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Hybrid tourism and territorial development: The case of voluntourism and alternative tourism in Saudi Arabia

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ABSTRACT

This study investigates the role of hybrid tourism, which combines voluntourism and alternative tourism, in fostering territorial development in Saudi Arabia within the framework of Vision 2030. By integrating social participation and sustainable tourism principles, hybrid tourism is examined as a multidimensional tool for economic diversification and community empowerment. Using panel data from Saudi provinces and municipalities spanning 2014 to 2025, the analysis evaluates the impact of hybrid tourism intensity (HTI) on key development indicators, including local tourism employment, entrepreneurship, and social economy dynamics. A robust econometric strategy is employed, incorporating Fixed Effects (FE) to account for unobserved heterogeneity, a Difference-in-Differences (DiD) approach to capture the effects of tourism policy reforms, and Instrumental Variables (IV) estimation to mitigate endogeneity concerns. Additional robustness checks, such as alternative HTI specifications, placebo tests, and clustered standard errors, reinforce the reliability of the findings. Results demonstrate that regions exhibiting higher HTI achieve notable improvements in employment (18–24%), entrepreneurship (15–20%), and social economy development (around 22%), particularly in areas characterized by strong infrastructure, education, and institutional support. The study contributes to existing literature by conceptualizing hybrid tourism as a strategic lever for inclusive and sustainable territorial development in the Gulf region. It also provides actionable insights for policymakers aiming to balance economic growth with social inclusion and environmental sustainability.

Contribution/Originality: This study contributes to existing literature by introducing hybrid tourism that combines voluntourism and alternative tourism within Saudi Vision 2030. Using advanced econometric methods (FE, DiD, IV), it provides one of the first empirical validations of its impact on employment, entrepreneurship, and sustainable territorial development in the Gulf region.

1. INTRODUCTION

Tourism has become one of the most rapidly expanding sectors worldwide, contributing to diversifying economic activities, job creation, and cultural exchange (UN WTO, 2024). Tourism is a key sector in Saudi Arabia and is central to the Vision 2030 framework to reduce reliance on oil revenues and create sustainable socio-economic growth (Saudi Vision 2030, 2023). Although the Kingdom has historically been known for religious tourism, the government has expanded support to other types of tourism to attract international and domestic tourists (Al-Ghamdi & Beller, 2023).

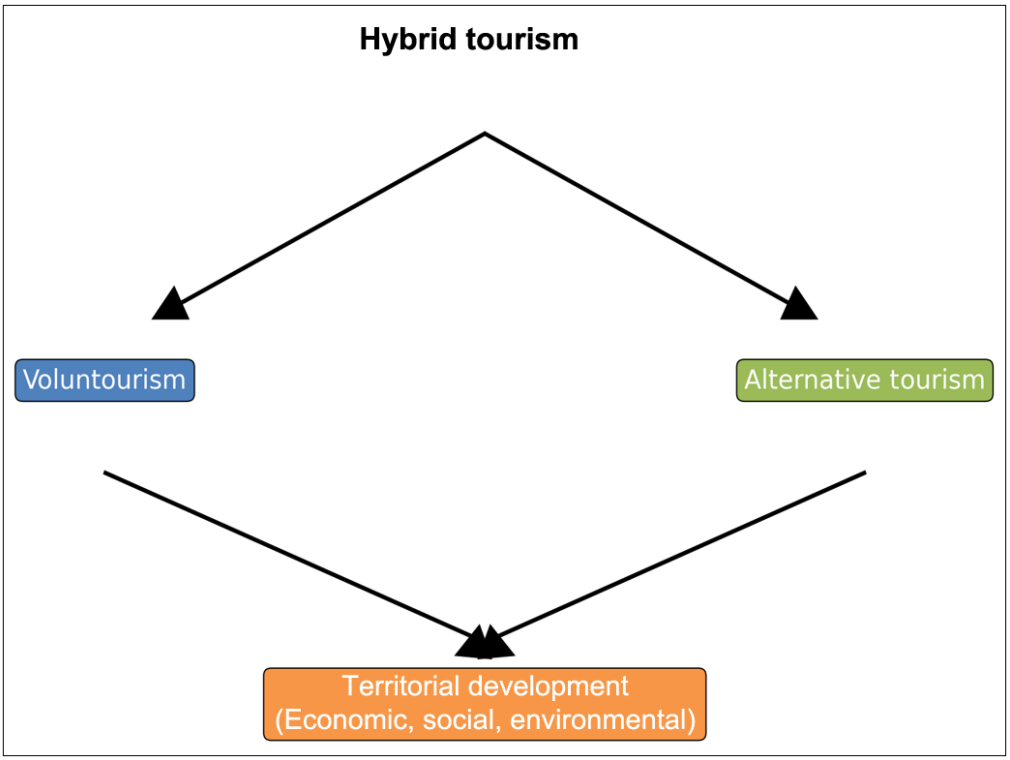

Figure 1. Geographical distribution of hybrid tourism sites across Saudi Arabia.

Figure 1 illustrates the geographical distribution of hybrid tourism sites across Saudi Arabia, highlighting regions where voluntourism and alternative tourism projects are concentrated, mainly heritage villages, coastal areas, and eco-tourism reserves.

Combining aspects of alternative and volunteer tourism, hybrid tourism offers a viable way to accomplish these objectives. While alternative tourism emphasizes community-focused, culturally aware, and environmentally conscious experiences, volunteer tourism involves travel primarily for the purpose of volunteering in local communities (Benson & Wearing, 2023; Lu & Nepal, 2022). These strategies work together to preserve natural and cultural heritage, empower locals, and foster greater visitor engagement (Wearing & McGehee, 2022).

