Economic and Environmental Impacts of Sports League Transitions: A Case Study of the J.League

Topic: Input-output Analysis for Policy Making (1)
Author: Ryosuke Yamashita
Co-Authors: Haruka Toda, Shigemi KAGAWA

In recent years, as Japan grapples with economic decline in its regional areas, the J.League, Japanâ€™s professional soccer league, has actively engaged in community-based initiatives. These efforts have significantly contributed to local and regional economies by increasing spectator attendance and promoting tourism. However, the environmental impact of travel and energy consumption associated with match events has become a pressing issue. This study aims to quantitatively analyze the effects of league transitions on regional economies and the environment, clarify the developmental potential of the soccer industry alongside its environmental challenges, and propose sustainable practices for league management.

As a case study, this research focuses on â€˜Avispa Fukuoka,â€™ a club that competed in the second-tier J2 League in 2015 and was promoted to the top-tier J1 League in 2016. The J.League consists of three tiers, from J1 at the top to J3 at the bottom, with promotion and relegation based on season results. Using the 2015 regional input-output table for Fukuoka Prefecture, we estimated the economic ripple effects and COâ‚‚ emissions associated with game spectatorship. This study focuses on tourism-related expenditures by spectators, specifically in the food and beverage, transportation, and accommodation sectors. Based on these data, we constructed a tourism consumption vector. Spectators were categorized into home and away supporters for a more detailed analysis. Data sources included the J.League data site, Fukuoka Prefectureâ€™s 2015 input-output table, Fukuoka Prefectureâ€™s Tourism Statistics, and the Environmental Load Data (3EID) Book from the National Institute for Environmental Studies.

To the best of our knowledge, this is the first comprehensive study to evaluate the economic ripple effects and COâ‚‚ emissions resulting from league transitions between different tiers, focusing on a soccer club. This study represents a pioneering effort to shed light on the contributions of the sports industry to a sustainable regional society.

First, the total annual number of spectators at Avispa Fukuoka's main stadium was 182,540 in 2015 and 218,576 in 2016. Although the number of matches differedâ€”21 in 2015 and 17 in 2016â€”the average number of spectators per match increased by approximately 50% from 2015 to 2016.

In terms of economic ripple effects, the impact generated by home spectators in 2015 was approximately Â¥1.67 billion, while that of away spectators reached Â¥2.60 billion, totaling Â¥4.27 billion. In 2016, home spectators contributed Â¥1.83 billion, and away spectators Â¥3.16 billion, bringing the total to Â¥4.99 billionâ€”a year-on-year increase of approximately Â¥720 million (16.9%). Notably, away spectators had a significantly higher economic impact, with an average per-capita effect of Â¥70,974 compared to Â¥10,530 for home spectators, nearly seven times higher.

Regarding COâ‚‚ emissions induced by spectator consumption, total emissions were 7,977 tons in 2015 and 9,063 tons in 2016, marking an increase of 1,086 tons (+13.6%). In 2015, home spectators accounted for approximately 3,700 tons, while away spectators accounted for 4,260 tons. In 2016, these figures rose to 4,000 tons and 5,100 tons, respectively, with away spectators comprising about 56% of total emissions, indicating a high environmental burden. A breakdown reveals that the energy, transportation, and accommodation sectors accounted for a large share,

with transportation alone responsible for about 45% of total COâ‚‚ emissions. The per-capita COâ‚‚ emissions for home spectators was 0.02 t-COâ‚‚, while for away spectators, it was 0.11 t-COâ‚‚, nearly five times higher.

These results highlight that while league promotion in the J.League generates significant economic benefits, it also leads to a considerable increase in COâ‚‚ emissions. Emissions related to transportation are particularly severe and represent a key area of concern. Addressing these trade-offs is crucial for sustainable league management.