

Sports Economy, Future Prospects

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Abstract:

The article expresses the importance of sport to the economy, from the perspective of economists and marketing scientists and specialists in recent studies, by presenting the importance of the economic impact for many areas directly related to the field of sport. Including: Tourism, sports structures, education, employment, etc... we also review a road map for the development of a modern strategy that outlines prospects for the future aimed at raising investments in this field and encouraging the orientation of the economy to the field of sports, since it benefits the state treasurer and upgrade the living and social standard of our country Algeria.

Keywords: Sport, economy, upcoming perspective.

Introduction

Studies and literature have exposed the importance of sport's diversity. They come in all sectors such as health, education, leisure, tourism, economy, etc. With the evolution of the world and the discovery of the sports sector's role in building the economy, developed countries have been critical to the development of the sector. Sport is an important national income source for some countries, with gains, profits and taxes levied on sports clubs and players. In addition to the sports market, which consists of a variety of areas: industry, including clothing and equipment, sponsorship, including payments and burdens associated with a team or league, revenues from live sporting events, media rights fees, advertising, all investing in the broadcast of a particular sports event via small screens, trade and the sale of licensed products with the team or circular logos, food franchise... Income is therefore based on the improvement of the economy and is keen to provide all possibilities and needs to increase the athlete's efficiency and work towards its development.

All these benefits motivate countries to raise and develop the athletic level. building a lot of sports arenas and modern, sophisticated, and huge stadiums, with the aim of earning a substantial material income, which is done by hosting Dole for international and international tournaments. These events turn into an annual tradition, a specific history awaited by athletes, people, advertising companies, the media and... This constitutes an integrated economic cycle with national, material and moral returns, which imposes itself as a tradition of ancient peoples. Based on this, the country receives material income as a result of the revitalization of tourism and the reception of tourists and visitors from many countries of the world. It is naturally necessary for them to need hotels to stay, restaurants, and visit tourist places as a result of the full revitalization of the country's economy.

Through sport, a country such as Brazil has been able to change its economic status from one with poor materials to one that attracts the attention of all countries of the world, because of its interest in sports, and the keenness of players to do the best in local and international games, which has made Brazil one of the world's best in sports. More precisely, the name of the country has come to be accompanied by a specific kind of sobriety, as if it were transformed into a specialist: Brazil, football, Bulgaria, Russia, gymnastics...

In Algeria, the state, headed by President Abdelmadjid Tebboune, has established an unprecedented program to promote Algerian sports and enhance our country's presence on the international stage.

The government primary strategy has been to construct large sports facilities that meet international standards, which has led to the organization of numerous continental, Arab, and international competitions, such as the Mediterranean Games, Oran 2022, and the CAN Africa Nations U17 in 2022.

The most important specialists in the modern economy agreed on the need to focus on sports and activities that fall under its control that affect many areas that have become a giant source of income for countries with a vision and the dare to invest in them. In this article, we will talk about the sports fields and their economic role in detail.

Sports facilities and their Impact on modern economy

Economic investments in physical activity secure a significant positive return on the economy, especially public investments. Public investments in physical-friendly spaces are linked to the provision of infrastructure and sports facilities. These are close to areas with overpopulation, which significantly increases the likelihood of the population's physical activity. In addition, host major sports events that prompt people to attend to participate themselves. Some studies have documented a significant positive impact of elite sport. Adult athletes are inspiring and motivating many adolescents and young people to exercise, participate and play sports (Breuer, Wicker, Dallmeyer, & Dvorak, 2016).

Public sector sports establishments provide many direct economic benefits, most notably tax revenues, parking or ticket revenues and additional fees. Economic impact studies are usually estimated at the total economic impact attributable to the new facility, and are often summarized at the level of investment in a given year. The public sector also usually considers potential indirect economic benefits. Creating a sports stadium or site that brings with it additional development, such as restaurants, hotels, and shops, is a catalyst for the development of an entire area. What prompts other business activities.