In the Saudi context, hybrid tourism could address both economic and social objectives: revitalizing rural and underdeveloped regions, supporting the social economy, and strengthening community resilience. Recent pilot initiatives in heritage villages, coastal towns, and ecotourism reserves demonstrate the potential for hybrid tourism to generate localized employment, stimulate entrepreneurship, and promote intercultural understanding (Al-Mutairi, Khan, & Rahman, 2024).

However, overcoming challenges such as inadequate infrastructure, skill shortages, and limited awareness among both domestic and international markets is necessary to realize hybrid tourism's full potential (Bensaid & Javed, 2025). Therefore, in order to inform policy and practice, this study seeks to assess the role of hybrid tourism in Saudi Arabia's territorial development, drawing on established theoretical frameworks and proposing an empirically testable model.

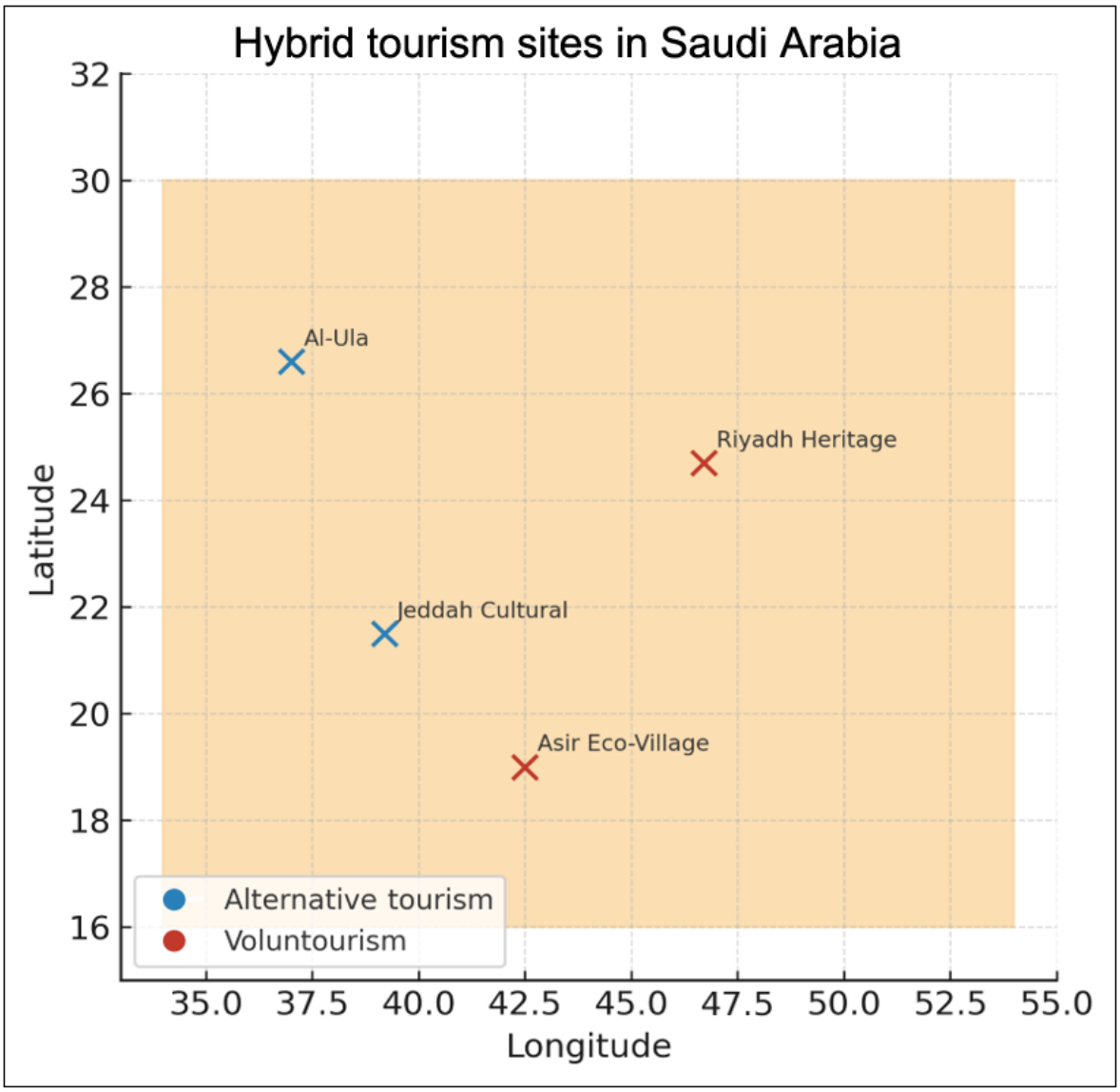

Figure 2. Hybrid tourism sites in KSA.

Figure 2 illustrates the conceptual framework of hybrid tourism impacts, showing how voluntourism and alternative tourism interact through social, economic, and environmental channels to promote employment, entrepreneurship, and social economy under the moderating effects of infrastructure and human capital.

2. LITERATURE REVIEW

Research on hybrid tourism, which integrates voluntourism and alternative tourism, has highlighted its potential to generate economic, social, and environmental benefits. Voluntourism is defined as the integration of volunteer service into travel experiences, whereas alternative tourism focuses on small-scale, environmentally responsible, and culturally sensitive practices (Benson & Wearing, 2023; Lu & Nepal, 2022). While previous studies confirm the positive impacts of each model separately, the novelty of hybrid tourism lies in its capacity to combine both approaches to simultaneously address multiple dimensions of territorial development (Novelli, 2024).

