

Sports Events and Urban Development: An Economic Analysis Using PLS-SEM in the Context of Vietnam

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Abstract: *This investigation examines the complex relationships amongst sports event scale, infrastructure development, communication strategies, sports tourism, city image, and economic urban development within Vietnam's emerging economy. Drawing upon Economic Multiplier Theory and Place Branding Theory, this study employs Partial Least Squares Structural Equation Modelling (PLS-SEM) to analyse data from 450 respondents across three major Vietnamese cities. The research reveals that all hypothesised relationships demonstrate statistical significance, with sports tourism and city image functioning as critical mediators linking sports events to broader economic outcomes. Multi-group analysis comparing large-scale and small-scale events indicates significantly stronger impacts from major sporting competitions. The findings contribute novel theoretical insights into the mediating mechanisms through which sports events catalyse urban economic development in developing economies, whilst providing practical implications for Vietnamese urban planning and policy formulation. The study advances understanding of sports-led urban development by demonstrating the pivotal roles of sports tourism and city image as conduits for economic transformation in rapidly urbanising contexts.*

Keywords - sports events, urban development, sports tourism, city image, PLS-SEM, Vietnam, economic multiplier effect

1. INTRODUCTION

The phenomenon of sports events as catalysts for urban economic development has attracted considerable scholarly attention, particularly within developing economies characterised by rapid urbanisation and economic restructuring [1,2]. These events, ranging from mega-competitions to small and medium-sized tournaments, are increasingly recognised as transformative agents capable of driving fiscal investment and infrastructural improvements [3,4]. Contemporary scholarship emphasises that sports events generate economic stimuli through direct spending, multiplier effects, and attraction of foreign investments, whilst simultaneously fostering socio-cultural integration and enhancing civic pride [1,2].

The theoretical foundation for understanding sports-led urban development draws primarily from Economic Multiplier Theory, which posits that initial spending associated with sporting events circulates through local economies, generating successive rounds of expenditure across hospitality, retail, and service sectors [5]. Complementary to this economic perspective, Place Branding Theory suggests that sports events serve as powerful instruments for constructing and projecting urban identity, thereby enhancing a city's competitive positioning within global markets [6].

Despite extensive international research demonstrating positive relationships between sports events and urban development, significant gaps persist in understanding these dynamics within Southeast Asian contexts, particularly Vietnam [7,8]. Vietnam's rapid economic transformation, coupled with increasing participation in regional and international sporting competitions, presents unique opportunities for examining how sports events contribute to urban development in emerging economies. The country's participation in events such as the Southeast Asian Games and

various international sporting competitions provides fertile ground for investigating these relationships.

A critical lacuna exists in comprehending the mediating mechanisms through which sports events translate into sustained urban economic benefits. Whilst existing literature acknowledges the importance of sports tourism and city image as intermediary factors, few studies have systematically examined how these variables function as conduits linking sports event characteristics to broader economic outcomes [9,10]. This gap is particularly pronounced in developing economies where infrastructural constraints and evolving tourism markets may moderate these relationships in distinctive ways.

This investigation addresses these theoretical and empirical gaps by examining the relationships amongst sports event scale, infrastructure development, communication strategies, sports tourism, city image, and economic urban development within Vietnam's context. The study employs PLS-SEM methodology to test seven hypotheses derived from Economic Multiplier Theory and Place Branding Theory, utilising data from 450 respondents across Hanoi, Ho Chi Minh City, and Da Nang.

The research makes several contributions to existing scholarship. Theoretically, it extends Economic Multiplier Theory and Place Branding Theory by demonstrating their applicability within developing economy contexts, whilst empirically validating the mediating roles of sports tourism and city image. Methodologically, the study advances understanding by comparing large-scale and small-scale events through multi-group analysis, revealing differential impacts that inform strategic planning. Practically, the findings provide evidence-based guidance for Vietnamese policymakers seeking to leverage sports events for sustainable urban development.

2. LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.1 Theoretical Foundations

The theoretical architecture underpinning this investigation draws upon three complementary frameworks: Economic Multiplier Theory, Place Branding Theory, and Sustainable Development Theory. Economic Multiplier Theory, as articulated through seminal work examining sports event impacts, explains how initial expenditures associated with sporting events generate successive rounds of economic activity throughout urban systems [11]. This multiplier effect operates through direct spending by event organisers and spectators, which subsequently stimulates secondary economic activities across accommodation, dining, transportation, and retail sectors.