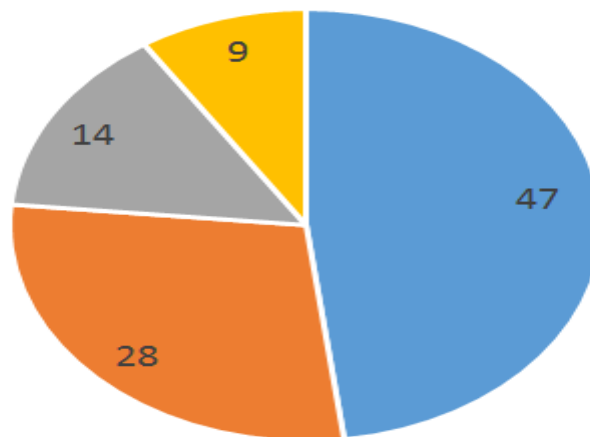
Table 1 : NBAs most valuable teams (2022 – 2023) Forbes

Team ^[g]	Value ^[b]	Sport ^[h]	Market ^[i]	Stadium ^[j]	Brand ^[k]
Golden State Warriors	\$7 billion	\$0.856 billion	\$3.024 billion	\$2.213 billion	\$0.908 billion
New York Knicks	\$6.1 billion	\$1.354 billion	\$2.821 billion	\$1.062 billion	\$0.863 billion
Los Angeles Lakers	\$5.9 billion	\$1.373 billion	\$2.872 billion	\$0.758 billion	\$0.897 billion
Chicago Bulls	\$4.1 billion	\$1.444 billion	\$1.437 billion	\$0.765 billion	\$0.454 billion
Boston Celtics	\$4 billion	\$1.353 billion	\$1.475 billion	\$0.665 billion	\$0.506 billion
Los Angeles Clippers	\$3.9 billion	\$1.715 billion	\$1.318 billion	\$0.425 billion	\$0.443 billion
Brooklyn Nets	\$3.5 billion	\$1.286 billion	\$1.161 billion	\$0.673 billion	\$0.381 billion

Team ^[g]	Value ^[b]	Sport ^[h]	Market ^[i]	Stadium ^[j]	Brand ^[k]
Dallas Mavericks	\$3.3 billion	\$1.082 billion	\$1.273 billion	\$0.517 billion	\$0.428 billion
Houston Rockets	\$3.2 billion	\$1.153 billion	\$1.105 billion	\$0.615 billion	\$0.328 billion
Philadelphia 76ers	\$3.15 billion	\$1.234 billion	\$1.029 billion	\$0.497 billion	\$0.390 billion
Toronto Raptors	\$3.1 billion	\$1.561 billion	\$0.722 billion	\$0.497 billion	\$0.321 billion

A pie chart that represents the composition of valuation for the average NBA club.

- Sport (47.1%)
- Market (28.7%)
- Stadium (14.6%)
- Brand (9.6%)



■ sport ■ market ■ stadium ■ brand

Studies confirm that the new stadium or arena is injecting tens of millions of dollars into the local economy (table 1). study by Ragas et al. in 1987 from New Orleans concluded that the public's investment in the Superdome Facility had reached a benefit of more than \$12 for every dollar paid, i.e. the proceeds were twelve times higher (Chapin, 2002).

The results of these studies are that the local government must devote public funds to a sporting establishment due to the enormous economic impact it may produce.

Tourism sector and sport

The impact of sport on the tourism sector is not appreciated. It affects tourist streams during encounters and sports courses. The Olympic Games are the world's largest sports event that has imposed itself as the biggest driving force in tourism. This is due to the ability to create high profiles for host cities and attract tourists long after organizing games (TSIOTSOU & GOURI, 2010).

A great example is Formula One races that attract millions of viewers. The economic return of the city of São Paulo was a revival of the city known for its poverty estimated at US \$296 million in 2014 according to the research centre of the São Paulo Municipal Tourism Company. On the other hand, the Olympics provided tremendous benefits to Australia's tourism sector and the first obvious impact was to increase the

number of international visitors. Between 1998 and 2002, the State noted a 16 per cent increase. Only 406,500 international tourists visited Australia in September 2000, 111,000 international visitors attended the Games and 3.7 billion television broadcasts were seen in 220 Sydney Olympics. The hotel sector also developed by 12.5% in Sydney (Andreff, 2015)

In football, the largest and most globalized part of the sports entertainment market. At the height of its peak, the FIFA World Cup is the world's premier sports scene. In its finals alone, it attracts more than 3.2 million spectators in stadiums, a cumulative audience of 26 billion viewers and television rights worth 2,1 billion euros.

