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Original Research Article

Modeling the Impacts of Second-Home Tourism Development in Rural Areas on the Dimensions of Place Attachment

(A Case Study of Heravi and Beyraq Villages, Tabriz County)*

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Abstract | Over recent decades, rural settlements in Iran have experienced profound transformations in lifestyle, leading to substantial changes in the physical form, meanings, and cultural values of traditional rural houses. The emergence of second homes has played a crucial role in reshaping these structural, social, and symbolic dimensions. The main objective is to explore how these transformations affect the dimensions of place attachment to the village and rural houses, as a key cultural and symbolic indicator of dwelling. The research focuses on the perceptions of rural residents in the villages of Heravi and Beyraq, located in the Tabriz region of Iran, and develops a structural model based on the identified dimensions. A sequential mixed-method design was employed, a qualitative exploratory phase to identify and refine the constructs of place attachment through literature review, followed by a quantitative survey using a researcher-designed questionnaire. Field data were collected from 562 respondents on a five-point Likert scale. The conceptual model was tested using variance-based structural equation modeling (PLS-SEM). The results indicated that all four dimensions, affective attachment, place dependence, identity, and social bonding, were significantly and positively associated with the overarching construct of place attachment under the influence of second-home development in the studied villages. Overall, in the studied context, the local community, by drawing on its socio-emotional capacities, experiences the impacts of second-home development as a dual phenomenon, one that can generate both challenges and opportunities for the social and cultural sustainability of the villages.

Keywords| *Second-home tourism; Rural houses; Place attachment; Heravi and Beyraq villages.*

Introduction| Human living places are not merely physical settings for everyday life; rather, they embody deep layers of meaning, identity, and social belonging. Throughout history, the relationship between humans and place has constituted one of the fundamental foundations for the formation of culture, collective memory, and settlement patterns. In this sense, place can serve as a source of security, continuity of life, and the development of social relationships, an experience that has been conceptualized in the scholarly literature as place attachment.

Place attachment is a multidimensional construct that reflects the emotional, functional, and social dimensions of the relationship between individuals and their environments. Beyond its critical role in shaping life satisfaction and environmental quality, place attachment

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influences residential behaviors, social sustainability, and even the preservation of cultural heritage. From this perspective, examining and analyzing place attachment can contribute to a deeper understanding of socio-cultural dynamics within living environments, particularly rural settlements, and can provide meaningful direction for the planning and management of human environments.

Villages, as carriers of the cultural and social identity of society, occupy a distinctive position within the national spatial structure. In recent decades, these spaces-situated at the intersection of development and tourism-have undergone significant physical and social transformations following the emergence and expansion of tourism second homes. While this process may generate opportunities such as economic revitalization, increased cultural interaction, and diversification of land uses, empirical research indicates that, in the absence of appropriate planning, it can simultaneously pose serious threats to the social and cultural foundations of rural communities (Hajimirrahimi et al., 2017; Lerfald, 2024). Accordingly, the development of second homes without adequate consideration of socio-cultural and structural dimensions may constitute a substantial threat to the cohesive fabric and identity of rural settlements.

One of the most critical domains in which these transformations are reflected is place attachment-a concept that captures residents' emotional, identity-based, and social bonds with their living environment. When second homes, characterized by architectural forms and residential patterns distinct from the rural context, are introduced into village landscapes, a fundamental question arises: How do these changes affect the level and nature of the dimensions of attachment to the village and rural housing among the indigenous resident population?

Previous international studies have predominantly focused on comparing levels of place attachment between permanent residents and second-home owners (Pitkänen et al., 2020; Rantanen & Czarnecki, 2023; Stedman, 2006). These studies highlight the divergent nature of attachment across groups: while host-community residents emphasize the centrality of social networks and cultural roots, seasonal homeowners tend to prioritize environmental quality and individual experiences. Within the domestic literature, however, the structural and systematic examination of place attachment dimensions in villages affected by second-home development remains largely overlooked. By adopting this perspective and employing structural equation modeling, the present study seeks to reveal a novel analytical angle on this phenomenon.

The primary objective of this research is to structurally analyze the dimensions of place attachment in the villages of Heravi and Beyraq, located in the rural hinterland of Tabriz County, both of which have been influenced by tourism-oriented second-home development over the past two decades. An architectural identity analysis of the two residential typologies under investigation-traditional rural housing and second homes-reveals a profound rupture in their cultural and spatial continuity. Tourism villas, as symbols of socio-economic transformation, are often designed based on international styles and modernist or neoclassical architectural trends. These buildings not only lack connections to historical memory, indigenous traditions, and the lived experience of the local community, but are also characterized by expressions of distinction, displays of affluence, and transnational aesthetic values. This identity dissonance, together with the visual contrast between these structures and the rural fabric, and the coexistence of two distinct social groups-temporary second-home residents and indigenous villagers-provides the analytical basis for a structural examination of the overarching construct of place attachment, comprising the second-order constructs of affective attachment, place dependence, place identity, and social bonding within the study area. The relationships among these dimensions in the conceptual model are tested using Partial Least Squares Structural Equation Modeling (PLS-SEM). Accordingly, the present study not only enables a systematic and simultaneous examination of place attachment dimensions but also contributes to the theoretical enrichment of place attachment literature in transitional contexts, while offering practical evidence for rural planning and management in addressing the impacts of second-home development. Following a review of the theoretical foundations, the research methodology is presented, the findings are reported, and finally, the theoretical and practical implications are discussed.

Literature Review

• Socio-cultural transformations of rural areas in the context of tourism second-home development

Studies on second homes during the 1960s and 1970s primarily focused on the physical and economic consequences of this phenomenon. However, from the early 1980s onward, with the increasing influence of cultural approaches in human geography and tourism studies, socio-cultural analyses entered this field (Müller, 2004). During this period, research began to address issues such as changes in rural lifestyles, transformations in settlement patterns, and the redefinition of local identity. With the emergence of the sustainable development discourse, social sustainability became a central concern, emphasizing social coexistence, cultural diversity preservation, and

the prevention of cultural conflicts (Gallent, 2014; Miletić et al., 2018; Wistveen et al., 2024). For instance, in a seminal study in Norway, Rye found that although local residents often hold optimistic attitudes toward second homes, this phenomenon can lead to increased socio-cultural tensions between permanent residents and seasonal homeowners, ultimately resulting in long-term changes in indigenous lifestyles (Rye, 2011). Similarly, Gallent (2014), a leading scholar in this field, analyzed second homes from a social development perspective and demonstrated that while such spaces may generate social values such as demographic dynamism and enhanced social capital, they also possess the capacity to reshape rural belonging and challenge the collective identity foundations of host communities. Another study conducted in Turkey assessed local residents' perceptions of second-home impacts by simultaneously examining transient and long-term effects. The findings indicate that although second-home development can provide socio-cultural and economic opportunities, such as increased diversity and vitality can also give rise to cultural conflicts and declining social cohesion as significant challenges (Oğan & Yasak, 2021). Lerfald's research further suggests that second-home development in Scandinavian rural areas may lead to structural transformations within villages and a weakening of community-oriented values (Lerfald, 2024).