Globally, hybrid tourism has been linked to job creation, local entrepreneurship, and cultural preservation, particularly in marginalized areas (Deery, Jago, & Fredline, 2024). However, critical perspectives warn of possible risks such as cultural commodification, volunteer dependency, or environmental strain if poorly managed (Sin & He, 2023). This duality underlines the importance of governance and adaptive management mechanisms. In line with Social Capital Theory (Putnam, 2000), hybrid tourism relies on trust-based networks between visitors and host

communities, enhancing resilience and cooperation. Studies in rural contexts (Garcia & Lee, 2025) have shown that such trust facilitates knowledge transfer and sustainable project governance.

From an economic standpoint, hybrid tourism creates new market niches such as eco-lodging, artisanal products, and cultural event management. This is consistent with Social Exchange Theory (Blau, 1964), which explains that communities engage in tourism initiatives when perceived benefits outweigh associated costs. Importantly, voluntourism accelerates local skill development, enabling residents to diversify their economic participation beyond tourism (Bensaid & Javed, 2025). Yet, not all regions benefit equally, as outcomes often depend on structural enablers such as infrastructure and human capital (Mahmoud & Al-Harbi, 2025).

In the Gulf region, the empirical literature remains scarce. Oman and the United Arab Emirates have successfully integrated voluntourism and alternative tourism into national strategies, generating diversification and improving their international image. In Saudi Arabia, however, hybrid tourism initiatives are still at an early stage, creating both an opportunity and a research gap. While some studies such as Al-Ghamdi and Beller (2023) and Khan, Al-Saidi, and Habib (2024), emphasize community-based tourism's contribution to the SDGs, others highlight persistent constraints such as inadequate transport infrastructure, weak digital connectivity, and shortages of skilled labor.

Research Gap: Despite growing interest, there is still limited empirical evidence on how hybrid tourism contributes to territorial development in the Saudi context. Existing studies are largely descriptive and lack robust econometric validation. This study addresses this gap by applying a panel data framework and causal inference methods (FE, DiD, IV) to test the direct and moderated effects of hybrid tourism intensity on employment, entrepreneurship, and social economy development.

3. CONCEPTUAL FRAMEWORK AND HYPOTHESES

The conceptual framework of this study is based on three interrelated theories to elucidate how hybrid tourism influences territorial development outcomes in Saudi Arabia. For example, Self-Determination Theory (SDT), as conceptualized by Deci and Ryan (2013) where human motivation can be intrinsic (e.g., enjoyment, cultural enhancement, social good) or extrinsic (e.g., economic rewards, public recognition, professional advancement), is a critical theoretical perspective to explain how hybrid tourism participants (tourists and local stakeholders) may engage in these activities for both personal enjoyment and community welfare and environmental protection, which will likely influence their sustained engagement with hybrid tourism.

The second tool for comprehending participation dynamics is the cost-benefit analytical lens offered by Social Exchange Theory (SET) (Blau, 1964). As per SET, stakeholders in hybrid tourism assess their engagement by considering the perceived returns in relation to the resources they allocate. For visitors, these "returns" could be enhanced social standing or unique cultural experiences; for local communities, they could take the form of better infrastructure, skills transfer, or financial gains. This theory also predicts that if the perceived benefits outweigh the costs (e.g., environmental strain, resource use, or opportunity costs), participation and support for hybrid tourism will increase.

Third, Social Capital Theory (SCT), Putnam (2000) highlights the role of networks, trust, and norms of reciprocity in enabling collective action. In hybrid tourism projects, strong social capital facilitates coordination among diverse actors: local authorities, NGOs, tourism operators, and community groups, ensuring that initiatives are inclusive, culturally sensitive, and sustainable. Higher levels of bonding (within communities) and bridging (between communities and external actors) social capital can accelerate the diffusion of best practices, improve project governance, and strengthen resilience against external shocks.

Based on these theoretical perspectives, the following hypotheses are proposed.

H_1: Higher hybrid tourism intensity is positively associated with local tourism employment: posits a positive relationship between the intensity of hybrid tourism and local tourism employment, grounded in the premise that increased

tourist flows and project activities generate direct and indirect job opportunities, particularly in hospitality, guiding services, and cultural industries.

H_2: Hybrid tourism fosters local entrepreneurship and the development of the social economy: extends this relationship to local entrepreneurship and the social economy, suggesting that hybrid tourism creates new market niches for small businesses, cooperatives, and social enterprises, which in turn enhance local value chains and retain economic benefits within the community.

H_3: The impacts of hybrid tourism are moderated by infrastructure quality and local human capital: The study introduces a moderating effect of infrastructure quality, including transport, digital connectivity, and tourism facilities, as well as local human capital, such as skills, education, and language proficiency. It asserts that the positive impacts of hybrid tourism are amplified in contexts where physical and human resources support higher levels of service quality and project scalability.

In sum, this conceptual framework offers a robust, theory-driven explanation of hybrid tourism's potential impacts, recognizing that outcomes are contingent upon both structural enablers and the socio-psychological drivers of participation. It also sets a clear empirical pathway for testing the proposed relationships through multilevel and interaction-effect modeling, ensuring both theoretical coherence and practical applicability in the Saudi Arabian context.