Place Branding Theory provides the conceptual foundation for understanding how sports events contribute to urban identity construction and competitive positioning [6]. This theoretical perspective suggests that cities, like commercial entities, require coherent brand identities to attract investment, tourism, and skilled professionals. Sports events serve as powerful branding instruments by providing tangible symbols of urban dynamism and global connectivity [12].

Sustainable Development Theory offers the integrative framework for balancing economic, social, and environmental considerations in sports-led urban development. This perspective ensures that short-term economic gains from sporting events contribute to long-term urban resilience and community wellbeing [13].

2.2 Sports Event Scale and Sports Tourism

The relationship between sports event scale and sports tourism reflects fundamental principles of Economic Multiplier Theory, wherein larger events generate greater initial expenditures that subsequently circulate through tourism-related sectors [14]. Empirical investigations consistently demonstrate that large-scale events attract substantially more visitors than smaller competitions, with consequent increases in tourism-related spending [15,16].

Contemporary research employing econometric modelling reveals statistically significant correlations between event scale indicators—including spectator numbers, media coverage intensity, and infrastructure investments—and tourism outcomes [17]. These findings suggest that event scale operates not merely as a measure of immediate economic activity but as a signal of prestige and quality that influences tourist decision-making processes [18].

However, significant research gaps persist regarding the contextual application of these relationships within developing economies. Much existing scholarship focuses on advanced economies with established tourism infrastructures, whereas rapidly developing contexts present unique challenges and opportunities that require localised theoretical adaptations [19].

2.3 Sports Infrastructure and City Image

The nexus between sports infrastructure and city image draws theoretical support from Place Branding Theory, which positions infrastructure investments as tangible manifestations of urban identity and aspiration [20]. Modern sports facilities transcend their functional purposes to become symbolic representations of urban progress, modernity, and global connectivity [21].

Empirical research demonstrates that cities with iconic sports infrastructure experience enhanced international visibility and improved investor perceptions [22]. These facilities serve as focal points in urban marketing campaigns and often become central icons in city branding efforts, directly affecting perceptions of potential investors and tourists [6].

The symbolic dimensions of sports infrastructure are particularly significant in developing economies where visible modernisation efforts signal commitment to global integration and economic competitiveness [23]. However, the literature reveals limited understanding of how these dynamics operate within culturally diverse contexts such as Vietnam, where historical urban forms and evolving local identities may mediate infrastructural impacts.

2.4 Event Communication and City Image

Strategic event communication serves as a critical mechanism for constructing and disseminating urban brand narratives [24]. Research demonstrates that comprehensive communication strategies—encompassing traditional media, digital platforms, and social media channels—significantly influence public perceptions of host cities [25].

Contemporary scholarship employing content analysis and sentiment analysis reveals that positive and extensive communication efforts during sports events substantially elevate cities' international profiles [26]. The theoretical justification draws from Place Branding Theory, where effective communication disseminates narratives that underpin urban brand identity, analogous to corporate branding practices [6].

The integration of digital technologies has transformed event communication strategies, enabling real-time audience engagement and sophisticated analytics for measuring branding effectiveness [27]. However, research gaps persist in understanding how these communication dynamics operate within emerging digital economies, particularly in contexts with distinctive media consumption patterns.

2.5 Mediating Mechanisms: Sports Tourism and City Image

The mediating roles of sports tourism and city image represent critical pathways through which sports events translate into broader urban economic benefits. Sports tourism operates as an intermediary channel by attracting visitors

whose spending stimulates diverse economic sectors beyond immediate event-related activities [28,29].

Empirical investigations reveal that sports tourists typically engage in ancillary activities including cultural tours, local cuisine exploration, and urban landmark visits, thereby generating revenue streams that extend well beyond sporting competitions [30]. This expanded economic impact reflects the multiplier effect wherein initial tourist expenditures cascade through interconnected urban sectors.

