions necessary to maximize the economic value of sport. Transparent managerial systems and corruption-free federations are crucial for effective sports development and for maintaining investor confidence [26, 27]. Citizen participation in planning and managing sports programs further strengthens legitimacy and local engagement [10, 24]. Moreover, integrating social policy goals—such as inclusion and accessibility—into sports development frameworks supports long-term urban sustainability and equitable growth [23, 28].

The interplay between local economic ecosystems and global sports dynamics is also significant. Mega-sporting events can transform national images and stimulate foreign investment, but they require sophisticated risk assessment and strategic planning to avoid short-termism [14, 18]. Likewise, cities aiming to attract international sports tourism must balance infrastructure costs with long-term benefits and ensure post-event utilization [2, 11]. Urban economic planners thus require nuanced frameworks to evaluate direct and indirect benefits, cost recovery strategies, and social returns on sports-related investments [1, 22].

In the Iranian context, large metropolitan cities face rapid population growth, evolving consumer markets, and urgent economic diversification needs. Investing in sports infrastructure and activities can offer effective responses by fostering entrepreneurship, enhancing city branding, and driving local production of sports goods [7, 8]. With the global sports industry expanding through digitalization and AI-driven opportunities [20, 21], Iranian cities can strategically integrate sports into urban economic planning to align with global best practices while addressing local socio-economic challenges [9, 19].

Despite this growing recognition, research in Iran remains limited regarding a comprehensive structural–interpretive understanding of how different components of the sports economy interconnect. Past studies have often analyzed singular aspects such as facility distribution [7], digital transformation [16, 17], or social participation [10] but have not provided integrated models of direct economic impacts. There is a need to map out the network of influences—ranging from sports services and competitions to jobs, production, and infrastructure—to support evidence-based policymaking and investment strategies [1, 2].

Given these gaps, the present study aims to develop a structural–interpretive model to identify and analyze the direct economic effects of sports on Iranian metropolitan cities.

2. Methodology

This study was applied in purpose, qualitative in terms of data type, exploratory in data analysis method, present-oriented in time perspective, and field-based in data collection. The research approach was Grounded Theory (also known as data-driven theory, grounded theory method, or foundational theory), and the emerging method attributed to Glaser (1992) was applied. The statistical population consisted of faculty members and individuals managing public sectors related to economic development, such as municipal managers, city council members, and directors of the Departments of Sport and Youth in several major provinces.

The qualitative sampling aimed to achieve information saturation; therefore, the number of participants was determined according to the criterion of theoretical saturation. Accordingly, the theoretical (purposive) sampling method was used until saturation was reached, which was ultimately achieved after nine interviews. In the structural–interpretive modeling phase, a Delphi panel was formed with five experts specialized in sports economics, and the components were subsequently scored.

For data collection, the researcher first used a library-based approach by reviewing the current situation and case studies to prepare a preliminary list of indicators influencing the economic effects of sports. In the next stage, using the preliminary list, qualitative interviews were conducted with experts knowledgeable about the research topic. In accordance with the theoretical foundations of qualitative research, data analysis and coding were performed simultaneously with the interviews. The coding process was carried out in three stages: open coding, axial coding, and selective coding.

It should be noted that credibility, transferability, and confirmability were applied to ensure validity and reliability. During the interview phase, data interpretation was performed using textual structural interpretation, and in the stratification phase, the Interpretive Structural Modeling (ISM) method was applied using the latest version of MICMAC software.

3. Findings and Results

First, the demographic characteristics of the sample are presented.

Table 1. Organizational Affiliation of Participants

Organizational Affiliation	Frequency	Percentage	Average Interview Duration (minutes)
Faculty Member	4	44.44%	43.25
Municipal Manager	1	11.11%	39.53
City Council Member	1	11.11%	27.50
Sports Managers	3	33.33%	37.23

As observed, approximately 44% of the sample were faculty members, about 11% were municipal managers, 11.11% were city council members, and 33.33% were sports managers.

As shown in Table 2, a total of 34 open codes were categorized and summarized into six axial codes and one selective code.