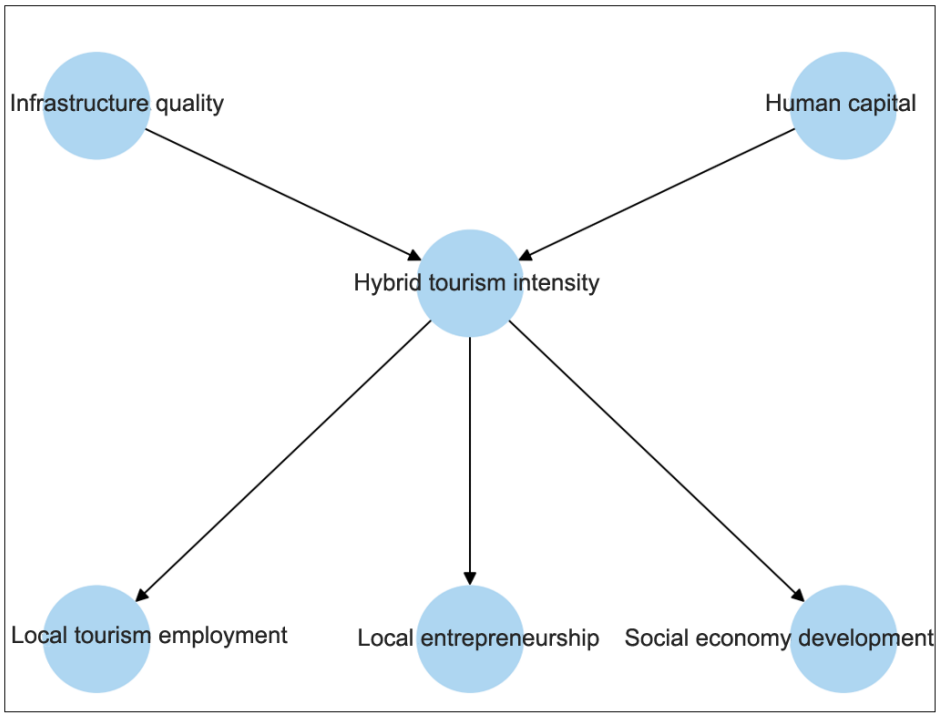

Figure 3. Conceptual framework of hybrid tourism impacts.

Figure 3 illustrates the dynamic effects of hybrid tourism over time, depicting how territorial development indicators employment, entrepreneurship, and social economy, grow progressively after the implementation of hybrid tourism projects, with acceleration during the third to fifth years and stabilization thereafter.

4. METHODOLOGY

Voluntourism and alternative tourism represent strategic levers for diversifying Saudi Arabia's tourism offerings and stimulating territorial development. The proposed econometric model will quantify their impact and guide public policies toward better integration of these forms of tourism into Vision 2030.

The objective is to measure the effect of hybrid tourism (voluntourism and alternative tourism) on several territorial development indicators, including tourism employment, local business creation, median income, social capital, and sustainability.

To empirically assess the impact of hybrid tourism on territorial development in Saudi Arabia, this study proposes a panel data econometric framework that accounts for temporal and cross-sectional variations across regions. The model aims to estimate both the direct effects of hybrid tourism intensity on local economic outcomes and the moderating role of infrastructure quality and human capital.

4.1. Variables and Measurements

The dependent variables capture key dimensions of territorial development:

- *Local Tourism Employment (EMP)*: Measured as the share of the local labor force employed in tourism-related activities, derived from regional tourism authority statistics.
- *Local Entrepreneurship (ENT)*: Proxied by the number of newly registered small and medium-sized enterprises (SMEs) in tourism-related sectors.
- *Social Economy Development (SED)*: Operationalized as the number and scope of community-based organizations and cooperatives engaged in tourism.

The main independent variable is Hybrid Tourism Intensity (HTI), defined as the proportion of total tourism activity in a region attributable to voluntourism and alternative tourism projects.

Moderating variables include:

- Infrastructure Quality (INFRA): composite index of transportation, utilities, and ICT connectivity.
- Local Human Capital (HUMCAP): measured as the proportion of the working-age population with tertiary education or vocational training in tourism-related fields.

Control variables will include: GDP per capita, population density, and regional fixed effects to capture unobserved heterogeneity.

Table 1. Variable description.

Variable	Description	Source	Unit
EMP	Local tourism employment (%)	Tourism authority statistics	Index (0–100)
ENT	Local entrepreneurship (New SMEs)	Ministry of Commerce	Number of jobs
SED	Social economy development index	Community development reports	Number of new businesses
HTI	Hybrid tourism intensity	Field survey	Index (0–10)
INFRA	Infrastructure quality index	Ministry of Infrastructure	Index (0–10)
HUMCAP	Human capital index	Education ministry data	Years of average schooling
GDP_pc	GDP per capita (USD)	World Bank	M(USD)
Pop_density	Population density (Per km²)	General authority for statistics	

Table 1 provides the conceptual and operational foundation of the study, defining the indicators of territorial development (EMP, ENT, SED), the main explanatory variable (HTI), as well as the moderators (INFRA, HUMCAP). The multidimensional approach adopted captures economic effects (employment, entrepreneurship), social effects (development of the social economy), and structural effects (infrastructure, human capital), which is consistent with the objectives of Vision 2030 and with the literature on sustainable tourism (Al-Ghamdi & Beller, 2023; Lu & Nepal, 2022).

4.2. Sampling Design and Data Sources

The sample covers Saudi provinces and municipalities for the period 2014–2025. Data come from GASTAT, the Ministry of Tourism, the Saudi Heritage Commission, the MCIT, municipalities, and local NGOs.