Jobs

One of the most interesting statistics is how sports affect the labor market. Sports jobs have a high multiplier effect, which means they create more jobs in other professions and industries. This economy ensures more dynamic employment opportunities in France. Companies and associations employ about 2100 workers in activities directly or indirectly related to sports, with an average growth rate of 3% in jobs per year. These figures can be supplemented by 43,000 jobs for sports educators and 57,000 positions in the sports sector from directors of sports services, management and maintenance of facilities (CareerBuilder, 2014).

In 2010, the British economy added more than £20 billion, equivalent to 1.9% of the country's total economy. The employment rate also increased in the same year, with some 400 thousand jobs, equivalent to 2, 3 of Britain's total job rate. The British economy's value added from leisure and leisure activities also amounted to about Pound2.7 billion. Furthermore, 100 new jobs in sports teams and clubs in Pittsburgh could result in \$46.2 million in new profits across the city and an additional 422 out-of-industry jobs in areas such as construction, health care, sales and food preparation (CareerBuilder, 2014).

Television broadcasting rights and advertising

The expansion of sports media, especially television, has made sports omnipresent, if not in all countries. Equally important, the ever-increasing demand by broadcasters for sports programming has led to the establishment of a "sports-media-business" association, largely based on widespread attractiveness. In fact, the huge popularity of sport has become a great economic resource, which has driven the professional sports economy to the point where it now relies heavily on income from television, sponsorship and finance. Supported by technological developments in broadcasting and communications in general, regrouping as a commodity has expanded into a global business that operates effectively as a division specializing in the entertainment industry. Most visibly, the economic impact of sports media on society is reflected in large audience assessments (mostly television) of sports programming, the explosion of sports media, and the multibillion-dollar value of broadcasting contracts and sponsorship deals (Evens, Iosifidis, & Smith, 2013)

TV also significantly increased the revenue of the most popular sports games, especially the growth of live broadcasts in matches and other revenue sources as well. The most significant impact of this increase has been the increase in players' salaries, with the financial situation of teams remaining largely unchanged, as revenues from central television rights and international competitions have intensified the relationship between team quality and revenue. (Noll, 2007)

Sport, Education, and productivity

Research shows that physical activity has a positive impact on pupils' and students' educational outcomes. Today's society puts more power on work and intellectual investment in physical activities. It is a comprehensive education with positive effects on many aspects of mobility, psychology and education. They improve scientific attainment and provide access to and communication with other people and play different roles in society. It helps to acquire special social skills such as tolerance and respect for the other. Facilitates adaptation to teamwork and aims to achieve collective goals such as cooperation and cohesion. Provides a unique emotional experience and contributes to personality development processes (Bailey, et al., March 2009) Thus, according to the United Nations Educational, Scientific and Cultural Organization (UNESCO), in order to improve the quality of life at the national and international levels, it is essential to maintain and develop physical, intellectual and moral capacities. This takes place in physical education and sports quotas through the training of the individual and the promotion of his or her basic human values for people's development and the preparation of a physically active citizen beneficial to the results of the labour market (McLennan & Thompson, 2015).

Proactivity is a very important element in economies, According to a 2011 study, there is a positive relationship between sport and functional performance, any higher participation in sports is associated with higher functional performance and better productivity (Au, 2017) Physical activities improve personal relationships that contribute to creating a work climate that is convenient for all. Organizations that create

physical activities encourage interaction between staff of different hierarchical levels of different services. These interactions allow people to better identify each other, and create stronger connections, facilitating communication within the organization (Breuer, Wicker, Dallmeyer, & Dvorak, 2016)

The studies also showed the positive relationship between the multiple physical fitness elements related to health, immunity and employees' productivity, which enhances their job satisfaction and reduces their absenteeism (WATTLES & HARRIS, 2003)

Current research focuses on the provision of insurance and absenteeism costs. These companies have shown greater interest after noticing an increase in productivity based on employee participation in healthy sports programs, growing by approximately 10% and a decrease in absenteeism by 2% (TSIOTSOU & GOURI, 2010) In 2012, direct costs resulting from absenteeism in Canada were estimated at \$16.6 billion, representing about 2,4% of total annual salaries. This may give an indication of states, especially the developing tables to increase operational productivity through socially responsible sports policies that improve workers' wellbeing and economic value, humanity and provide a wide-ranging model for the interdependence of health with productivity.