Table 2. Codes from the Interview

Selective Codes	Axial Codes	Open Codes
Direct Impacts of Sports	Production of Sportswear	Production of general sportswear
		Production of sports supplements
		Production of sports shoes
		Production of clothes for various sports fields
	Production of Equipment	Production of toys and intellectual games
		Production of health-related equipment
		Production of electric sports equipment
		Production and distribution of sports gadgets (e.g., calorie tracking, timing, etc.)
		Equipment for various sports
		Production of bodybuilding equipment
	Sports Services	Sports massage services
		Corrective exercises
		Health-related services
		Entertainment-related services
	Sports Facilities and Places	Construction of amusement parks and sales of commercial stands
		Building gyms and renting them to different groups
		Long-term infrastructure with capacity for various uses
		Building pools and water parks
		Building and renting gyms
	Jobs Related to Sports	Working in the production of sports products
		Trading in (import and export) sports goods and equipment
		Coaching in sports
		Sports massage
		Transferring players to overseas teams
		Rental of gymnasiums and swimming pools
		Therapeutic practice with special groups such as the disabled and the elderly
		Refereeing in sports
		Specialist in teaching sports to children
		Sports psychologist
		Analysis and processing of sports data
	Competitions	The impact of competitions on capital attraction and local prosperity
		All kinds of shops around the competition venue (food, clothing, etc.)
		Tournament ticket sales
		The impact of hosting competitions on urban physical development

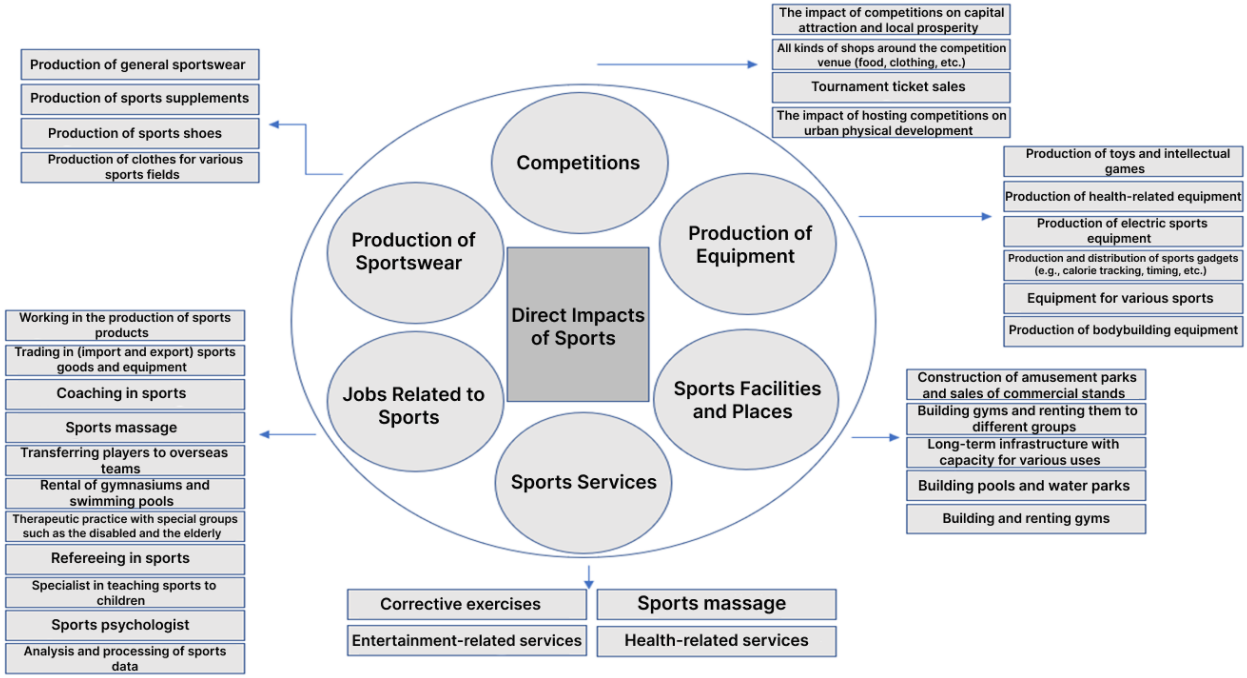

Figure 1. Model of the Direct Impact of Sports on the Economy of Metropolitan Cities without Stratification

In Figure 1, the economic development model through the direct impacts of sports is presented. As observed, this model is displayed without stratification or ranking but shows all the identified components and indicators. In order to measure the level of influence among the components, Interpretive Structural Modeling (ISM) can be applied.