More recent studies in this field have revealed the complexity of relationships between second-home owners and host communities with greater nuance. In this regard, Tuulentie and Kietäväinen (2019), focusing on the experiences of second-home owners in Finnish Lapland, emphasize that despite emotional attachment to place, these individuals are not fully integrated into local communities-highlighting the need to create social interaction platforms. Similarly, Sadeghloo et al. (2024) demonstrate that the integration of second-home owners into rural communities requires mechanisms operating at three levels: environmental-spatial, socio-cultural, and psychological mechanisms that can strengthen social cohesion and local sustainability. Research by Hajimirrahimi et al. (2017) in the village of Khorashad, Iran, also indicates that, based on permanent residents' perceptions, the degradation of social structures and changes in local interactions constitute significant socio-cultural consequences of second-home development. Other domestic studies likewise provide tangible empirical evidence from tourism villages facing this phenomenon, emphasizing both the positive and negative effects of second-home expansion (Anabestani, 2014; Mirtaghian Rudsari & Gharibi, 2018; Anzaei et al., 2017; Kazemzadeh Meschi et al., 2023; Kiani Salmi & Shaterian, 2017). Despite these contributions, significant gaps remain in the existing literature. Most studies have emphasized economic and physical impacts, while the effects of this phenomenon on place attachment-encompassing identity and social dimensions have received limited scholarly attention. Meanwhile, cultural differences between rural host communities and second-home owners as representatives of urban society, combined with often fundamental physical disparities resulting from tourism-oriented second-home development, create fertile ground for profound social transformations and shifts in rural ways of life. Addressing this issue is therefore not only theoretically necessary but also of considerable practical importance for managing cultural conflicts and enhancing social sustainability in rural communities, an area that has yet to be comprehensively addressed in the existing body of literature.

Theoretical Framework

• Place attachment

Place attachment is one of the foundational concepts in environment-behavior studies and environmental psychology, emphasizing the emotional, cognitive, and functional bonds between individuals and places. This concept was first articulated in classical works of human geography and environmental phenomenology. In Place and Placelessness, Relph distinguished between authentic places and placeless environments, demonstrating that place is more than a physical setting and that it is human experience that endows it with meaning and a sense of belonging (Relph, 2008). Similarly, in Space and Place, Tuan argued that places emerge as sources of identity and security through the fusion of space and human experience (Tuan, 1977). These approaches laid the groundwork for scholarly attention to the sense of place and humans' emotional attachment to their environments.

In subsequent decades, the concept of place attachment gradually expanded across multiple disciplines, including sociology, environmental psychology, and architectural studies. Scholars conceptualized it as an affective-cognitive bond between individuals and places, formed through lived experiences and social interactions (Altman & Low, 1992). From this perspective, places function as repositories of cultural meanings and collective memory, capable of reinforcing feelings of belonging, identity, and social continuity. Consequently, place attachment has become a key concept in contemporary analyses of residential environmental quality, urban regeneration, and even tourism planning.

Place attachment is inherently a multidimensional construct that has been examined through various dimensions in environmental psychology and architectural research. Shamai conceptualized its formation as a hierarchical process, ranging from basic awareness of a

place to the development of complex emotional bonds (Shamai, 1991). Building upon this framework, subsequent studies have systematized the concept into more clearly defined dimensions.

One of the primary and fundamental dimensions is place dependence, which highlights the functional aspect of the individual-environment relationship. Place dependence reflects individuals' evaluations of a place's capacity to meet their needs and support their goals; this dimension is shaped by prior experiences with the place as well as its functional and sensory qualities (Jorgensen & Stedman, 2001). From this viewpoint, place is not merely a physical container but a context whose perceived suitability and performance determine the degree of individual dependence.

Another key dimension is place identity, which refers to the perceptual and cognitive aspects of the human-place bond. Proshansky and colleagues initially introduced this concept as a component of personal identity, demonstrating that places can reflect individuals' values and self-concepts (Proshansky et al., 1983). Subsequent research emphasized that individuals tend to prefer places that reinforce their identity continuity and resonate with their personal values (Twigger-Ross & Uzzell, 1996). Relph further underscored the phenomenological experience of place and its role in fostering distinctiveness and identity authenticity (Relph, 1976). Accordingly, a place becomes a source of both individual and collective identity formation.

In addition, an affective attachment to place emerges based on the symbolic role of place as a container of emotions and relationships, contributing to the attribution of meaning and purpose to individuals' lives (Williams & Vaske, 2003). The emotional dimension can therefore be regarded as an intermediary layer permeating all other dimensions of place attachment. As articulated by Scannell and Gifford, individuals' emotional experiences-ranging from personal memories to collective pride-provide the foundation through which places become meaningful (Scannell & Gifford, 2010).

Finally, the social bonding dimension emphasizes the role of social relationships in strengthening a sense of place. The quality of social interactions and collective participation can exert a greater influence on place attachment than physical characteristics alone. Environments that facilitate the formation of strong social networks and shared memories possess a greater capacity to generate and sustain place attachment (Marcus, 1992). Thus, place attachment emerges from a complex interplay of functionality, identity, social bonding, and emotional experiences, manifesting at both individual and collective levels (Fig. 1).

Research Method and Research Hypotheses

This study is applied in terms of purpose and descriptive-analytical in nature, employing a sequential mixed-methods approach (qualitative-quantitative). In the first phase, an exploratory qualitative investigation based on a systematic literature review and theoretical content analysis was conducted to identify and refine the dimensions of the overarching construct of place attachment. In the second phase, quantitative data were collected through a researcher-designed questionnaire and analyzed using variance-based Structural Equation Modeling (PLS-SEM). Fig. 2 illustrates the overall research process.