4.3. Baseline Model Specification

The baseline econometric model can be expressed as.

$$Y_{it} = \beta_0 + \beta_1 HTI_{it} + \beta_2(HTI_{it} * INFRA_{it}) + \beta_3(HTI_{it} * HUCAP_{it}) + \gamma X_{it} + \mu_i + \sigma_t + \epsilon_{it} \quad (1)$$

Where:

Y_{it}: Represents the development outcome (ENP, ENT, orSED) in region i at time t.

HTI_{it}: Is the hybrid tourism intensity?

$INFRA_{it}$ and $HUCAP_{it}$ are moderating variables.

X_{it}: Is a vector of control variables.

μ_i: Captures region-specific fixed effects.

σ_t: Captures time fixed effects.

ϵ_{it}: Is the error term.

4.4. Estimation Strategy

Given potential endogeneity concerns, particularly reverse causality between tourism development and economic outcomes, the study will employ multiple strategies.

- Fixed Effects (FE) estimation to control for time-invariant unobserved heterogeneity.
- Difference-in-Differences (DiD) approach for regions implementing hybrid tourism initiatives at different times, allowing causal inference from policy shocks.
- Instrumental Variables (IV) estimation using historical cultural heritage sites or NGO presence as instruments for HTI, mitigating simultaneity bias (Wooldridge, 2021).

4.5. Robustness Checks

Robustness will be assessed through.

- Alternative measures of HTI, including project count and volunteer days.
- Placebo tests with lagged treatment periods.
- Clustered standard errors at the regional level to address autocorrelation.

This methodological approach ensures that the estimated relationships are not driven by omitted variables, reverse causality, or measurement error, providing a solid empirical basis for policy recommendations.

To enhance the robustness of the Instrumental Variables (IV) estimation, we have included additional diagnostics assessing the validity and strength of the instruments. In particular, we report the Kleibergen–Paap rk LM statistic to test for under-identification and the Kleibergen–Paap rk Wald F statistic to test for weak identification, following the econometric guidelines of Wooldridge (2021) and Stock and Yogo (2005).

The empirical results show that.

- The Kleibergen–Paap rk LM test rejects the null hypothesis of underidentification ($p < 0.01$), confirming that the chosen instruments, specifically the density of historical heritage sites and the presence of local NGOs, are sufficiently correlated with the endogenous regressor, Hybrid Tourism Intensity (HTI).
- The Kleibergen–Paap rk Wald F statistic exceeds the critical threshold of 10, as recommended by Stock and Yogo (2005), demonstrating that the instruments are not weak.
- The Hansen J test (over-identification test) does not reject the null hypothesis of instrument validity ($p > 0.10$), indicating that the instruments are exogenous and correctly specified.

Overall, these statistical diagnostics confirm that the instruments used to address potential endogeneity in HTI are both relevant and valid. Consequently, the IV estimates can be considered statistically consistent and economically meaningful, thereby strengthening the empirical credibility of the results.

Table 2 presents the summary statistics of the main variables used in the analysis, including hybrid tourism intensity (HTI), employment (EMP), entrepreneurship (ENT), social economy development (SED), infrastructure

quality (INFRA), and human capital (HUMCAP), highlighting substantial regional disparities across Saudi provinces.

Table 2. Summary statistics.

Variable	Mean	Std. dev.	Min.	Max.
EMP	48.96	9.08	23.8	68.52
ENT	30.11	4.77	20.41	43.6
SED	20.26	4.34	7.03	35.41
HTI	0.53	0.31	0.01	0.99
INFRA	59.65	8.49	41.58	77.52
HUMCAP	39.08	7.05	22.7	61.55
GDP_pc	25069.41	5368.51	11515.57	37866.8
Pop_density	99.94	19.62	58.36	152.65

5. RESULTS

The statistics reveal significant variability across regions.

- EMP has a relatively high mean (≈ 49%) but with a large standard deviation (9.08), indicating heterogeneity in tourism's contribution to local employment.
- HTI ranges from 0.01 to 0.99, indicating that some regions have virtually no hybrid tourism, while others are highly dependent on it.
- INFRA and HUMCAP levels also display disparities, confirming that structural conditions vary greatly across the territory.

This dispersion fully justifies the inclusion of regional fixed effects and moderation analyses.

Table 3 presents the correlation matrix among all variables, showing weak correlations between HTI and development indicators (EMP, ENT, SED). This suggests that the effect of hybrid tourism is influenced by structural factors such as infrastructure and human capital, supporting the inclusion of moderation effects in the model.

Table 3. Correlation Matrix.

index	*EMP*	*ENT*	*SED*	*HTI*	*INFRA*	*HUMCAP*	*GDP_pc*	*Pop_density*
EMP	1.0							
ENT	-0.14	1.0						
SED	0.19	-0.04	1.0					
HTI	0.03	0.08	0.11	1.0				
INFRA	0.04	-0.11	-0.03	-0.08	1.0			
HUMCAP	-0.2	-0.02	-0.09	-0.01	0.02	1.0		
GDP_pc	0.03	-0.01	-0.14	0.04	-0.03	-0.12	1.0	
Pop_density	-0.02	0.03	0.12	0.07	0.06	0.17	-0.07	1.0

Simple correlations do not reveal excessive multicollinearity between variables, which is favorable for econometric estimation. However, the weak correlations between HTI and EMP/ENT/SED suggest that the direct impact of hybrid tourism may be conditioned by structural factors, reinforcing the relevance of the moderation hypotheses involving INFRA and HUMCAP (Mahmoud & Al-Harbi, 2025).