Table 3. Interactive Matrix of Direct Effects of Components

Competitions	Sports Jobs	Sports Places	Sports Services	Production of Equipment	Clothing Production
0	1	0	1	0	0
2	0	1	2	0	1
2	3	1	0	1	2
2	1	0	2	1	0
1	0	0	3	0	1
0	2	2	2	2	1

In this matrix, the scores range from 0 to 3. A score of 0 indicates no impact, 1 indicates weak impact, 2 indicates moderate impact, and 3 indicates strong impact. The values represent the effect of the rows on the columns. For example, sports places affect sports services with an intensity of 2, while sports services affect sports places with an intensity of 1.

As shown in Table 4, the size of the matrix is 6, meaning it is a 6×6 matrix. There are 13 cells with the value zero, 11 cells with the value one, 10 cells with the value two, and 2 cells with the value three. Additionally, 63.88% of the cells have a non-zero value, meaning 63.88% of the matrix shows some level of effect.

Table 4. Characteristics of the Direct Effects Matrix

Indicators	Value
The size of the matrix	9
Number of turns	2
Number of zeros	13
Number of ones	11
Number of twos	10
Number of threes	2
Number of potentials	0
Total	23
Percentage of cells filled	68.88%

Table 5. Summary of the Total Matrix of Direct Effects

Variable	Total Row Scores	Total Column Scores	Stratification Based on Influence	Stratification Based on Influenceability
Clothing Production	2	5	Fourth	Third
Production of Equipment	6	4	Second	Fourth
Sports Services	9	10	First	First
Sports Places	6	4	Second	Fourth
Sports Jobs	5	7	Third	Second
Competitions	9	7	First	Second
Total	37	37		

As observed, the highest level of influence belongs to sports services and competitions, while the highest level of influenceability also relates to sports services. Based on the output of the interactive matrices, the structural–interpretive model of the direct effects of sports on the urban economy can be drawn.

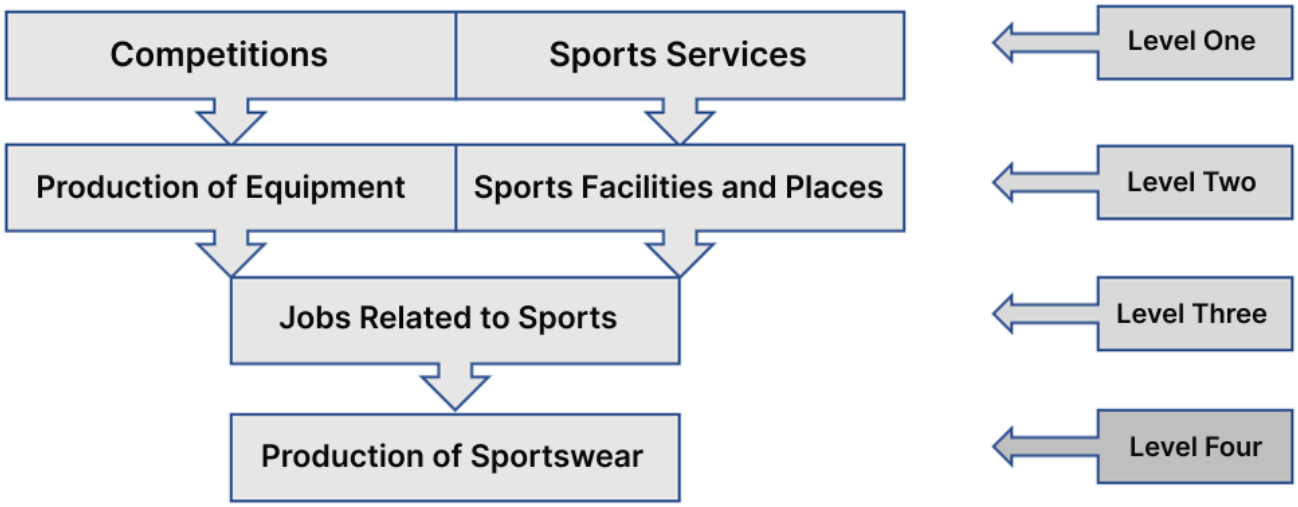

Figure 2. The Structural–Interpretive Model of the Direct Effects of Sports on the Urban Economy

