

Research on the Driving Mechanism of Island Residents' Participation in Ecological Value Co-creation Behaviors and Their Happiness

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Abstract: Island residents are not only the bearers of ecological impacts but also key stakeholders and potential active participants. Clarifying the driving mechanism of their participation in ecological value co-creation behaviors is the theoretical basis for understanding and promoting the benign governance of the island social ecosystem. This study constructs a research model of the driving mechanism of island residents' ecological value co-creation behaviors and their happiness. Through a questionnaire survey of 160 island residents and data analysis, the study shows that social capital, local attachment, and self-efficacy have a positive impact on ecological value co-creation behaviors, and ecological value behaviors have a positive impact on residents' happiness. Policy and institutional perception and perceived benefits have no relation to ecological value co-creation behaviors. The research results have practical implications for island ecological governance.

Keywords: Island Ecological Governance; Ecological Value Co-creation; Residents' Happiness; Driving Factors

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1. Introduction

At the 2nd plenary session of the 13th Central Committee of the Communist Party of Guangdong Province, it was also emphasized to highlight the leading role of "Green and Beautiful Guangdong" and to plan and promote the construction of ecological civilization at a high level. Guangdong Province is a major marine province and also has a large number of islands. Islands have significant ecological, resource, economic and rights values. With the development of modern marine industries, the development activities of islands have increased, and they have become a new space for economic and social development in the coastal areas of Guangdong Province. Exploring the green and high-quality development of island ecology is of great significance. Based on this, the development of the practical model of residents' participation in the co-creation of ecological value can promote the ecological appearance of island communities. The concept of ecological value co-creation refers to residents, as participants in ecological protection, actively participating in the process of protecting, managing, improving and value transformation of island ecological environment through the collaborative efforts of the government, enterprises and social organizations, and promoting the high-quality green and ecological development of islands. For island communities with fragile ecology and high dependence on natural resources, residents are not only the bearers of ecological impacts, but also key stakeholders and potential active actors. Clarifying the driving mechanism of their participation in ecological value co-creation is the theoretical basis for understanding and promoting the benign governance of island society-ecosystem. At

the same time, what impact will residents' ecological value co-creation behavior have on their own lives? Will it enhance residents' happiness and illuminate a better life? What is the internal mechanism? This article, based on on-site investigations of islands, attempts to reveal the path through which residents' participation in ecological value co-creation, through perceived value, ultimately promotes residents' happiness.

2. Literature Review and Research Hypotheses

2.1 Island Residents' Ecological Value Co-creation Behavior

Value co-creation has attracted significant attention from the academic community since the 1990s. With the development of social networks, more and more enterprises directly interact with consumers through social media to promote the development of value co-creation. Studying value co-creation from the perspective of consumers has also become an important direction in marketing research (Hajli et al., 2017). As the research on value co-creation theory deepens, scholars have applied it to various perspectives such as tourism (Tu et al., 2024), innovation creation (Li et al., 2025), and social media (Zhang et al., 2022). From an ecological perspective, ecological value refers to the value of the ecosystem and the value of ecosystem services, emphasizing the long-term sustainability of ecosystem functions (Lu, 2013). Broadly speaking, ecological value includes the value of ecological goods (economic and non-economic goods) and the value of ecosystem services. Therefore, ecological value encompasses environmental value, economic value, and social value (Nie & Tang, 2022). This article adopts the broad concept of ecological value. The process of realizing and preserving the value of ecological value is a dynamic process that is influenced by the participants in the process, but currently, there is relatively little research on the process of realizing ecological value and the related stakeholders involved. The existing research is mainly from the perspective of ecotourism. In summary, the ecological value co-creation behavior of island residents refers to the series of actions taken by island residents, who, from being passive protectors of the ecosystem or bystanders, transform into active participants, collaborators, and creators, collaborating with multiple entities such as the government, enterprises, and social organizations to jointly protect, enhance, transform, and enjoy the value of island ecological resources.