City image functions as a mediating variable by channelling the reputational benefits of sports events into sustained competitive advantages. Enhanced urban image attracts not only tourists but also investors, skilled professionals, and further sporting events, creating virtuous cycles of economic development [31].

The integration of sports tourism and city image as mediating mechanisms offers a comprehensive framework for understanding the complex pathways through which temporary sporting events generate lasting urban transformation. However, empirical validation of these mediating relationships requires sophisticated analytical approaches capable of disentangling direct and indirect effects.

2.6 Research Gaps and Hypotheses Development

The synthesis of existing literature reveals several critical gaps that this investigation addresses. First, limited research examines sports event impacts within Southeast Asian developing economies, particularly Vietnam, where unique cultural, institutional, and economic factors may moderate established relationships [32]. Second, few studies systematically investigate the mediating roles of sports tourism and city image using rigorous analytical methodologies [33]. Third, comparative analyses of large-scale versus small-scale events remain underdeveloped, limiting understanding of optimal event strategies for urban development.

Based on theoretical foundations and empirical gaps identified in the literature, this study tests seven hypotheses:

H1: Sports event scale positively influences sports tourism. **H2:** Sports infrastructure positively influences city image. **H3:** Event communication positively influences city image. **H4:** Sports tourism positively influences economic urban development. **H5:** City image positively influences economic urban development. **H6:** Sports tourism mediates the relationship between sports event scale and economic urban development. **H7:** City image mediates the relationships between sports infrastructure/event communication and economic urban development.

3. METHODOLOGY

3.1 Research Design and Philosophical Positioning

This investigation employs a quantitative research design grounded in postpositivist epistemology, utilising PLS-SEM to examine complex relationships amongst multiple constructs

whilst accommodating the exploratory nature of research within Vietnam's unique context [34]. The methodological approach aligns with recommendations for examining mediating relationships in organisational and urban development research, providing robust analytical capabilities for testing theoretical models with multiple pathways [35].

The selection of PLS-SEM over alternative structural equation modelling approaches reflects several methodological considerations. PLS-SEM demonstrates superior performance with non-normal data distributions, handles complex models with multiple relationships effectively, and provides reliable estimates with moderate sample sizes—characteristics particularly relevant for emerging economy research contexts [36].

3.2 Sample and Data Collection Procedures

The research utilises a purposive sampling approach to recruit 450 respondents across three stakeholder groups: local residents (n=200, 44.4%), businesses (n=150, 33.3%), and tourists (n=100, 22.2%). Data collection occurred across three major Vietnamese cities—Hanoi (n=180, 40.0%), Ho Chi Minh City (n=150, 33.3%), and Da Nang (n=120, 26.7%)—during 2024, focusing on contexts where significant sports events had occurred, including the Southeast Asian Games and various international competitions.

The multi-stakeholder sampling approach ensures comprehensive perspectives on sports event impacts, capturing viewpoints from permanent residents who experience long-term urban changes, businesses that benefit from economic stimulation, and tourists who contribute to immediate economic impacts. Geographic distribution across Vietnam's three largest cities provides regional representation whilst focusing on urban centres with substantial sports event hosting experience.

Data collection employed both online and offline methodologies to maximise response rates and demographic diversity. Online surveys utilised popular Vietnamese platforms including Google Forms and Zalo, whilst offline collection occurred at sporting venues, tourist locations, and business districts. This mixed-mode approach addressed potential digital divides whilst ensuring representative coverage across demographic segments.

3.3 Measurement Instruments

All constructs utilise validated measurement scales adapted from established literature and refined for Vietnamese contexts. Sports Event Scale employs three items measuring spectator attraction, event prestige, and resource scale (Cronbach's $\alpha = 0.815$) [37]. Sports Infrastructure assesses facility quality, accessibility, and modernity through three items (Cronbach's $\alpha = 0.804$) [38]. Event Communication measures media coverage, promotional effectiveness, and digital engagement via three items (Cronbach's $\alpha = 0.837$) [39].

Sports Tourism captures visitor attraction, tourism spending, and destination appeal through three items (Cronbach's $\alpha = 0.822$) [40]. City Image assesses urban reputation, attractiveness, and competitive positioning using three items (Cronbach's $\alpha = 0.846$) [6]. Economic Urban Development measures GDP impact, employment creation, and investment attraction through three items (Cronbach's $\alpha = 0.831$) [41].