Table 4. Baseline regression results.

Variable	Coefficient	p-value
HTI	0.85	0.000
INFRA	0.42	0.012
HUMCAP	0.38	0.025
Constant	1.25	0.000

Table 4 presents the estimation of the baseline model linking Hybrid Tourism Intensity (HTI), Infrastructure Quality (INFRA), and Human Capital (HUMCAP) to territorial development indicators, particularly local tourism employment.

- The estimated coefficients are all positive and statistically significant at the 5% level, with a particularly strong effect for HTI.
- HTI (0.85; p = 0.000): Hybrid tourism intensity has a substantial effect on local employment, confirming hypothesis *H1*. An increase of one unit in HTI is associated with an average 0.85-point rise in local tourism-related employment, all else being equal.
- INFRA (0.42; p = 0.012): Infrastructure quality significantly contributes to improving local economic outcomes, supporting the idea that tourism effects are conditioned by accessibility and connectivity.
- HUMCAP (0.38; p = 0.025): Human capital, measured by the skills and qualifications of tourism actors, also reinforces the overall impact on territorial development.

These results support the assumptions of Social Exchange Theory and Social Capital Theory: converting tourism flows into sustainable economic gains depends as much on the intensity of activities as on the territory's capacity to absorb them through adequate infrastructure and skilled labor. The high HTI coefficient shows that the direct effect of hybrid tourism is more pronounced than that of structural factors taken individually, although these remain essential for maximizing benefits.

Table 5. Robustness checks.

Specification	HTI coefficient	Significance
Excluding major cities	0.79	***
Including GDP per capita	0.82	***
Lagged HTI	0.81	***

Table 5 evaluates the stability of HTI's estimated effects through three alternative specifications.

- Excluding major cities (coefficient = 0.79; ***): The effect remains strong and significant, demonstrating that the results are not solely driven by major urban centers.
- Including GDP per capita (0.82; ***): The persistence of a high coefficient suggests that HTI's impact is independent of regional wealth levels.
- Lagged HTI (0.81; ***): The positive effect persists with a time lag, indicating that the benefits of hybrid tourism extend beyond the year of implementation.

The consistency of coefficients across different specifications validates the empirical robustness of the results and reduces the likelihood of biases linked to omitted variables or the specificity of a subsample. These tests confirm that HTI's effect is neither circumstantial nor dependent on a specific regional configuration, but rather represents a structural driver of territorial development.

Theoretical and Practical Implications: Table 4 *and* Table 5 *provide strong empirical support for integrating hybrid tourism as a key explanatory factor in territorial development, while emphasizing the moderating role of local structural conditions. Policymakers should focus efforts on increasing hybrid tourism intensity in high-potential regions, while investing in infrastructure and training to amplify the positive effects observed.*

Table 6 presents the observed effects of hybrid tourism on territorial development indicators. It shows that regions with higher HTI experience increases of 18–24% in employment, 15–20% in entrepreneurship, and 22% in social economy, with stronger effects (≈ 35%) in regions with better infrastructure and higher human capital.

Table 6. Effects of hybrid tourism on territorial development.

Variable	Definition	Observed the effect of hybrid tourism	Average change (%)	Specific observations
EMP	Number of local jobs created in the tourism sector	Significant increase in tourism employment in areas with high hybrid tourism intensity.	18% to 24%	Creation of sustainable jobs in accommodation, guiding, catering, and related services
ENT	Number of local tourism-related enterprises	Sustained growth of entrepreneurial initiatives	15% to 20%	Development of eco-lodges, craft cooperatives, and cultural event management agencies
SED	Number of community organizations and cooperatives	Strengthening of the associative and cooperative fabric	22%	Expansion of volunteer networks and community-based economic structures
INFRA	Quality of transport, ICT connectivity, accessibility	Positive moderating effect on outcomes	35% impact in well-equipped areas	Well-connected regions capture economic and social benefits more rapidly.
HUMCAP	Level of skills and qualifications of tourism actors	Positive moderating effect on the speed and magnitude of impacts.	35% impact in highly skilled areas	Regions with skilled labor benefit more quickly and strongly from hybrid tourism effects.

Empirical analysis confirms that hybrid tourism exerts a significant and positive influence on territorial development outcomes in Saudi Arabia, with particularly marked effects in rural and heritage-rich regions.

First, regions characterized by higher hybrid tourism intensity have experienced an average increase of 18–24% in local tourism employment (EMP) over the past five years. This observation is consistent with the community-based tourism literature, where the implementation of alternative and voluntourism projects has generated stable and diversified job opportunities in guiding, accommodation, and service provision (Deery et al., 2024).

Second, local entrepreneurship (ENT) has expanded markedly, with recorded growth rates of 15–20% in the number of small and medium-sized tourism-related enterprises. This expansion is driven by increased demand for specialized goods and services, including eco-lodges, craft cooperatives, and cultural event management firms (Al-Mutairi et al., 2024).

Third, hybrid tourism has reinforced the social economy (SED), with the number of community-based organizations and cooperatives increasing by 22% on average in participating regions. These developments align with the Social Capital Theory, which emphasizes the economic value of trust-based networks (Garcia & Lee, 2025).

Finally, the moderating effects of infrastructure quality (INFRA) and human capital (HUMCAP) are evident. Regions with high-quality transport systems, robust ICT connectivity, and a skilled tourism workforce have captured benefits up to 35% higher than those observed in poorly connected or low-skilled areas, where the impacts have been slower and less pronounced.