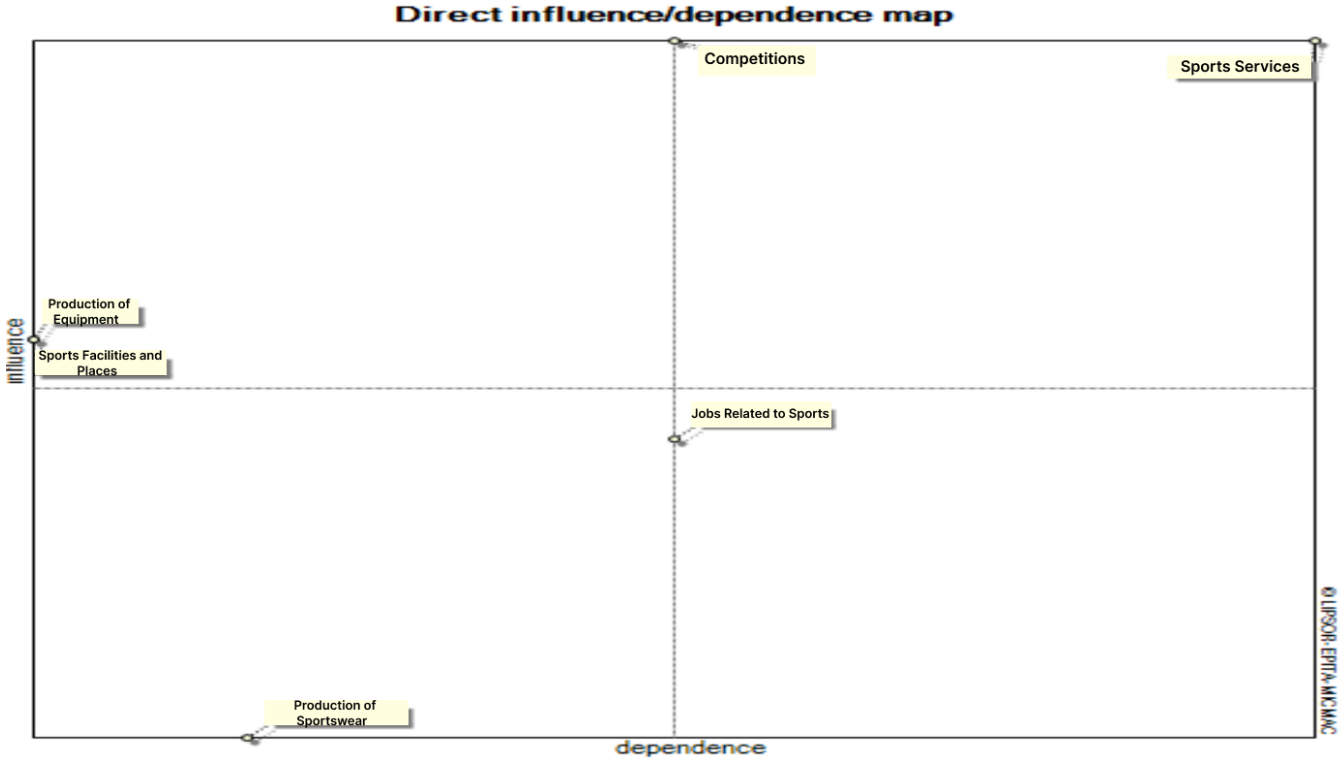

Figure 3. The Location Plan of the Components in the System

As observed, the two components sports services and competitions are located in cell 1, the two components production of equipment and sports places in cell 2, clothing production in cell 3, and sports jobs in cell 4.