REFORM STEPS

Build an active community, secure a sophisticated system, and get people moving are the main objectives to work on.

The active environment is through:

Urban planning policies are integrated at all appropriate administrative levels.

The appropriate infrastructure should be improved to facilitate exercise from individual activities such as walking and cycling

Implement measures to enhance public security and personal security for people walking, biking, and driving, and ensure security at various sporting venues.

Ensure accessibility to public and recreational areas (including waterways and oceans) and sports facilities.

Public facilities should be designed to promote the principle of sport for all and physical activity in public places.

All this grows with awareness, starting at a young age and evolving with the individual's growth. Intelligence, mental growth, personality growth and physical preparation are required for an athlete.

Building a community that's engaged.

Link community initiatives to social promotion campaigns.

Boosting consciousness through educational initiatives and disseminating information about the numerous advantages of communal, economic, and environmental pursuits, boosting the habit of walking and cycling in particular.

Establish periodic initiatives to encourage physical activity.

Enhancing the skills of people working in and outside sports...

Securing a sophisticated platform.

Develop multidisciplinary coordination mechanisms and strengthen national policies, recommendations, and action plans.

Increasing the standardization of digital information platforms and methods to enhance surveillance and decision-making.

Strengthening research and evaluation capabilities to yield practical, efficient solutions.

Boost outreach efforts to raise awareness and enhance comprehension of the issue.

Strengthening financial mechanisms to improve efficiency.

References

1. Andreff, W. (2015). La mondialisation économique du football. Bruxelles: De Boeck.
2. Au, T. (2017). As remarkable growth of sports industry continues, exclusive data analysis reveals the key trademark trends. *World Trademark Review*.
3. Baade, R. Baumann, R. & Matheson, V. Selling the Game: Estimating the Economic Impact of Professional Sports through Taxable Sales, *Southern Economic Journal*, 74(3): 794-810, (2008).
4. Baade, R. Evaluating Subsidies for Professional Sports in the United States and Europe: A Public-Sector Primer, *Oxford Review of Economic Policy*, Vol. 19, No. 4: 585-597, (2003)