Following the review of relevant theoretical foundations, the main components of the place attachment model were formulated and refined based on theoretical perspectives. These components served as the basis for designing the items of the researcher-developed questionnaire. The initial version of the questionnaire consisted of 25 items, structured around four first-order constructs-affective attachment, place dependence, place identity, and social bonding-and measured using a five-point Likert scale. The items directly assessed the perceptions of the indigenous rural community regarding the impacts of

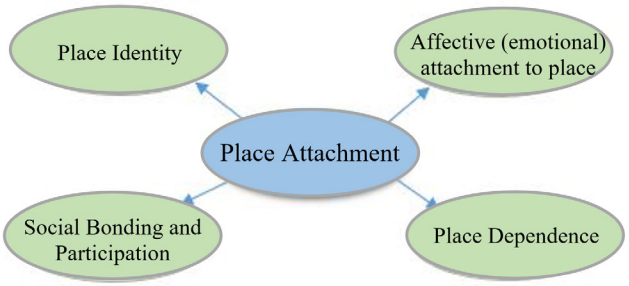

Fig. 1. Conceptual model of place attachment. Source: Authors.

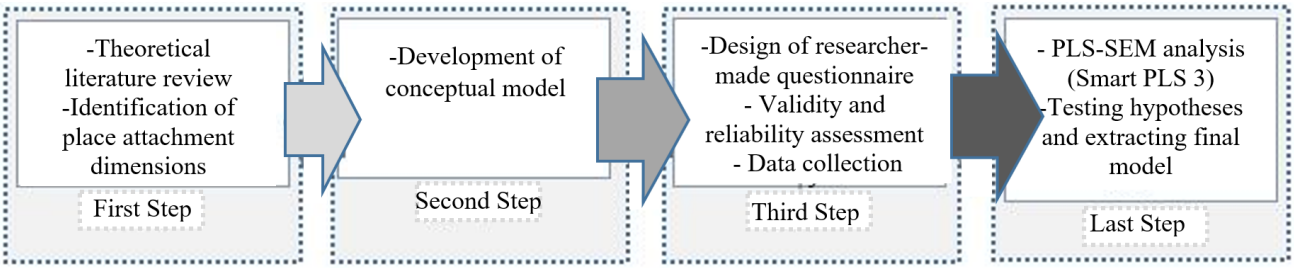

Fig. 2. Research process. Source: Authors.

tourism-oriented second-home development on the research indicators. Table 1 presents the constructs, indicators, and the number of items associated with each construct in the initial questionnaire.

The content validity of the questionnaire was evaluated using expert judgment from eight specialists (faculty members in architecture), and by calculating the Content Validity Ratio (CVR) and the Content Validity Index (CVI). After revising and refining the items, a pilot study was conducted to assess preliminary reliability by distributing 20 questionnaires to a small random sample of village residents. Cronbach's alpha coefficients were calculated using SPSS 22 to assess internal consistency across subscales. As a result, 19 items demonstrating acceptable levels of validity and reliability were retained in the final version of the questionnaire.

To determine the representative sample size, Morgan's table was used. Based on the number of households in the study villages as the statistical population, the required sample size was 260 respondents from Heravi village and 302 respondents from Beyraq village.

In the data analysis phase, in addition to descriptive statistics, the conceptual model was tested using Structural Equation Modeling (SEM) with the Partial Least Squares (PLS) approach, implemented in SmartPLS 3 software. Due to its exploratory nature and its capability to analyze second-order constructs, this method was deemed the most appropriate for examining the relationships among the dimensions of place attachment in rural communities affected by second-home development and for extracting the final model.

The structural model of the study was developed based on four hypotheses, in which the effects of the four dimensions of place attachment-affective attachment, place dependence, place identity, and social bonding-as first-order exogenous constructs, on the overarching second-order endogenous construct of place attachment, were examined in the context of second-home development. The research hypotheses are as follows:

H1. As a result of second-home development in Heravi and Beyraq villages, affective attachment to the village and rural housing has a significant effect on the overarching construct of place attachment.

H2. As a result of second-home development in Heravi and Beyraq villages, place dependence on the village and rural housing has a significant effect on the overarching construct of place attachment.

H3. As a result of second-home development in Heravi and Beyraq villages, the place identity of the village and rural housing has a significant effect on the overarching construct of place attachment.

H4. As a result of second-home development in Heravi and Beyraq villages, social bonding and participation of the rural host community have a significant effect on the overarching construct of place attachment.

Table 1. Constructs and indicators of the conceptual model of place attachment and number of items in the initial questionnaire.
Source: Authors.

Higher-order Construct	First-order Constructs	Indicators
Place Attachment	Affective (emotional) attachment to a place (11 Items)	- Positive feelings toward a place - Sense of security - Desire to maintain proximity to a place - Sense of social support - Sense of pride and social value - Sadness and grief are associated with separation
	Place Dependence (3 Items)	- Memorability - Evaluation of a place based on the fulfillment of needs - Evaluation of a place based on fulfillment of expectations
	Place Identity (6 Items)	- Historical memories and experiences - Values - Shared symbols - Sense of continuity - Sense of distinctiveness
	Social Bonding and Participation (5 Items)	- Willingness to establish new social ties - Level of participation in group activities and collective ceremonies - Participation in construction and maintenance activities

Study Area Description (Rural Fabric and Second-Home Development Zones)

Heravi village, according to the latest political–administrative divisions of Iran, is located in Meydan Chay Rural District, Central District of Tabriz County, East Azerbaijan Province (Naghsh va Simay-e Sharestan..., 2014). Orchard farming and livestock husbandry constitute the primary economic activities of the village, followed by employment in commercial, service-related, and governmental occupations as the main sources of livelihood for local residents. Beyragh village is likewise situated within Meydan Chay Rural District of the Central District of Tabriz County. It is located approximately 20 km from

Tabriz, 8 km from Basmenj, and 1.5 km from Heravi village (طرح هادی روستای بیرق, 2001). Similar to Heravi, Beyraq has developed along a mountainous slope with an eastward inclination, resulting in a stepped settlement pattern.

According to the village master plan studies, no significant cultural or social distinctions exist between the populations of these villages; therefore, they are characterized by a homogeneous and integrated social fabric (Naghsh va Simay-e Sharestan..., 2014). Historically, indigenous rural houses were predominantly constructed as one- or two-story buildings above a ground floor, which was primarily allocated to livelihood-related activities. Consequently, the livelihood patterns of rural residents have strongly influenced rural housing typologies in this region pattern that remains observable in nearby villages such as Liqvan (طرح هادی روستای بیرق, 2001). Fig. 3 illustrates the geographical location of the study area.