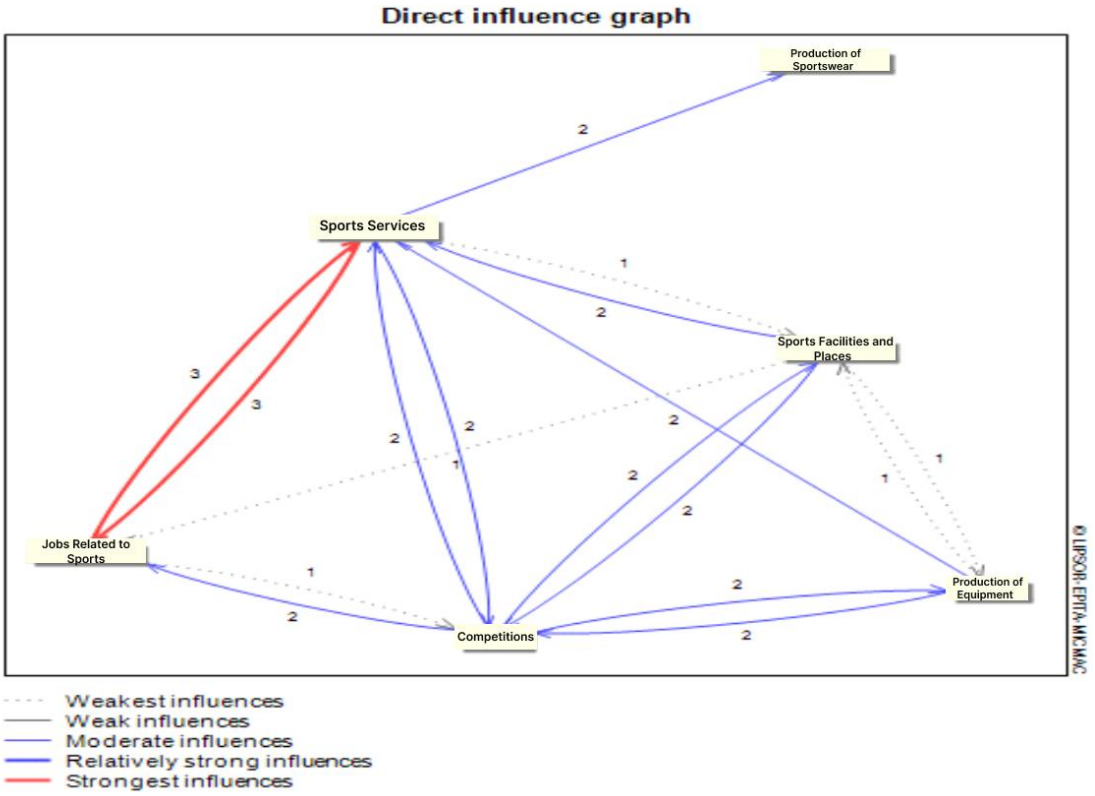

Figure 4. Diagram of the Effects of the Components at 75% of the Routes

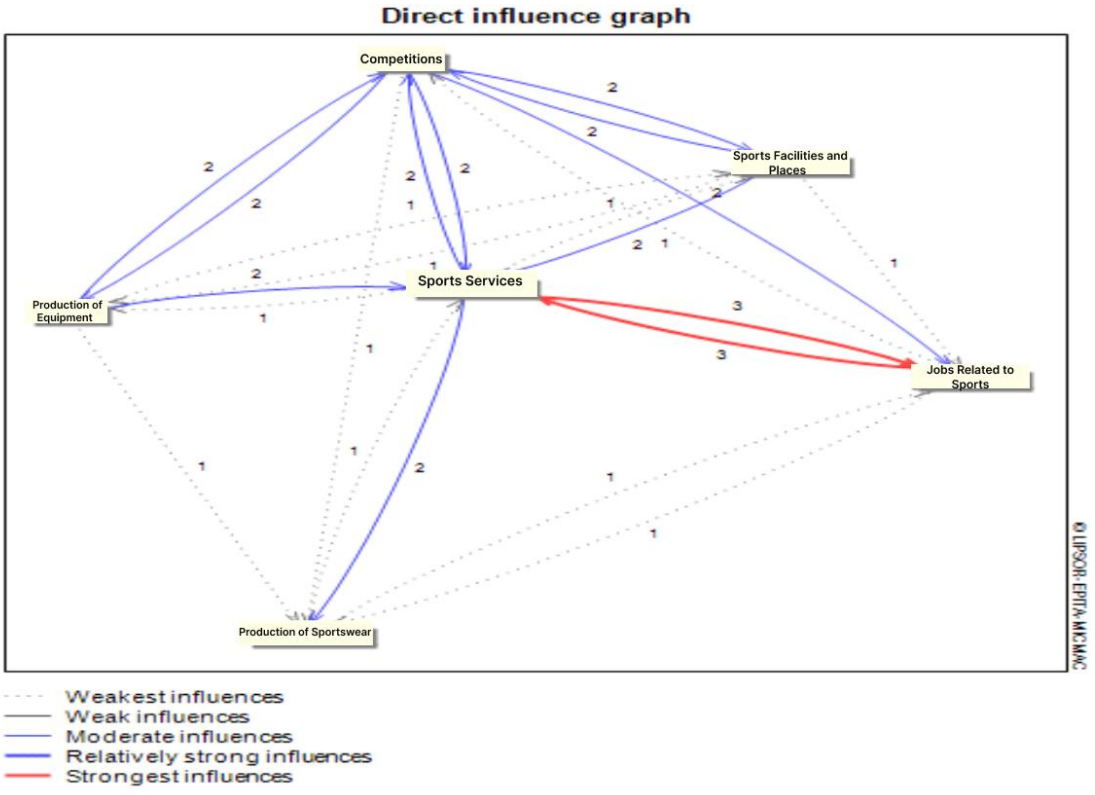

Figure 5. Diagram of the Effects of the Components at 100% of the Routes

The strength of the influence among components is indicated by the type of connecting lines. For example, the influence of sports services on sports jobs, and vice versa, is very strong.

4. Discussion and Conclusion

The findings of this study produced a structural–interpretive model clarifying the direct economic effects of sports on metropolitan economies in Iran. Six main categories—sports services, sports competitions, sports jobs, sports facilities and places, production of sports equipment, and sportswear manufacturing—emerged as interconnected elements shaping urban economic outcomes. Among these, sports services and competitions held the strongest positions both in exerting influence and in being influenced by other components. This demonstrates that the provision of sports-related services and the hosting of competitive events are pivotal in driving the sports economy in large urban centers.

The centrality of sports services highlights the multidimensional role of commercial and recreational offerings such as health-related services, corrective exercise programs, and sports massage. These findings align with global evidence showing that service-oriented segments of the sports industry generate sustainable jobs and foster entrepreneurship at the local level [3, 10]. Urban economies that invest in diversified sports services—ranging from entertainment-focused activities to wellness and rehabilitation—can catalyze small business development and consumer spending [1, 2]. Additionally, integrating advanced technologies such as AI-driven personalization and analytics into service delivery can enhance value creation and competitiveness [6, 20].