2.2 The Driving Mechanism of Island Residents' Participation in Ecological Value Co-creation Behaviors

Exploring the driving mechanism of island residents' participation in ecological value co-creation behaviors can be conducted from three aspects: individual psychology, social networks, and situational factors.

From the perspective of individual psychology, based on the social cognition theory, self-efficacy affects an individual's behavioral choices, thinking patterns, and emotional responses (Bandura, 1986). Self-efficacy refers to an individual's belief in their ability to organize and execute the actions necessary to achieve a specific achievement. Existing studies have confirmed that the self-efficacy of tourists and farmers can promote pro-environmental behaviors (Guo et al., 2022; Li & Han, 2025). Applying self-efficacy to the scenario of island residents' ecological value co-creation means that island residents have a level of confidence in their ability to participate in ecological value co-creation activities. Residents with high self-efficacy are more likely to choose to participate, driving the emergence of ecological value co-creation behaviors. In addition, the Self-Determination Theory distinguishes between extrinsic motivation and intrinsic motivation, stating that intrinsic motivation derived from interest, enjoyment, or value identification can bring more lasting and high-quality behavioral engagement (Ryan & Deci, 2000). In the context of the island, intrinsic emotions such as love for the homeland and identification with marine culture may be deeper driving forces than external rewards and punishments.

Existing studies indicate that environmental behaviors are constrained by specific social relationships and social structures. Based on the social capital theory, high levels of social capital reduce cooperation costs, promote information flow, strengthen social norms, and provide social support for individuals, thereby effectively promoting pro-environmental behaviors (Du & Wan, 2022; Gao et al., 2023). In island communities with a high degree of interpersonal dependence, the driving effect of social capital on ecological environmental behaviors will be significantly amplified (Cinner et al., 2018).

The island ecosystem is characterized by its vulnerability, isolation, and limited resources, and its communities often exhibit a high dependence on natural resources. This necessitates a contextual examination of the driving mechanisms. The residents' perception of policy and institutions is an important manifestation of the community context, and existing research has

confirmed that policy perception influences people's pro-environmental behaviors (Zhu et al., 2025). Whether it can stimulate ecological value co-creation behaviors and whether the policy is in line with the regional culture are related. At the same time, the perceived benefits of participation behaviors (including economic income, livelihood security guarantee, and overall environmental improvement of the community) are important factors in decision-making, especially in areas where livelihood choices are limited (Yang & Zhuang, 2022).

Although existing research has explored these aspects, it provides rich perspectives for understanding the driving forces of pro-environmental behaviors. However, for the special context of islands, empirical research that systematically integrates individual psychology, social capital, and external contextual factors from the perspective of value co-creation is still insufficient. Therefore, this study constructs an integrated analytical framework of policy institution perception, self-efficacy, local attachment, social capital, and perceived benefits for the ecological value co-creation behaviors of island residents, deepening the understanding of the intrinsic driving forces of island ecological governance. Therefore, this study proposes the following hypotheses:

H1 The perception of policy system positively influences the ecological value co-creation behavior of island residents;

H2 Social capital positively influences the ecological value co-creation behavior of island residents;

H3 Place attachment positively influences the ecological value co-creation behavior of island residents;

H4 Perceived benefits positively influences the ecological value co-creation behavior of island residents;

H5 Self-efficacy positively influences the ecological value co-creation behavior of island residents.

2.3 The Behavioral Actions of Island Residents in Creating Ecological Value and Their Sense of Happiness

The livelihood methods of island residents are mostly directly related to the island's ecosystem. Residents' participation in creating ecological value not only protects the environment but is also directly related to the security of their livelihoods and the long-term stability of the community economy. When residents see that their actions contribute to ensuring family income and the long-term stability of the community economy, they will experience a strong sense of control and security, which is an important foundation for happiness (Cinner et al., 2018). Moreover, the improved environmental quality (such as cleaner beaches and more abundant marine life) directly enhances the aesthetic and leisure value of daily life and improves the overall perception of quality of life (Giannico et al., 2021). From the perspectives of cultural identity and self-value realization, residents' participation in creating ecological value is not only the continuation of traditional marine ecological culture but also a means of self-value realization, which can effectively counter feelings of powerlessness, enhance psychological resilience, and significantly improve individual and collective happiness (Jiang et al., 2018). Therefore, the following hypothesis is proposed in this paper:

H6 The behavioral actions of island residents in creating ecological value have a positive impact on their sense of happiness

3. Research Design

3.1 Questionnaire Design

To explore the relationship between the ecological value co-creation behavior of island residents and their sense of happiness, this paper designed scales for variables such as the ecological value co-creation behavior of island residents, the influencing factors of this behavior (including policy and institutional perception, community social capital, ecological dependence and identification, personal knowledge and ability, and perceived expected benefits), and the sense of happiness of residents. These scales were combined with personal characteristic items to form the survey questionnaire of this study. The scales were based on previous research results and were refined according to the actual research situation and expert suggestions to meet the needs of this study.

3.2 Sample Selection

In terms of sample selection, stratified random sampling was adopted. Four island residents were selected from Guangdong Province for the survey, and the samples were made as reasonable as possible in terms of education level, age, and income level to ensure the representativeness of the samples. A total of 200 questionnaires were collected, among which 160 were valid. The basic personal characteristics of the respondents are shown in Table 1.

Table 1 Sample basic information

| item | Category | Percentage |
|-----------|------------------------------------|------------|
| Gender | male | 38.8 |
| | female | 61.3 |
| Age | 0-20 | 1.9 |
| | 21-30 | 43.8 |
| | 31-40 | 38.8 |
| | 41-50 | 10.6 |
| | 51-60 | 4.4 |
| | Over 60 | 0.6 |
| Education | Undergraduate | 24.4 |
| | Doctor | 1.2 |
| | Below the senior high school level | 43.1 |
| | Master | 9.4 |
| | College degree | 21.9 |

4. Data Analysis Results

This study utilized AMOS 28 software for data analysis to verify the research hypotheses. Firstly, we evaluated the rationality of the measurement scale through various reliability and validity indicators such as Cronbach's coefficient, composite reliability, and average variance extracted value. Then, a structural equation model analysis was conducted.

4.1 Reliability and Validity Test

Firstly, the reliability analysis (Reliability) can reflect whether the questionnaire measurement results are reliable. Currently, the most commonly used coefficient for measuring questionnaire reliability is Cronbach's α . In the academic community, it is generally believed that 0.7 is the minimum acceptable value for the reliability of a questionnaire scale, and a value greater than 0.8 indicates a higher reliability of the questionnaire. Using SPSS 26.0 software to conduct reliability analysis on the data, as shown in Table 2, the reliability analysis results indicate that the Cronbach's α coefficients of each subscale of the survey sample are all greater than 0.7, thus the reliability of this research scale has a good degree of credibility.

Table 2 Results of Reliability and Validity Analysis

| Construct | Item | Factor loadings | Cronbach's α | CR | AVE |
|---------------------------------------|------|-----------------|---------------------|-------|-------|
| Ecological value co-creation behavior | ST1 | 0.81 | 0.849 | 0.871 | 0.532 |
| | ST3 | 0.79 | | | |
| | ST4 | 0.79 | | | |
| | ST5 | 0.59 | | | |
| | ST6 | 0.7 | | | |
| | ST7 | 0.67 | | | |
| The perception of policy system | ZC1 | 0.77 | 0.82 | 0.821 | 0.534 |
| | ZC2 | 0.71 | | | |
| | ZC3 | 0.69 | | | |
| | ZC4 | 0.75 | | | |
| Social capital | SC1 | 0.86 | 0.806 | 0.808 | 0.518 |
| | SC2 | 0.6 | | | |
| | SC3 | 0.64 | | | |
| | SC4 | 0.75 | | | |