In recent years, the proximity of this region to the Tabriz metropolitan area, the presence of the historic village of Liqvan, favorable climatic conditions, extensive orchards, and scenic natural landscapes along the Mehranroud River have attracted a large number of tourists to the Liqvan Valley villages. This trend has significantly stimulated the development of tourism-oriented second homes in the area. Most villas are concentrated within the orchards of Heravi village, with additional clusters located between Heravi and Beyraq; their density gradually decreases toward Liqvan village and with increasing distance from Tabriz. Over the past two decades, the high concentration of villa construction within the rural hinterland of the Tabriz metropolitan area has transformed this region into one of the province's primary villa-development hotspots.

The architectural design patterns of these villas are largely shaped by investment demand, tourism market requirements, and the display of owners' economic status, rather than compatibility with the cultural and physical context of rural settlements. Over time, this approach has led to the emergence of newly developed affluent enclaves adjacent to traditional rural fabrics-areas that exhibit substantial visual, functional, and symbolic discontinuities with the collective identity of rural settlements (Fig. 4).

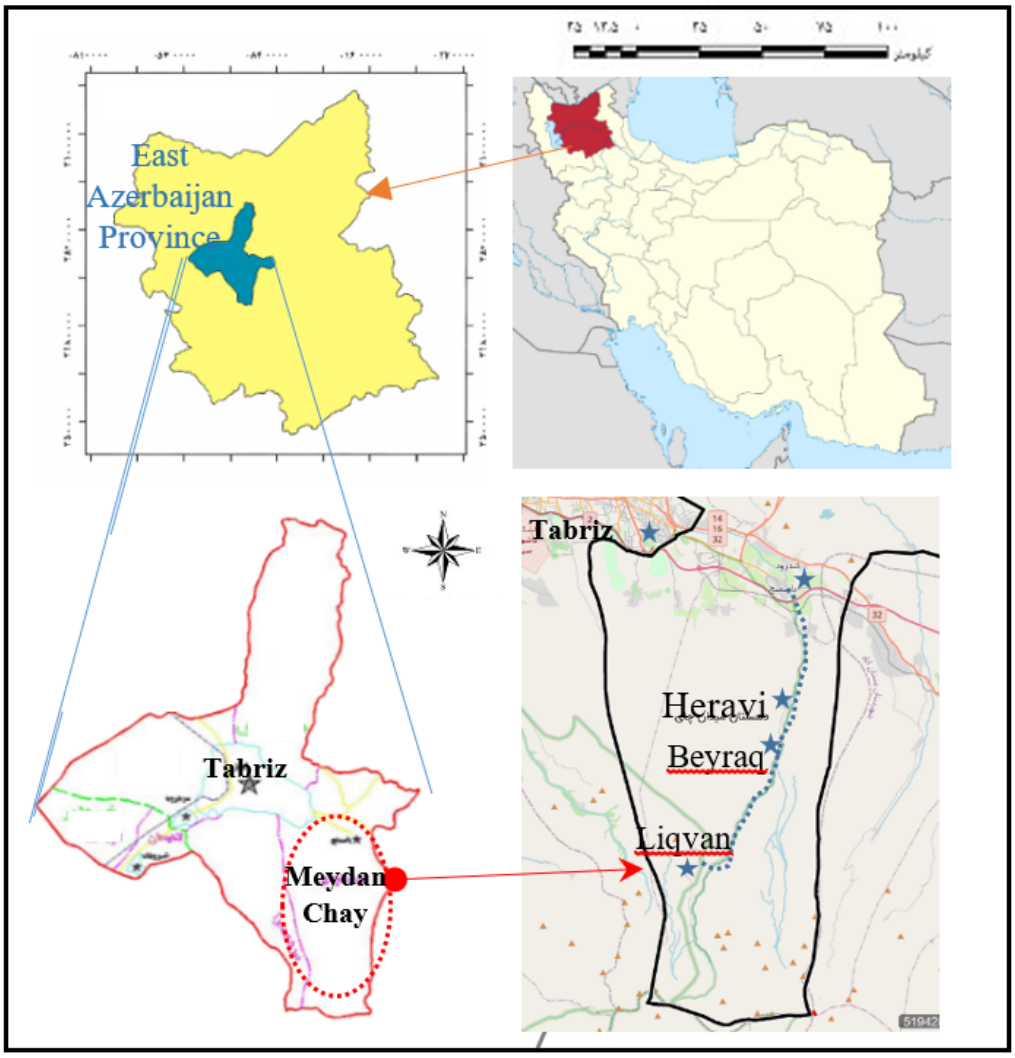

Fig. 3. Geographical location of the study area. Source: Authors.

Fig. 4. View of the rural fabric and surrounding second-home development zones in the study area. Source: Authors.

As a result, processes of socio-spatial segregation between indigenous residents and non-local second-home owners are reflected not only in the built environment but also in architectural language, lifestyle practices, and identity symbols.

Data Analysis and Discussion

After assessing the validity and reliability of the questionnaire and refining the items, the final questionnaire was structured based on the indicators presented in Table 2. Research data collected from a total of 562 questionnaires across the two study villages were analyzed in SPSS 22, focusing on descriptive statistics, including mean values and standard deviations .

The descriptive analysis of the four dimensions of the overarching construct indicates that residents evaluate the impacts of second homes on place attachment as follows:

-Affective Attachment (Mean = 3.14; SD = 1.06): This dimension was rated close to the midpoint of the scale, suggesting that residents perceive the emotional impacts of second homes as moderate. While in some cases second homes appear to enhance emotional bonds, overall this dimension is not strongly affected, and substantial variation in perceptions exists among respondents.

-Place Dependence (Mean = 3.19; SD = 1.36): Respondents' evaluations indicate that second homes exert only a partial influence on functional dependence on place. The relatively high dispersion of responses reflects diverse viewpoints, with some residents perceiving villas as facilitating daily life, while others regard them as disruptive to traditional rural functions.

-Place Identity (Mean = 2.61; SD = 1.09): This dimension exhibits the lowest mean among the four constructs, indicating that second homes are perceived as posing the greatest threat to the identity and symbolic aspects of place, particularly by undermining indigenous representations and cultural authenticity.

-Social Bonding (Mean = 2.76; SD = 1.05): This dimension falls below the midpoint of the scale. As the items were formulated to assess the positive effects of second homes on social relationships and participation, the relatively low mean suggests that most respondents do not perceive second homes as contributing meaningfully to the strengthening of social bonds.

Overall, the descriptive findings indicate that permanent residents assess the impacts of second-home development on all four dimensions at a moderate level. These preliminary results provide an essential empirical basis for testing the structural model.

- structural equation modeling of place attachment

To examine the effects of tourism-oriented second-home development on attachment to rural villages and host rural housing, Partial Least Squares Structural Equation Modeling (PLS-SEM) was employed using SmartPLS version 3. This method was selected due to its suitability for analyzing complex conceptual models, second-order constructs, large sample sizes, and data that do not necessarily follow a normal distribution.