The study also identified sports competitions as a highly influential driver. Events create concentrated economic activity by stimulating ticket sales, hospitality, retail, and media-related revenues [11, 12]. This result resonates with prior research showing that hosting competitions can strengthen urban branding and attract external investment [4, 14]. Even small-scale tournaments can have primary economic effects by increasing demand for local services and accelerating short-term job creation [13]. However, sustainable outcomes depend on effective governance and long-term planning to avoid the economic inefficiencies associated with “white elephant” infrastructures [1, 2].

Another key insight is the networked but less influential nature of sportswear production. While this sector contributes to manufacturing and local employment, its overall direct effect on urban macroeconomics was found to be weaker compared with services and events. This is consistent with research indicating that globalized supply chains and import dependency can reduce local economic impact unless cities actively foster domestic production and branding [16, 17]. Nevertheless, with the rise of digital commerce and customization, urban centers could capture greater value by supporting innovative, small-scale producers and leveraging consumer demand for personalized gear [18, 19].

The production of sports equipment was moderately influential, functioning as a support system for service provision and event hosting. Previous studies have also highlighted the role of sports equipment manufacturing in local industrial diversification and technological upgrading [5, 22]. Equipment production can also benefit from the integration of smart technologies and AI-enhanced analytics to create niche, high-value-added products [20, 21]. However, without strong domestic supply networks and skilled labor, this potential may remain underutilized in emerging economies.