| Construct | Item | Factor loadings | Cronbach's α | CR | AVE |
|--------------------|------|-----------------|---------------------|-------|-------|
| Place attachment | EI1 | 0.74 | 0.844 | 0.846 | 0.579 |
| | EI2 | 0.77 | | | |
| | EI3 | 0.73 | | | |
| | EI4 | 0.8 | | | |
| Self-efficacy | SE1 | 0.81 | 0.809 | 0.811 | 0.589 |
| | SE2 | 0.72 | | | |
| | SE3 | 0.77 | | | |
| Perceived benefits | PB1 | 0.6 | 0.778 | 0.792 | 0.566 |
| | PB3 | 0.88 | | | |
| | PB4 | 0.75 | | | |
| | HI1 | 0.61 | | | |
| happiness | HI2 | 0.71 | 0.833 | 0.827 | 0.5 |
| | HI4 | 0.78 | | | |
| | HI5 | 0.67 | | | |
| | HI6 | 0.72 | | | |

Secondly, in this study, the rationality and validity of the questionnaire were tested through structural validity (including convergent validity and discriminant validity), which refers to the degree of consistency between theory and data. To verify the convergent validity of the scale, confirmatory factor analysis was conducted using the AMOS 28.0 statistical analysis software. The standard deviation (STD) scores of SE4, PB2, HI3, and ST2 were less than 0.5. After deleting SE4, PB2, HI3, and ST2, the factor loadings of all latent variables were between 0.59 and 0.88; the composite reliability (CR) score was between 0.792 and 0.871; and the average variance extracted (AVE) score was between 0.50 and 0.589. These results are acceptable (see Table 1). Therefore, the reported results meet the criteria for convergent validity (factor loadings > 0.5 ; CR > 0.6 ; AVE > 0.5), indicating that the tested model has good convergent validity. The discriminant validity of the scale was tested through average variance extracted values (AVE). The results showed that the AVE value of each variable was greater than the correlation coefficient with other variables (see Table 3), which met the requirements of the discriminant validity test and indicated that the scale has good discriminant validity. To further test the discriminant validity, this paper also used the HTMT method for testing, and the results are shown in Table 4. The HTMT values (the values outside the parentheses) are all lower than the maximum acceptable level of 0.85, and the confidence intervals of all HTMT values (the values inside the parentheses) do not include 1, which indicates that the scale has good discriminant validity.

Table 3 Correlation matrix

| | HI | PB | SE | EI | SC | ZC | ST |
|----|-------|-------|-------|-------|-------|-------|-------|
| HI | 0.707 | | | | | | |
| PB | 0.152 | 0.752 | | | | | |
| SE | 0.398 | 0.167 | 0.768 | | | | |
| EI | 0.170 | 0.121 | 0.061 | 0.761 | | | |
| SC | 0.457 | 0.171 | 0.119 | 0.065 | 0.720 | | |
| ZC | 0.309 | 0.267 | 0.144 | 0.231 | 0.187 | 0.731 | |
| ST | 0.607 | 0.146 | 0.359 | 0.390 | 0.321 | 0.283 | 0.729 |

Table 4 Heterotrait-monotrait (HTMT) criterion

| | ST | ZC | SC | EI | SE | PB |
|----|------------------------|-------------------------|-------------------------|------------------------|-------------------------|-------------------------|
| ZC | 0.313 (0.129,0.632) | | | | | |
| SC | 0.394 (0.212,0.686) | 0.198 (0.108,0.464) | | | | |
| EI | 0.387 (0.201,0.658) | 0.244 (0.117,0.498) | 0.111 (0.083,0.336) | | | |
| SE | 0.32 (0.218,0.529) | 0.139 (0.071,0.367) | 0.152 (0.086,0.364) | 0.13 (0.082,0.301) | | |
| PB | 0.25 (0.167,0.409) | 0.244 (0.126,0.498) | 0.158 (0.093,0.460) | 0.151 (0.089,0.429) | 0.19 (0.092,0.446) | |
| HI | 0.619 (0.439,0.806) | 0.328 (0.169, 0.580) | 0.492 (0.275, 0.797) | 0.21 (0.130, 0.462) | 0.395 (0.254, 0.610) | 0.183 (0.108, 0.419) |