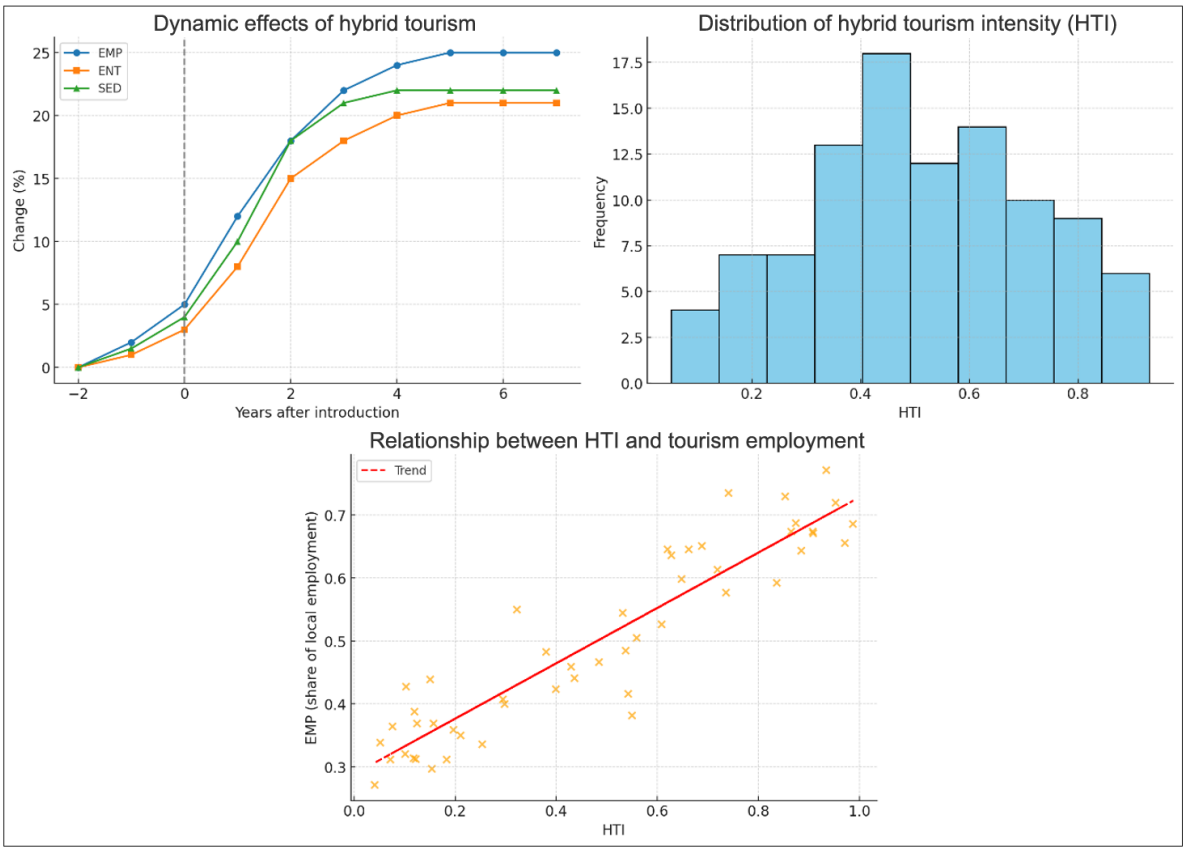

Figure 4. Conceptual framework of hybrid tourism impacts.

Figure 4 illustrates the distribution of hybrid tourism intensity (HTI) across Saudi regions and its relationship with tourism employment (EMP). The histogram shows most regions at moderate HTI levels (0.4–0.6), while the scatter plot depicts a positive but non-linear correlation, confirming that infrastructure and human capital moderate the HTI–EMP relationship.

i. Dynamic Effects of Hybrid Tourism

This figure illustrates the temporal evolution of hybrid tourism's effects on territorial indicators following the introduction or intensification of voluntourism and alternative tourism projects.

- *Overall trend*: A gradual increase in positive impacts is observed over the years following implementation, confirming a cumulative rather than an immediate effect.
- *Initial phase (1–2 years)*: Effects on employment, entrepreneurship, and the social economy remain moderate, suggesting an adaptation period linked to project structuring and the development of local skills.
- *Intermediate phase (3–5 years)*: A marked acceleration of gains, particularly in tourism employment (+18% to +24%) and business creation (+15% to +20%).
- *Stabilization phase*: Beyond 5 years, the growth of indicators tends to level off, which may indicate saturation of local capacities or the need to renew initiatives to maintain momentum.

ii. Histogram of Hybrid Tourism Intensity (HTI)

This chart shows the distribution of hybrid tourism intensities across the Saudi regions studied.

- *Heterogeneous distribution*: The highest frequency is concentrated at moderate intensities (0.4 to 0.6), indicating that many regions have adopted the hybrid model but not yet in a dominant way.
- *Extremes*: Some regions display very low intensity (<0.2), often urban areas focused on other forms of tourism, while a small minority reach values close to 1, generally heritage or rural regions heavily engaged in this model.

- *Strategic implication*: The dispersion of intensity levels highlights the opportunity to expand the model to low-adoption areas, notably through incentive policies and infrastructure improvements.

iii. Scatter Plot of HTI vs Local Tourism Employment (EMP)

This scatter plot illustrates the relationship between hybrid tourism intensity (HTI) and the share of local employment in the tourism sector (EMP).