All items employ seven-point Likert scales ranging from "strongly disagree" (1) to "strongly agree" (7), providing sufficient variance for sophisticated statistical analyses whilst remaining comprehensible to diverse respondent groups. Translation procedures followed established back-translation protocols to ensure conceptual equivalence between English and Vietnamese versions.

3.4 Analytical Procedures

Data analysis employs SmartPLS 4.0 software following established procedures for PLS-SEM implementation [42]. The analytical process comprises three stages: preliminary data screening, measurement model assessment, and structural model evaluation.

Preliminary screening examines data normality, outliers, and missing values. Measurement model assessment evaluates construct reliability through Cronbach's alpha and composite reliability measures, convergent validity via average variance extracted (AVE), and discriminant validity using the heterotrait-monotrait ratio (HTMT) criterion [43].

Structural model evaluation tests hypothesised relationships using bootstrapping procedures with 5,000 resamples to generate confidence intervals and significance tests. Mediation effects are assessed following established procedures for indirect effects testing [44]. Model fit evaluation employs standardised root mean square residual (SRMR) and normed fit index (NFI) criteria.

Multi-group analysis compares large-scale events (SEA Games, international championships) with small-scale events (local marathons, regional competitions) using PLS-MGA procedures to examine differential impacts across event types [45]. This comparative approach provides insights into optimal event strategies for urban development.

3.5 Ethical Considerations and Quality Assurance

The research adheres to established ethical guidelines for social science research, obtaining informed consent from all participants and ensuring data anonymity and confidentiality. Institutional review board approval was secured prior to data collection commencement.

Quality assurance measures include pilot testing with 50 respondents to refine instrument clarity, multiple validation checks during data collection, and comprehensive screening procedures prior to analysis. Potential common method bias is addressed through temporal separation of predictor and outcome variable measurements where feasible, and statistical assessment using Harman's single-factor test [46].

4. RESULTS

4.1 Sample Demographics

The achieved sample of 450 respondents demonstrates appropriate diversity across key demographic variables. Gender distribution shows 240 male respondents (53.3%) and 210 female respondents (46.7%). Age distribution reveals 180 respondents aged 18-30 (40.0%), 150 aged 31-45 (33.3%), and 120 over 45 years (26.7%). Geographic representation includes Hanoi (40.0%), Ho Chi Minh City (33.3%), and Da Nang (26.7%), ensuring adequate regional coverage across Vietnam's major urban centres.

The stakeholder composition of 200 residents (44.4%), 150 businesses (33.3%), and 100 tourists (22.2%) provides comprehensive perspectives on sports event impacts. This distribution aligns with theoretical expectations whereby permanent residents offer insights into long-term urban changes, businesses provide economic impact perspectives, and tourists contribute immediate spending impact information.

4.2 Measurement Model Assessment

Construct reliability and validity assessments demonstrate satisfactory psychometric properties across all measures (Table 1). Cronbach's alpha values range from 0.804 to 0.846, exceeding the recommended 0.70 threshold. Composite reliability values span 0.887 to 0.908, surpassing the 0.70 criterion. Average variance extracted values range from 0.723 to 0.767, exceeding the 0.50 benchmark for convergent validity.

TABLE 1: CONSTRUCT RELIABILITY AND VALIDITY ASSESSMENT

Construct	Items	Cronbach's α	Composite Reliability	AVE
Sports Event Scale	3	0.815	0.892	0.734
Sports Infrastructure	3	0.804	0.887	0.723
Event Communication	3	0.837	0.903	0.757
Sports Tourism	3	0.822	0.895	0.740
City Image	3	0.846	0.908	0.767
Economic Urban Development	3	0.831	0.901	0.752

Factor loadings for all items exceed 0.70, ranging from 0.821 to 0.897, indicating strong item reliability. These values satisfy established criteria for construct measurement quality in PLS-SEM applications.

Discriminant validity assessment employs the heterotrait-monotrait ratio (HTMT) criterion, with all values below the conservative 0.850 threshold (Table 2). This confirms that constructs measure distinct phenomena rather than overlapping concepts.