5. Bailey, R., Armour, K., Kirk, D., Jess, M., Pickup, I., Sandford, R., & BERA. (March 2009). The educational benefits claimed for physical education and school sport: an academic review. *Research Papers in Education*, Vol. 24, No. 1, 1–27.
6. Breuer, C., Wicker, P., Dallmeyer, S., & Dvorak, J. (2016). The economic “return on investment” in physical education, physical activity and sport. Cologne: German Sport University Cologne.
7. CareerBuilder. (2014). Sports-Related Employment Is on the Rise and Creating Jobs in Other Industries, According to New Research from CareerBuilder and Economic Modeling Specialists. CISION PR Newswire.
8. CENTRE CANADIEN D’HYGIÈNE ET DE SÉCURITÉ. (2018). Fiches d’information Réponses SST: santé mentale – Facteurs de risque psychosociaux au travail. Canada: Gouvernement du Canada.
9. Chapin, T. (2002). Identifying the Real Costs and Benefits of Sports Facilities.
10. Clapp, C. & Hakes, J. How Long a Honeymoon? The Effect of New Stadiums on Attendance in Major League Baseball, *Journal of Sports Economics*, Vol. 6, No. 3: 237-263, (2005).
11. Coates, D. & Gearhart, D. NASCAR as a Public Good, *International Journal of Sport Finance*, Vol.3, No. 1: 42-57, (2008).
12. Coates, D. Stadiums and Arenas: Economic Development or Economic Redistribution? *Contemporary Economic Policy*, Vol. 25, No. 4: 565-577, (2007).
13. COURY, H., MOREIRA, R., & DIAS, N. (2009). Evaluation of the Effectiveness of Workplace Exercise in Controlling Neck, Shoulder and Low Back Pain: A Systematic Review. *Brazilian Journal of Physical Therapy*, 13(6).
14. Covington, R. (How Much) Is the Law to Blame for Baseball’s Turbulent Labor Relations? *Journal of Sports Economics*, Vol. 4, No. 4: 356-361, (2003),
15. Devlin, A. & Michael Jacobs, Joint-venture analysis after American Needle, *Journal of Competition Law & Economics*, 7(3), 543-572, (2011).
16. Evens, T., Iosifidis, P., & Smith, P. (2013). The Sports-Media-Business Complex. In *The Political Economy of Television Sports Rights* (pp. pp.13-30).
17. Faconieri, S. et al. Collective versus individual sale of television rights in league sports, *Journal of the European Economic Association*, 2(5): 833-862 (2004).
18. Fenn, A., & Fenn. (2010). Sports economics. In R. C. Free (Ed.), *21st century economics : a reference handbook*. Thousand Oaks, CA: Sage Publications. Retrieved from https://libproxy.library.unt.edu/login?url=https://search.credoreference.com/content/entry/sagetfceccon/sports_economics/0?institutionId=4982
19. Frick, B. The Football Players’ Labor Market: Empirical Evidence From the Major European Leagues, *Scottish Journal of Political Economy*, Vol. 54, No. 3: 422-446, (2007).
20. Gerretsen, Stephanie and Mark S. Rosentraub (2017). The economics of sport. In Russell Hoye and Milena (Eds.), *The SAGE handbook of sport management*. Thousand Oaks, California: Sage Publications. Retrieved from <https://ebookcentral.proquest.com>
21. Groothuis, P. Johnson, B. & Whitehead, J. Public Funding of Professional Sports Stadiums: Public Choice or Civic Pride? *Eastern Economic Journal*, Vol. 3, No. 4: 515-526, (2004),
22. Grow, Nathaniel, There’s no “I” in “League”: professional sports leagues and the single entity defense. *Michigan Law Review*, 105. Pages 183-208
23. Gubler, T., Larkin, I., & Pierce, L. (2018). Doing Well by Making Well: The Impact of Corporate Wellness Programs on Employee Productivity. *Management Science*, 64. 4967-4987.
24. Gurney, G., Lopiano, D. A., & Zimbalist, A. (2017). Seven : The NCAA's unsustainable economics. In *Unwinding madness : what went wrong with college sports and how to fix it*. Washington, D.C.: Brookings Institution Press. Retrieved from <https://ebookcentral.proquest.com>
25. Hashim, R., Baharud-din, Z., Mazuki, M., & Ahmad, M. (2011). International Conference on Social Science and Humanity. Does Involvement in Sports lead to a Productive Employee? (pp. vol 5: 218-222). Singapore: IACSIT Press.
26. Horne, J. (2006). Sport in consumer culture. New York: Palgrave Macmillan.
27. Hume, C., & Richards, R. (2019). Economic Contribution of Sport. Australian Sport Information Network.
28. Jeanrenaud, C. (2007). Sports Events: Uses and Abuses of Economic Impact Studies. *Finance & Bien Commun*, 1(26): pp. 99 à 104.