In the conceptual model, place attachment was specified

Table 2. Latent variables and descriptive statistics of the study. Source: Authors.

First-order Construct	Item Code	Item Description	Mean	Std. Dev.
Affective Attachment (Mean = 3.14; SD = 1.06)	Emo1	Unwillingness to relocate due to the presence of villas	3.34	1.46
	Emo2	Perceived importance and value of villas	3.04	1.52
	Emo3	Increased attachment to place due to villas	2.97	1.49
	Emo4	Greater sense of calm due to villas	2.91	1.50
	Emo5	Pleasant feelings resulting from villas	3.03	1.48
	Emo6	Sense of pride resulting from villas	3.20	1.46
	Emo7	Sense of security due to villas	2.94	1.52
	Emo8	Enhanced sense of memorability due to villas	3.37	1.48
	Emo9	Reduced intention to migrate due to villas	3.47	1.37
Place Dependence (Mean = 3.19; SD = 1.36)	D1	Changes in personal expectations due to villa construction	3.23	1.45
	D2	Changes in the criteria for an ideal home due to villas	3.15	1.50
Place Identity (Mean = 2.61; SD = 1.09)	Iden1	Increased uniqueness of the village due to villas	3.28	1.50
	Iden2	Disruption and alteration of the village landscape due to villas	2.30	1.55
	Iden3	A sense of disturbance caused by damage to the living environment	2.27	1.35
Social Bonding (Mean = 2.76; SD = 1.06)	Bond1	Socializing with villa residents	2.46	1.44
	Bond2	Pleasant feelings toward interaction with villa residents	2.52	1.47
	Bond3	Influence of villas on neighborhood interactions	2.59	1.36
	Bond4	Increased participation in social activities due to villas	2.92	1.43
	Bond5	Increased sense of responsibility for village preservation and beautification	3.32	1.49

as a second-order latent construct composed of four first-order constructs:

1. Affective Attachment
2. Place Dependence
3. Place Identity
4. Social Bonding

All constructs were modeled as reflective. The repeated-indicator approach was used to estimate relationships between first- and second-order constructs. The PLS algorithm was executed using default settings: path weighting scheme, maximum iterations = 300, and a stop criterion of 1×10^{-7}. To assess the significance of path coefficients and factor loadings, a bootstrapping procedure with 5,000 resamples and a two-tailed test at a 95% confidence level was applied.

Fig. 5 presents the fitted conceptual model. The overarching construct of place attachment was modeled as a reflective-reflective construct, meaning that it is represented through four reflective first-order dimensions: affective attachment, place dependence, place identity, and social bonding. These dimensions were treated as exogenous first-order constructs that collectively reflect the higher-order concept of place attachment. This reflective-reflective structure is consistent with established approaches in place attachment research (Scannell & Gifford, 2010; Williams & Vaske, 2003). Following the two-stage approach, the assessment of construct reliability and validity within the measurement model is presented in the subsequent section.

Measurement Model

• Assessment of internal consistency, reliability, and convergent validity

Following the initial estimation of the model, indicators with factor loadings below 0.70 or lacking statistical significance were examined. As a result of this screening process, item Emo9 from the affective attachment construct was removed due to its low factor loading (0.056). Table 3 reports the factor loadings and significance statistics of the indicators ($t > 1.96$; $p < 0.001$). At this stage, a bootstrapping procedure with 5,000 resamples was employed to estimate the significance of path coefficients and standard errors. The bootstrapping results indicated that all remaining factor loadings were statistically significant at the 99% confidence level and exceeded the recommended threshold of 0.70 (Hair et al., 2022). Accordingly, the convergent validity of the indicators was confirmed.

Fig. 5 presents the fitted conceptual model. The overarching construct of place attachment was modeled as a reflective-reflective construct, meaning that it is represented through four reflective first-order dimensions: affective attachment, place dependence, place identity, and social bonding. These dimensions were treated as exogenous first-order constructs that collectively reflect the higher-order concept of place attachment. This reflective-reflective structure is consistent with established approaches in place attachment research (Scannell & Gifford, 2010; Williams & Vaske, 2003). Following the two-stage approach, the assessment of construct reliability and validity within the measurement model is presented in the subsequent section.

As illustrated in Fig. 6, the t-values for the relationships between indicators and first-order constructs range from 13 to 103, which substantially exceed critical values. This indicates a very high level of convergent validity

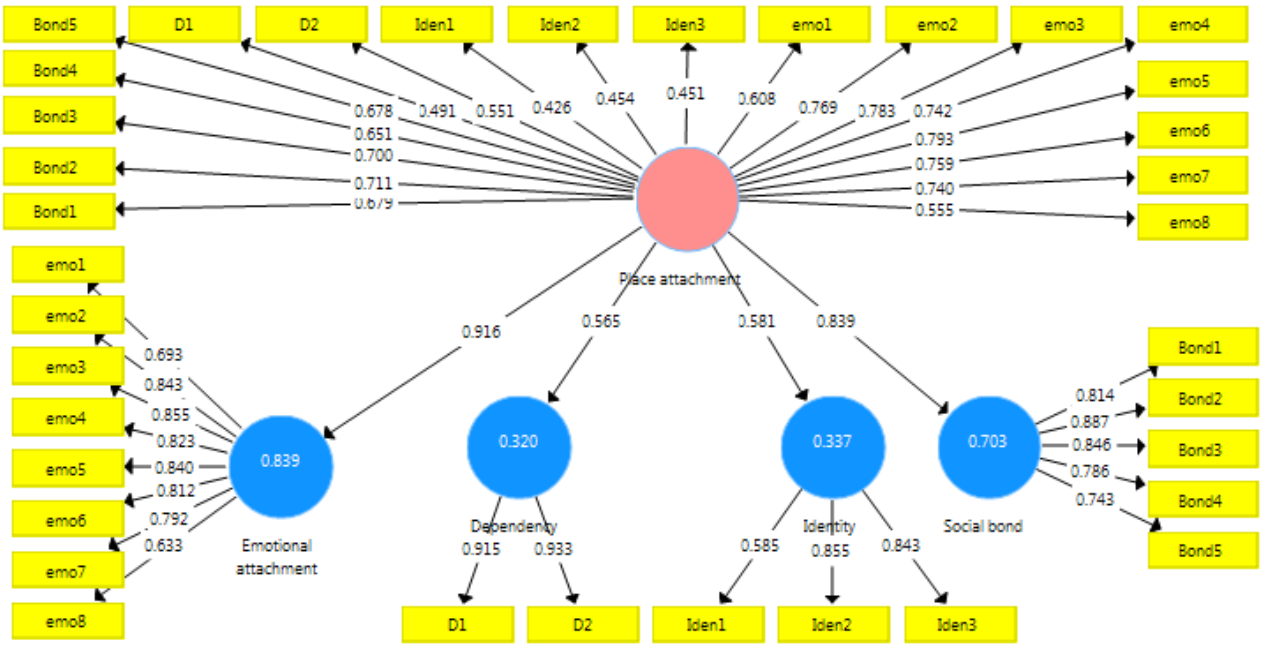

Fig. 5. Conceptual research model in SmartPLS. Source: Authors.