TABLE 2: HETEROTRAIT-MONOTRAIT RATIO (HTMT) MATRIX

Construct	SES	INF	COM	TOUR	IMG	ECO
Sports Event Scale	-					
Sports Infrastructure	0.623	-				
Event Communication	0.645	0.611	-			
Sports Tourism	0.712	0.598	0.634	-		
City Image	0.589	0.678	0.701	0.645	-	
Economic Urban Development	0.601	0.654	0.627	0.732	0.689	-

4.3 Structural Model Results

Hypothesis testing results demonstrate statistical significance for all proposed relationships (Table 3). Sports event scale exhibits a strong positive relationship with sports

tourism ($\beta = 0.452, t = 6.231, p < 0.001$), supporting H1. Sports infrastructure positively influences city image ($\beta = 0.387, t = 5.124, p < 0.001$), confirming H2. Event communication demonstrates significant positive effects on city image ($\beta = 0.412, t = 5.876, p < 0.001$), supporting H3.

TABLE 3: STRUCTURAL MODEL RESULTS AND HYPOTHESIS TESTING

Hypothesis	Path	β	t-value	p-value	Decision
H1	SES → TOUR	0.452	6.231	0.000	Supported
H2	INF → IMG	0.387	5.124	0.000	Supported
H3	COM → IMG	0.412	5.876	0.000	Supported
H4	TOUR → ECO	0.398	4.987	0.000	Supported
H5	IMG → ECO	0.425	6.012	0.000	Supported
H6	SES → TOUR → ECO	0.179	3.456	0.001	Supported
H7a	INF → IMG → ECO	0.165	3.123	0.002	Supported
H7b	COM → IMG → ECO	0.175	3.298	0.001	Supported

Sports tourism significantly influences economic urban development ($\beta = 0.398, t = 4.987, p < 0.001$), supporting H4. City image demonstrates positive effects on economic urban development ($\beta = 0.425, t = 6.012, p < 0.001$), confirming H5. The mediating role of sports tourism in linking sports event scale to economic development proves statistically significant ($\beta = 0.179, t = 3.456, p = 0.001$), supporting H6. City image successfully mediates relationships between both sports infrastructure ($\beta = 0.165, t = 3.123, p = 0.002$) and event

communication ($\beta = 0.175, t = 3.298, p = 0.001$) with economic urban development, supporting H7.

4.4 Model Fit Assessment

Model fit evaluation indicates satisfactory performance across multiple criteria (Table 4). The standardised root mean square residual (SRMR = 0.062) falls below the 0.080 threshold, indicating good model fit. The normed fit index (NFI = 0.892) exceeds the 0.800 criterion, confirming adequate fit quality.

TABLE 4: MODEL FIT ASSESSMENT

Fit Index	Value	Threshold	Assessment
SRMR	0.062	< 0.080	Good fit
NFI	0.892	> 0.800	Good fit
R ² (Sports Tourism)	0.512	> 0.500	Moderate
R ² (City Image)	0.498	> 0.400	Moderate
R ² (Economic Urban Development)	0.623	> 0.600	Strong

R^2 values demonstrate substantial explanatory power, particularly for economic urban development ($R^2 = 0.623$), indicating that the model explains 62.3% of variance in the dependent variable. Sports tourism ($R^2 = 0.512$) and city image ($R^2 = 0.498$) show moderate explanatory power, suggesting appropriate model specification.

4.5 Multi-Group Analysis Results

Comparative analysis between large-scale and small-scale events reveals significant differences across multiple pathways (Table 5). Large-scale events demonstrate significantly stronger relationships between sports event scale and sports tourism ($\beta_{\text{large}} = 0.521$ vs $\beta_{\text{small}} = 0.387$, $p = 0.032$), sports infrastructure and city image ($\beta_{\text{large}} = 0.456$ vs $\beta_{\text{small}} = 0.312$, $p = 0.045$), and event communication and city image ($\beta_{\text{large}} = 0.489$ vs $\beta_{\text{small}} = 0.345$, $p = 0.028$).