Sports jobs formed another essential pillar by connecting multiple economic subdomains. Employment in coaching, officiating, sports psychology, and analytics reflects the diversification of the workforce within the sector [3, 23]. Prior research suggests that expanding professional pathways in sport contributes to inclusive economic growth by integrating marginalized groups and promoting upward mobility [24, 28]. The study’s model underscores that job creation is both an outcome and a reinforcing mechanism of economic development in sport: as services and events expand, they require skilled professionals; and as the labor market strengthens, new services and events become viable.

The significance of sports facilities and places in the network demonstrates their role as enabling infrastructure. Consistent with evidence from urban regeneration literature [2, 7], the construction of gyms, parks, aquatic centers, and long-term venues creates not only immediate construction jobs but also enduring platforms for community engagement and entrepreneurial activity. Facilities facilitate participation, which fuels demand for services, equipment, and apparel [8, 9]. However, facilities alone are insufficient; their impact depends on dynamic programming and integration with other components of the sports economy.

Governance and management emerged implicitly as underlying conditions for maximizing the economic effects identified in the model. Research indicates that transparency in managerial elections and the minimization of corruption

are prerequisites for sustainable sports development and investment security [26, 27]. Furthermore, inclusive decision-making and citizen participation improve the legitimacy and utilization of sports infrastructure [10, 24]. These considerations are crucial in Iranian cities where rapid infrastructure expansion must be balanced with accountability and public engagement.

Technological transformation, particularly AI and data-driven innovation, should also be considered a cross-cutting accelerator of the model's components. Smart technologies support operational efficiency in event management, customer engagement in services, predictive analytics in manufacturing, and talent development [6, 20]. The increasing application of AI in sports also opens pathways for digital entrepreneurship and higher value-added activities [21, 25]. Iranian metropolitan economies can leverage these tools to integrate with global sports markets and to innovate beyond traditional physical products and venues.

Overall, the results affirm international evidence that a thriving urban sports economy depends on synergy among multiple sectors. Rather than treating events, infrastructure, and goods production in isolation, a systems-oriented approach—such as the structural–interpretive model developed here—can guide more effective policy and investment strategies. By understanding the interplay between highly influential drivers like services and competitions and support systems like equipment and apparel production, cities can allocate resources strategically and maximize economic returns [1, 2].

Although this study provides a robust conceptual framework, several limitations must be acknowledged. First, the research relied on a qualitative, theory-building approach, which, while valuable for depth and contextual understanding, limits the generalizability of the findings. The sample size was necessarily small due to the use of theoretical saturation and expert-driven panels, and although participants were diverse in expertise, they may not fully represent the variety of stakeholders influencing the sports economy. Additionally, the study focused specifically on Iranian metropolitan contexts; thus, cultural, political, and economic dynamics unique to Iran may limit direct applicability to other settings. Another limitation is the static nature of the model: while it identifies relationships among components, it does not capture dynamic changes over time, such as the impact of emerging technologies or evolving consumer preferences.

Future studies could expand on this work in several ways. Quantitative modeling and econometric analyses could test and validate the proposed structural–interpretive framework across larger datasets and multiple cities, strengthening its predictive utility. Longitudinal research could track how shocks such as global pandemics, technological disruption, or policy reforms affect the relationships among the identified components. Comparative studies across different cultural and economic contexts would also help determine how generalizable the model is and where local adaptations are required. Moreover, further exploration of digital transformation and AI integration within the sports economy could deepen understanding of how new technologies reshape traditional components like services and competitions. Investigating citizen participation and governance practices quantitatively could also add clarity to how management quality amplifies or hinders economic returns from sports.

For practitioners and policymakers, the model offers clear guidance for prioritizing investments and planning strategies. Urban managers should focus on strengthening the high-impact sectors of sports services and competitions, ensuring that facilities and events are integrated into broader economic development plans. Developing domestic manufacturing and digital entrepreneurship in sports goods and services could reduce dependency on imports and stimulate local job creation. Investments in professional training and workforce development can support sustainable job markets and encourage inclusion. Finally, embedding transparency, community engagement, and data-driven decision-making into sports governance structures will help cities harness the full economic potential of sport while fostering long-term social value.

Authors' Contributions

Authors equally contributed to this article.

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Declaration of Interest

The authors report no conflict of interest.

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Ethical Considerations

All procedures performed in this study were under the ethical standards.

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