Table 3. Factor loadings, t-values, and significance levels of indicators in the measurement model. Source: Authors.

Construct	Item	Path coefficient (β)	t-value	p-value	Significance
Affective attachment	Emo1	0.693	27.02	0.000	Significant
	Emo2	0.843	62.3	0.000	Significant
	Emo3	0.855	72.4	0.000	Significant
	Emo4	0.823	50.6	0.000	Significant
	Emo5	0.840	51.9	0.000	Significant
	Emo6	0.812	49.07	0.000	Significant
	Emo7	0.792	40.6	0.000	Significant
	Emo8	0.633	18.8	0.000	Significant
Place dependence	D1	0.915	103.9	0.000	Significant
	D2	0.993	149.3	0.000	Significant
Place identity	Iden1	0.585	13.6	0.000	Significant
	Iden2	0.855	43.7	0.000	Significant
	Iden3	0.843	36.6	0.000	Significant
Social bonding	Bond1	0.814	47.7	0.000	Significant
	Bond2	0.887	88.6	0.000	Significant
	Bond3	0.846	63.7	0.000	Significant
	Bond4	0.786	44.5	0.000	Significant
	Bond5	0.743	36.3	0.000	Significant

in explaining the corresponding constructs. These high values result from relatively large path coefficients and very small standard errors, reflecting the strong explanatory power of the measurement model.

Based on the results presented in Table 4, the composite reliability (CR) values for all constructs exceed 0.80 and are above the minimum recommended threshold of 0.70, indicating adequate internal consistency reliability. The Cronbach's alpha (α) values for most constructs are also above 0.82 and exceed the recommended minimum of 0.70. The only exception is the place identity construct, with a Cronbach's alpha value of 0.63. Although this value is below the desirable threshold, the composite reliability of this construct exceeds 0.70, and its indicator loadings remain within acceptable ranges. Therefore, the reliability of this construct can be considered acceptable, particularly in models with a limited number of indicators (Hair et al., 2022; Henseler et al., 2015).

To further assess convergent validity, in addition to t-values and significance levels, the average variance extracted (AVE) was evaluated. As shown in Table 4, AVE values for all first-order constructs exceed 0.50, indicating adequate convergence of indicators in explaining their respective constructs. In second-order PLS-SEM models employing the repeated-indicator approach, convergent validity indices such as AVE for the higher-order construct are typically lower than the threshold value and are not considered reliable evaluation criteria (Hair et al., 2022).

• Discriminant validity

Discriminant validity refers to the extent to which a construct is distinct and empirically separable from other constructs in the model, ensuring that each construct measures a unique concept without excessive overlap (Fornell & Larcker, 1981). In structural equation modeling, discriminant validity is commonly assessed using criteria such as the Fornell-Larcker criterion, cross-loadings, and the heterotrait-monotrait ratio (HTMT). High correlations between constructs may indicate insufficient discriminant validity and can negatively affect model credibility.

The HTMT index is a robust and widely accepted method for assessing discriminant validity in SEM. It calculates the ratio of the average correlations across different constructs (heterotrait) to the average correlations within the same construct (monotrait) (Franke & Sarstedt, 2019). According to the threshold proposed by Henseler et al. (2015), HTMT values below 0.90 indicate adequate discriminant validity. The results demonstrate that all first-order constructs exhibit

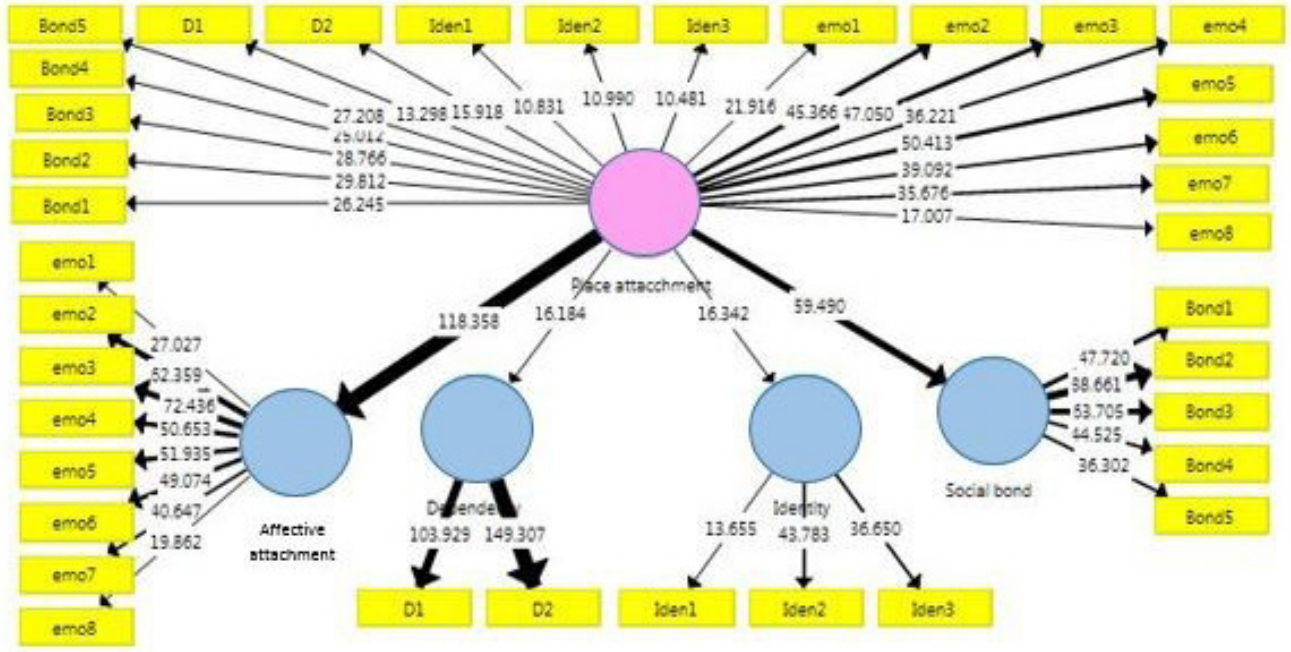

Fig. 6. Bootstrapped t-values for indicator loadings. Source: Authors.