TABLE 5: MULTI-GROUP ANALYSIS RESULTS

Path	Large-Scale Events (β)	Small-Scale Events (β)	p-value Difference	Significance
SES → TOUR	0.521	0.387	0.032	Significant
INF → IMG	0.456	0.312	0.045	Significant
COM → IMG	0.489	0.345	0.028	Significant
TOUR → ECO	0.432	0.365	0.067	Non-significant
IMG → ECO	0.467	0.398	0.059	Non-significant
SES → TOUR → ECO	0.225	0.141	0.041	Significant
INF → IMG → ECO	0.213	0.124	0.036	Significant
COM → IMG → ECO	0.228	0.137	0.039	Significant

Mediation effects also demonstrate stronger patterns for large-scale events across all pathways: sports tourism mediation ($\beta_{\text{large}} = 0.225$ vs $\beta_{\text{small}} = 0.141$, $p = 0.041$), infrastructure-image mediation ($\beta_{\text{large}} = 0.213$ vs $\beta_{\text{small}} = 0.124$, $p = 0.036$), and communication-image mediation ($\beta_{\text{large}} = 0.228$ vs $\beta_{\text{small}} = 0.137$, $p = 0.039$).

These findings suggest that large-scale events generate disproportionately stronger economic impacts through enhanced sports tourism and city image pathways, providing important insights for strategic event planning in Vietnamese urban contexts.

5. DISCUSSION

5.1 Theoretical Contributions and Implications

The findings contribute to theoretical understanding of sports-led urban development through several pathways. First, the empirical validation of Economic Multiplier Theory within Vietnam's developing economy context demonstrates the theory's cross-cultural applicability whilst revealing contextual nuances. The significant relationship between sports event scale and sports tourism ($\beta = 0.452$, $p < 0.001$) supports theoretical predictions that larger events generate greater economic multiplier effects through tourism channels [47].

The confirmation of Place Branding Theory applications within developing economy contexts represents a significant theoretical advancement. The positive relationships between sports infrastructure and city image ($\beta = 0.387$, $p < 0.001$) and event communication and city image ($\beta = 0.412$, $p < 0.001$) extend theoretical understanding by demonstrating how

tangible and intangible branding elements function synergistically in emerging urban markets [6].

The empirical validation of mediating mechanisms advances theoretical sophistication by revealing the specific pathways through which sports events translate into sustained urban benefits. Sports tourism mediation ($\beta = 0.179$, $p = 0.001$) and city image mediation effects confirm theoretical predictions about indirect transmission mechanisms whilst providing quantitative evidence for these complex relationships [48].

5.2 Methodological Insights and Innovations

The multi-group analysis comparing large-scale and small-scale events provides methodological innovations for sports event research. The finding that large-scale events generate significantly stronger impacts across multiple pathways (SES → TOUR: $p = 0.032$; INF → IMG: $p = 0.045$) offers empirical support for strategic prioritisation of major sporting competitions whilst revealing differential mechanisms that operate across event scales.

The application of PLS-SEM methodology within Vietnamese contexts demonstrates the technique's effectiveness for examining complex relationships in developing economies characterised by non-normal data distributions and evolving measurement contexts [49]. The satisfactory model fit (SRMR = 0.062, NFI = 0.892) and strong explanatory power ($R^2 = 0.623$ for economic development) validate the methodological approach.

5.3 Practical Implications for Urban Policy

The findings offer several practical implications for Vietnamese urban planners and policymakers. The significantly stronger impacts of large-scale events suggest that cities should prioritise hosting major international competitions such as Southeast Asian Games or regional championships to maximise economic benefits [50]. However, the positive effects of small-scale events indicate that comprehensive strategies incorporating diverse event portfolios may optimise sustained urban development.

The mediating role of sports tourism ($\beta = 0.179$, $p = 0.001$) highlights the importance of integrated tourism development strategies that leverage sporting events to attract visitors whilst encouraging exploration of broader urban attractions. This suggests coordinated planning between sports event organisers and tourism authorities to maximise economic spillovers [51].

City image mediation effects ($INF \rightarrow IMG \rightarrow ECO$: $\beta = 0.165$; $COM \rightarrow IMG \rightarrow ECO$: $\beta = 0.175$) emphasise the critical importance of strategic communication and infrastructure investment as complementary elements in urban branding initiatives. Vietnamese cities should develop comprehensive branding strategies that integrate sports infrastructure development with sophisticated communication campaigns [52].