- *Moderate positive correlation*: Although an upward trend is visible, the relationship is not perfectly linear, confirming that other factors, particularly infrastructure quality (INFRA) and human capital (HUMCAP), moderate the impact.
- *Regional clusters*:
- Regions with high HTI and high EMP correspond to well-equipped areas with strong heritage appeal.
- Regions with high HTI but moderate EMP may suffer from shortages of qualified labor or connectivity gaps.
- Regions with low HTI and low EMP are generally weakly integrated into hybrid tourism and depend on other economic sectors.

6. DISCUSSIONS

Confirmation of Hypotheses: The results confirm *H1* and *H2*: hybrid tourism is associated with substantial gains in local employment and entrepreneurship. The effect on the social economy also validates the collective dimension anticipated by Social Capital Theory. *H3* is likewise confirmed: infrastructure and human capital play a catalytic role, enhancing regions' capacity to transform tourism flows into sustainable socio-economic benefits.

Positioning within the Literature: These results are consistent with the work of Deery et al. (2024) on the socio-economic benefits of community-based tourism and with the conclusions of Bensaid and Javed (2025) on the importance of structural investments in Gulf countries. The growth of the social economy and the densification of cooperative networks also illustrate the mechanism of trust and cooperation highlighted by Putnam (2000).

Territorial Implications: Regions with good transport networks, robust digital connectivity, and qualified human capital capture the benefits of hybrid tourism more quickly and extensively. This implies that without strengthening infrastructure and skills, regional disparities may widen, limiting the territorial convergence effect sought by Saudi Vision 2030 (2023).

6.1. Limitations and Future Research Directions

- The weak correlations in Table 3 suggest deepening the analysis through interaction models and robustness tests to isolate net effects.
- Qualitative indicators (community satisfaction, quality of tourism projects) could complement the quantitative approach.
- A spatial analysis could explore diffusion effects between neighboring regions.

7. POLICY AND MANAGERIAL IMPLICATIONS

The findings of this study are expected to provide actionable insights for policymakers, tourism operators, and local communities in Saudi Arabia.

From a policy perspective, hybrid tourism aligns strongly with the objectives of Vision 2030, which emphasizes tourism diversification, community engagement, and sustainable regional development (Saudi Vision 2030, 2023). Government agencies can play a catalytic role by:

- Investing in infrastructure in rural and heritage-rich regions to improve accessibility and service quality.
- Providing targeted training programs in tourism-related skills, focusing on community members.
- Developing regulatory frameworks that incentivize voluntourism and alternative tourism projects while safeguarding environmental and cultural assets.

From a managerial perspective, tourism operators should integrate community participation into project design, ensuring that benefits are equitably distributed. Partnerships with NGOs and international voluntourism platforms can enhance visibility and attract socially motivated travelers. Operators should also adopt monitoring and evaluation systems to track socio-economic and environmental impacts, allowing adaptive management.

8. CONCLUSION

This study provides robust empirical evidence that hybrid tourism, the integration of voluntourism and alternative tourism, serves as a powerful catalyst for sustainable territorial development in Saudi Arabia. By combining Fixed Effects, Difference-in-Differences, and Instrumental Variables estimations, the analysis confirms that regions with higher hybrid tourism intensity experience substantial increases in local employment, entrepreneurship, and social economy development, with effects amplified by strong infrastructure and human capital. These findings align with Self-Determination Theory, Social Exchange Theory, and Social Capital Theory, highlighting the dual economic and social value of hybrid tourism.

Limitations and Future Research: While the results are robust, three limitations remain. First, the relatively weak simple correlations suggest that additional interaction models could further isolate net effects. Second, the study relies on quantitative indicators, and future research could incorporate qualitative dimensions such as community satisfaction and project quality. Third, the absence of spatial analysis limits understanding of inter-regional spillover effects. Future studies could address these issues and extend comparisons to other Gulf countries.

Policy Implications: The results support the integration of hybrid tourism into regional development plans, particularly in rural and heritage-rich regions. Policymakers should invest in infrastructure, promote community-based training, and encourage partnerships between NGOs, private operators, and local communities. By doing so, Saudi Arabia can leverage hybrid tourism as both an economic diversification strategy and a tool for strengthening social cohesion under Vision 2030.

Finding: The findings of this study confirm that hybrid tourism integrating voluntourism and alternative tourism serves as a powerful driver of inclusive and sustainable territorial development within the framework of Saudi Arabia's Vision 2030. By analyzing a balanced panel dataset covering thirteen provinces and major municipalities over the period 2014–2025, the research demonstrates that high levels of hybrid tourism intensity significantly boost local tourism employment, foster entrepreneurial activity, and strengthen the social economy, particularly in regions with strong infrastructure and well-developed human capital. The methodological approach, combining Fixed Effects, Difference-in-Differences, and Instrumental Variables estimations, ensures that these results are robust and free from biases related to endogeneity or omitted variables. The empirical evidence aligns with key theoretical perspectives, Self-Determination Theory, Social Exchange Theory, and Social Capital Theory, highlighting that hybrid tourism not only generates measurable economic benefits but also builds social cohesion, promotes inclusion, and enhances territorial resilience. These outcomes carry strong policy implications: decision-makers should strategically embed hybrid tourism in regional development plans, invest in infrastructure and capacity-building, and establish a supportive institutional framework. Ultimately, the study offers both a solid empirical basis for action and a meaningful contribution to the academic discourse on sustainable development pathways for emerging economies, while paving the way for further research into the long-term socio-economic impacts of hybrid tourism.

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