Table 4. Reliability and convergent validity measures (Cronbach's alpha, CR, AVE). Source: Authors.

Construct	Cronbach's alpha (α)	Composite reliability (CR)	AVE
Affective attachment	0.912	0.929	0.624
Place dependence	0.829	0.921	0.853
Place identity	0.637	0.811	0.595
Social bonding	0.874	0.909	0.667
Place attachment (second-order)	0.916	0.928	0.425

HTMT values below 0.90; therefore, their discriminant validity is confirmed (Table 5).

The Fornell-Larcker criterion further indicates that the square root of AVE for each construct is greater than its correlations with other constructs (Table 6), confirming discriminant validity among first-order constructs. The relatively high correlations between the higher-order construct and its dimensions are expected, given the nature of the second-order model and the use of the repeated-indicator approach, and do not indicate a lack of discriminant validity (Becker et al., 2012).

• Structural Model

- Direct effects

Based on the results of the path coefficients, the magnitude and significance of the effects of each exogenous construct on the endogenous construct were examined. The path coefficients between the first-order constructs-affective attachment, place dependence, place identity, and social bonding-and the second-order construct of place attachment were all statistically significant at the 99% confidence level (p-value < 0.001). All coefficients were positive and within acceptable ranges.

These findings indicate that all four dimensions contribute significantly to explaining the higher-order construct of place attachment. Among them, affective attachment exhibited the strongest direct effect ($\beta = 0.916$), whereas place dependence showed the weakest effect ($\beta = 0.565$). Accordingly, strengthening emotional and social dimensions appears to play a more substantial role in enhancing overall place attachment.

- Model fit and predictive power assessment

To evaluate the predictive power of the structural model, two indicators were employed: the coefficient of determination (R^2) and Stone-Geisser's predictive relevance index (Q^2). The R^2 value represents the proportion of variance in endogenous constructs explained by exogenous constructs, with higher values indicating greater explanatory power (Chin, 1998).

The Q^2 index, obtained through the blindfolding procedure, assesses the model's predictive relevance. Positive Q^2 values indicate that the model has predictive capability for endogenous constructs, and higher values correspond to stronger predictive power (Geisser, 1974). In this study, cross-validated redundancy values were used as the primary Q^2 criterion, as recommended by Hair et al. (2022), since it is the most commonly applied measure of predictive relevance in PLS-SEM.

To assess the explanatory power of the structural model, R^2 values were calculated for the first-order constructs . The R^2 value for affective attachment is 0.839, indicating that 83.9% of the variance in this construct is explained by the higher-order construct. This very high value reflects excellent explanatory power. The R^2 value for social bonding is 0.703, also indicating strong explanatory capacity.

In contrast, the R^2 values for place identity (0.337) and place dependence (0.320) fall within a moderate range, suggesting that approximately one-third of the variance in these constructs is explained by the higher-order construct. According to Chin's (1998) criteria-where R^2

Table 5. HTMT values for discriminant validity assessment among constructs. Source: Authors.

Constructs	Place dependence	Affective attachment	Place identity	Social bonding	Place attachment (second-order)
Place dependence	-	-	-	-	-
Affective attachment	0.467	-	-	-	-
Place identity	0.282	0.571	-	-	-
Social bonding	0.498	0.674	0.553	-	-
Place attachment (second-order)	0.655	0.993	0.803	0.928	-

Table 6. Fornell-Larcker criterion for discriminant validity. Source: Authors.

Constructs	Place dependence	Affective attachment	Place identity	Social bonding	Place attachment (second-order)
Place dependence	0.924	-	-	-	-
Affective attachment	0.408	0.790	-	-	-
Place identity	0.205	0.435	0.771	-	-
Social bonding	0.427	0.605	0.412	0.618	-
Place attachment (second-order)	0.565	0.916	0.581	0.816	0.652

values of 0.25, 0.50, and 0.75 indicate weak, moderate, and strong explanatory power, respectively, the results suggest that the proposed model demonstrates substantial explanatory power for most endogenous constructs.

Based on the blindfolding results, the Q^2 values for the first-order constructs were as follows: place dependence (0.267), affective attachment (0.519), place identity (0.190), and social bonding (0.463). According to Hair et al. (2022), Q^2 values greater than zero indicate adequate predictive relevance, while values of approximately 0.02, 0.15, and 0.35 correspond to weak, moderate, and strong predictive power, respectively.

Accordingly, affective attachment (0.519) and social bonding (0.463) demonstrate strong predictive relevance. Place dependence (0.267) shows moderate predictive power, while place identity (0.190) exhibits lower but still acceptable predictive relevance. Overall, these findings indicate that the proposed model possesses satisfactory predictive capability.

Taken together, the combined results of R^2 and Q^2 suggest that the structural model has a high capacity to explain endogenous constructs as well as adequate predictive power. Therefore, the model can be considered valid and reliable for explaining the relationships among different dimensions of place attachment in the context of tourism-oriented second-home development in the studied villages.

In the final step, effect sizes (f^2) were examined to assess the contribution of each first-order construct to the higher-order construct of place attachment. The results indicate that affective attachment ($f^2 = 5.201$) exerts a very large effect and plays the most influential role among the dimensions. Social bonding ($f^2 = 2.371$), place identity ($f^2 = 0.509$), and place dependence ($f^2 = 0.470$) also show large and statistically significant effects on the higher-order construct.

According to Cohen's (1988) criteria, f^2 values greater than 0.35 indicate large effects. Thus, all four dimensions play important and influential roles in explaining place attachment, although the magnitude of the effects of affective attachment and social bonding is considerably more pronounced.

Analysis and Comparison of Findings

The findings of this study, indicating that emotional and social dimensions account for the strongest contributions to explaining place attachment, are consistent with a substantial body of theoretical and empirical literature. At the theoretical level, this result aligns with the tripartite framework proposed by Scannell and Gifford (2010) as well as the model developed by Williams & Vaske (2003), both of which emphasize the primacy of emotional and social components over functional dimensions in the formation of place attachment.