29. Jensen, J. (2017). Assessing Corporate Demand for Sponsorship: Marketing Costs in the Financial Services Industry. *Marketing Letters*.
30. Johnson, B. Groothuis, P. & Whitehead, J. The Value of Public Goods Generated by a Major League Sports Team: The CVM Approach, *Journal of Sports Economics*, Vol. 2, No. 1: 6-21, (2001).
31. Katzmarzyk, P., Gledhill, N., & Shephard, R. (2000). The economic burden of physical inactivity in Canada. *Journal de l'Association medicale canadienne*, 163(11), 1435–1440.
32. Kesenne, S. The Single Entity Status of a Sports League, *Journal of Sports Economics*, Vol. 16(8): 811-818, (2015).
33. Maennig, W. & du Plessis, S. World Cup 2010: South African Economic Perspectives and Policy Challenges Informed by the Experience of Germany 2006, *Contemporary Economic Policy*, Vol. 25, No. 4: 578-590, (2007).
34. Mahoney, M. & McMillen, J. Cowboys Stadium Mobility Assist Program: Accessible Routes and the Americans with Disabilities Act Accessibility Guidelines, *Journal of Legal Aspects of Sport*, Vol. 21, No. 1: 101-115, (2011).
35. McCann, Michael, *American Needle v. NFL: An Opportunity To Reshape Sports Law*, *The Yale Law Journal*.
36. McLennan, N., & Thompson, J. (2015). L'ÉDUCATION PHYSIQUE DE QUALITÉ (EPQ). 7, place de Fontenoy, 75352 Paris 07 SP, France: l'Organisation des Nations Unies pour l'éducation, la science et la culture.
37. Michishita, R., Jiang, Y., Ariyoshi, D., Yoshida, M., Moriyama, H., & Yamato, H. (2017). The practice of active rest by workplace units improves personal relationships, mental health, and physical activity among workers. *Journal of Occupational Health*, 59(2): 122–130.
38. Miller, P. Private Financing and Sports Franchise Values: The Case of Major League Baseball, *Journal of Sports Economics*, Vol. 8, No. 5: 449-467, (2007).
39. Mills, Brian et al. Fan Substitution between North American professional sports leagues, *Applied Economics Letters*. No 7. 563-566 (2015).
40. Noll, R. (2007). BROADCASTING AND TEAM SPORTS. *Scottish Journal of Political Economy*.
41. OMS. (2019). ACTIFS: module
42. Owen, J. The Intangible Benefits of Sports Teams, *Public Finance and Management*, Vol. 6, No. 3: 321-345, (2006).
43. Part III : Sport economics and finance. In Dodds, M., Heisey, K., & Ahonen, A. (Eds.). (2017). *Routledge handbook of international sport business*. London : Taylor and Francis. Retrieved from <https://ebookcentral.proquest.com>
44. Potter, D. 'Flutie Effect' Study Shows Success on Fields and Courts Really Does Mean More Applications, *The Associated Press*, (2008, March 23). Retrieved from Nexis Uni at <https://iii.library.unt.edu/record=e1001308~S12>.
45. Rosen, S. & Sanderson, A. Labour Markets in Professional Sports, *The Economic Journal*, Vol. 111, No. 469: F47-F68, (2001).
46. Ross, S. Antitrust, Professional Sports, and the Public Interest. *Journal of Sports Economics*, 2003.
47. Ross, S. Competition Law as a constraint on monopolistic exploitation by sports leagues and clubs, *Oxford Review of Economic Policy*, Vol 19 No. 4, 569 – 584.
48. Schwester, R. An Examination of the Public Good Externalities of Professional Athletic Venues: Justifications for Public Financing? *Public Budgeting & Finance*, Vol. 27, No.3: 89-109, (2007).
49. Scully, G. Player Salary Share and the Distribution of Player Earnings, *Managerial and Decision Economics*, Vol. 25, No. 2: 77-86, (2004).
50. Siegfried, J. & Zimbalist, A. The Economics of Sport Facilities and Their Communities, *Journal of Economic Perspectives*, Vol. 14, No. 3: 95-114, (2000).
51. Simmons, R. Overpaid Athletes? Comparing American and European Football, *WorkingUSA: The Journal of Labor and Society*, Vol. 10: 457-471, (2007).
52. Surdam, D. G. (2012). Economics of sports leagues. In *The Rise of the National Basketball Association*. Urbana: University of Illinois Press. Retrieved from eBook Collection (EBSCOhost)
53. Szymanski, S. and Ross, S. Governance and vertical integration in team sports, *Contemporary Economic Policy*, Vol. 25, No. 4: 616-626 (2007).

54. Toomey, T. Erickson, D. Lenk, K. & Kilian, G. Likelihood of Illegal Alcohol Sales at Professional Sport Stadiums, *Alcoholism: Clinical and Experimental Research*, Vol. 32, No. 11: 1859-1864, (2008)
55. Toomey, T. Erickson, D. Lenk, K. Kilian, G. Perry, C. & Wagenaar, A. A Randomized Trial to Evaluate a Management Training Program to Prevent Illegal Alcohol Sales, *Addiction*, Vol. 103, No. 3: 405-413. (2008).