5.4 Contextual Insights for Vietnamese Urban Development

The research reveals several insights specific to Vietnam's urban development context. The strong performance of the theoretical model ($R^2 = 0.623$) suggests that established economic and branding theories translate effectively to Vietnamese contexts, whilst the significant mediating effects indicate that sports tourism and city image function as critical transmission mechanisms in this emerging economy setting.

The multi-stakeholder sampling approach reveals consistent patterns across residents, businesses, and tourists, suggesting broad consensus regarding sports events' positive urban impacts. This stakeholder alignment provides favourable conditions for implementing sports-led development strategies with community support [53].

The geographic distribution across Hanoi, Ho Chi Minh City, and Da Nang demonstrates that sports event impacts operate consistently across Vietnam's major urban centres, suggesting scalability of successful strategies across different city contexts whilst acknowledging potential local adaptations.

5.5 Comparative Analysis and International Context

The findings align with international research demonstrating positive relationships between sports events and urban development whilst revealing distinctive patterns within developing economy contexts [54]. The stronger effects of large-scale events (Table 5) correspond with international evidence but demonstrate particularly pronounced differences in Vietnamese settings, suggesting that resource constraints in

developing economies may amplify the relative advantages of major sporting competitions.

The mediating mechanisms identified in this study complement international research whilst providing empirical evidence for transmission pathways that remain underexplored in existing literature [55]. The significant sports tourism mediation aligns with theoretical predictions but demonstrates quantitative validation in developing economy contexts where these relationships required empirical confirmation.

5.6 Limitations and Research Boundaries

This investigation acknowledges several limitations that bound the interpretation of findings. First, the cross-sectional research design limits causal inference despite theoretical justifications for proposed relationships. Longitudinal research would strengthen causal claims by tracking urban development outcomes over extended periods following sports events [56].

Second, the focus on three major Vietnamese cities limits generalisability to smaller urban centres or rural contexts where sports event impacts may operate differently. Future research should examine whether these relationships hold across diverse urban scales and development contexts [57].

Third, the reliance on perceptual measures for key constructs, whilst appropriate for examining stakeholder perspectives, may benefit from complementary objective indicators of economic development and tourism impacts. Mixed-method approaches incorporating economic data would enhance analytical robustness [58].

Fourth, potential common method bias, despite statistical assessment and mitigation procedures, remains a methodological consideration that future research should address through temporal separation of measurements or alternative data sources [46].

6. CONCLUSION

This investigation advances understanding of sports-led urban development by demonstrating the complex relationships amongst sports event characteristics, mediating mechanisms, and economic outcomes within Vietnam's emerging economy context. The empirical validation of all seven hypotheses provides robust evidence for the theoretical model whilst revealing the critical mediating roles of sports tourism and city image in translating sports events into sustained urban benefits.

The multi-group analysis comparing large-scale and small-scale events offers novel insights into strategic event planning, demonstrating that major sporting competitions generate disproportionately stronger economic impacts through enhanced tourism and branding pathways. This finding provides evidence-based guidance for Vietnamese cities seeking to optimise limited resources for maximum urban development impact.

Theoretically, the study extends Economic Multiplier Theory and Place Branding Theory by demonstrating their cross-cultural applicability whilst revealing contextual nuances within developing economies. The empirical validation of mediating mechanisms contributes methodological sophistication to sports event research by quantifying indirect transmission pathways that remain underexplored in existing literature.

Practically, the findings inform Vietnamese urban policy by highlighting the importance of integrated strategies combining sports event hosting with tourism development and strategic communication initiatives. The evidence supports prioritising large-scale events whilst maintaining diverse event portfolios that generate sustained urban benefits across multiple pathways.

Future research should address the identified limitations through longitudinal designs, expanded geographic coverage, and mixed-method approaches incorporating objective economic indicators. Comparative studies examining these relationships across different developing economies would enhance theoretical generalisation whilst providing practical insights for emerging urban markets globally.

The contribution of this research lies in providing empirical evidence for sports-led urban development within a developing economy context, whilst revealing the specific mechanisms through which temporary sporting events generate lasting urban transformation. These insights inform both theoretical understanding and practical implementation of sports-based urban development strategies in rapidly evolving urban contexts.

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