Empirically, the observed pattern corresponds with studies such as Gallent (2014), Rye (2011), and Tuulentie & Kietäväinen (2019), which demonstrate that when rural communities encounter non-local second-home owners, social bonds and collective emotions often remain the most resilient elements of attachment, even in the presence of physical transformations or cultural tensions. As confirmed in the present study, although physical changes associated with second-home development exert significant effects on place identity and functional dependence, the strength of emotional and social constructs not only prevents erosion but may even reinforce emotional stability and attachment to the village.

The findings are also consistent with patterns reported in domestic studies, such as Hajimirrahimi et al. (2017) and Kazemzadeh (2023), which describe second-home development as generating a mixture of socio-cultural opportunities and challenges. However, the present study advances this body of research by demonstrating that, rather than merely experiencing passive impacts, the local community actively reinterprets emerging conditions and mobilizes its emotional and social capacities to maintain and even strengthen its sense of belonging.

This result also supports the dual-perspective approaches advanced by scholars such as Lerfald (2024) and Oğan & Yasak (2021), who conceptualize second homes as neither purely threatening nor entirely beneficial, but rather as dynamic and multi-layered phenomena. Moreover, the present study addresses an important gap in the domestic literature: whereas previous studies have rarely conducted quantitative assessments of place attachment dimensions in second-home contexts, this research employs structural equation modeling to demonstrate that emotional and social dimensions of attachment remain stable and influential even under conditions of physical transformation and the influx of non-local owners.

Overall, while confirming some concerns raised in earlier literature, the findings present a more nuanced and multidimensional understanding of place attachment in rural contexts experiencing tourism-oriented second-home development.

Conclusion

This study aimed to examine the effects of non-local tendencies associated with second-home development on dimensions of place attachment in the villages of Heravi and Beyragh. Using structural equation modeling and conceptualizing place attachment as a higher-order construct, the study sought to explain the impacts of this phenomenon

on four first-order dimensions: affective attachment, place dependence, place identity, and social bonding.

First, the validity of the measurement model was assessed. The results confirmed satisfactory internal consistency reliability for all constructs (CR > 0.70) and adequate convergent validity, with AVE values exceeding 0.50. Discriminant validity was also confirmed using both the HTMT ratio and the Fornell-Larcker criterion. These results established the necessary conditions for evaluating the structural model.

The structural model results indicated that all hypothesized relationships were statistically significant ($p < 0.001$). Affective attachment exhibited the strongest effect on the higher-order construct of place attachment ($\beta = 0.916$, $t = 118.3$), followed by social bonding ($\beta = 0.839$, $t = 59.49$) and place identity ($\beta = 0.581$, $t = 16.34$), both of which contributed positively and significantly. In contrast, place dependence, although significant ($\beta = 0.565$, $t = 16.18$), showed the weakest influence among the four dimensions (Table 7).

Model fit indices further indicated that R^2 values for the first-order constructs ranged between 0.32 and 0.83, reflecting moderate to strong explanatory power (Hair et al., 2022). Positive Q^2 values above zero confirmed adequate predictive relevance. Effect size analysis revealed that affective attachment and social bonding exert strong effects, place identity a moderate effect, and place dependence a relatively weaker effect on the higher-order construct. Overall, the structural model results demonstrate that emotional and social dimensions play a more prominent role in the process of place attachment under conditions of second-home development, while functional dimensions contribute to a lesser extent. This finding is consistent with prior research emphasizing the dominance of emotional and social components in shaping place attachment and place-based identity (Scannell & Gifford, 2010; Williams & Vaske, 2003).

Moreover, the findings are consistent with the theoretical perspectives of scholars such as Lewicka (2008), who emphasize that physical and functional changes in the environment can significantly influence the sustainability of place attachment and place identity. In the present study, it was likewise demonstrated that physical transformations within rural areas resulting from the development of second-home tourism have a statistically significant effect on all dimensions of place attachment. Among these dimensions, affective and social attachments played a more prominent role in explaining the overarching construct, whereas functional dependence and identity-related dimensions contributed to a lesser extent.

Although at first glance these findings may appear to contradict theoretical perspectives emphasizing the negative impacts of second homes on rural identity, they reveal a more complex reality. Second-home development exhibits a dual nature: while physical incongruities and lifestyle changes may challenge cultural and identity foundations, emotional and social dimensions of place attachment can remain resilient and even become reinforced. This suggests that local communities actively draw on their socio-emotional capacities to reproduce cohesion and a sense of belonging in the face of physical change.

At the same time, rapid and unregulated second-home construction that lacks contextual integration may contribute to emerging interpretations of place identity based on differentiation and visual distinctiveness rather than deep-rooted cultural continuity. Although such differentiation may initially be perceived as modernization or spatial enhancement, its continuation without appropriate guidance may gradually weaken cultural authenticity and environmental coherence. Therefore, balanced rural planning and design policies that enhance physical quality while safeguarding cultural integrity are essential.

Table 7. Structural model results (direct effects and model fit indices). Source: Authors.

Path	Path coefficient (β)	t-value	p-value	Hypothesis result	f^2	R^2	Q^2
Affective attachment → Place attachment	0.916	118.358	0.000	Supported	5.201	0.839	0.519
Place dependence → Place attachment	0.565	16.184	0.000	Supported	0.470	0.320	0.267
Place identity → Place attachment	0.581	16.342	0.000	Supported	0.509	0.337	0.190
Social bonding → Place attachment	0.839	59.490	0.000	Supported	2.371	0.703	0.463

Finally, the findings of this study are limited to the villages of Heravi and Beyraq, each characterized by specific socio-cultural and physical conditions. Future research is encouraged to examine other rural contexts with diverse cultural, geographical, and economic characteristics to enhance comparability and generalizability. Further studies may also explore mediating variables such as environmental quality and the presence of strong indigenous architectural traditions, as well as employ in-depth qualitative methods, including interviews and ethnographic approaches, to uncover deeper layers of socio-cultural transformation.

Conflict of Interest

The authors declare that there is no conflict of interest in the execution of this research.

Endnotes

1. Given that both villages are affected by second-home development, the data were analyzed in an aggregated manner to provide an overall understanding of the relationships among the dimensions of place attachment.
2. Accordingly, the convergent validity of the second-order construct was assessed based on the significance of the path coefficients between the first-order constructs and the second-order construct, as well as the coefficients of determination (R^2).
3. Due to the hierarchical structure of the second-order construct, HTMT values between the higher-order construct and its dimensions cannot be interpreted as evidence of a lack of discriminant validity.
4. Because the repeated-indicator approach was used to model the second-order construct, SmartPLS reports R^2 and Q^2 values only for the first-order dimensions, which technically appear as endogenous constructs in the software output, although conceptually they function as exogenous dimensions of the overarching construct of place attachment.

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