4.2 Common Method Bias

After establishing the convergent validity and discriminant validity, it is crucial to assess the potential impact of common method variance (CMV). CMV refers to the data covariance caused by common evaluators, the same measurement environment, consistent data sources, the same background factors, or the scale itself. To address this issue, we employed three methods for verification. Firstly, the results of the Harman single-factor test indicated that the eigenvalue of a single factor exceeded 1, but the first factor only explained 23.46% of the total variance, which did not reach the recommended threshold of 40%. Secondly, the verification was conducted through one-dimensional model testing in confirmatory factor analysis (CFA). The results showed that the fit index of the one-dimensional model () was worse than that of the measurement model (). In summary, the above methods proved that common method bias should not be regarded as a major issue in this study.

4.3 Structural Equation Model

Based on the results of the reliability and validity tests and the CMV analysis, all indicators of the model met the standards. Next, it is necessary to verify whether the assumed relationships between variables are valid. This study used AMOS 28.0 to test the model, and the fitting results are shown in the table. The R-square values of ST and HI were 0.369 and 0.393, respectively. Table 6 shows the final path analysis results.

Table 5 Measure model goodness of fit.

| Index | X ² /df | RMSEA | RMR | CFI | IFI | TLI | GFI | AGFI |
|------------------|--------------------|-------|-------|------------|-------|-------|-------|------------|
| Model index | 1.363 | 0.033 | 0.048 | 0.822 | 0.927 | 0.916 | 0.926 | 0.787 |
| Superior value | <3 | <0.05 | <0.05 | >0.9 | >0.9 | >0.9 | >0.9 | >0.9 |
| reasonable value | <5 | <0.08 | <0.08 | >0.7 | >0.7 | >0.7 | >0.7 | >0.7 |
| imitative effect | Good | Good | Good | Acceptable | Good | Good | Good | Acceptable |

Table 6 Result of hypothesis testing.

| Model path | Unstandardized Estimate | Standardized Estimate | S.E. | C.R. | P |
|------------|-------------------------|-----------------------|-------|--------|-------|
| H1:ZC→ST | 0.173 | 0.124 | 0.123 | 1.408 | 0.159 |
| H2:SC→ST | 0.334 | 0.276 | 0.104 | 3.202 | 0.001 |
| H3:EI→ST | 0.374 | 0.317 | 0.102 | 3.663 | *** |
| H4:PB→ST | -0.021 | -0.015 | 0.118 | -0.179 | 0.858 |
| H5:SE→ST | 0.312 | 0.310 | 0.088 | 3.562 | *** |
| H6:ST→HI | 0.271 | 0.627 | 0.051 | 5.291 | *** |

As shown in Table 6, the results indicate that social capital ($\beta = 0.344$, $p < 0.001$), ecological identity ($\beta = 0.374$, $p < 0.001$), and self-efficacy ($\beta = 0.312$, $p < 0.001$) have a positive impact on ecological value co-creation behavior, respectively supporting H2, H3, and H5. However, policy and institutional perception is not related to ecological value co-creation behavior ($\beta = 0.173$, $p > 0.05$), and does not support H1; at the same time, perceived benefits are not related to ecological value co-creation behavior ($\beta = -0.021$, $p > 0.05$), and does not support H4. Additionally, the hypothesized relationship between ecological value co-creation behavior and residents' happiness ($\beta = 0.271$, $p < 0.001$) has also been supported.

5. Concluding Insights and Research Limitations

5.1 Theoretical Insights

Firstly, the results of this study confirm the positive impact of social capital on the collaborative behavior of ecological value creation. This indicates that the informal social structures and social relationship networks in island societies play a crucial role in promoting pro-environmental behaviors and the formation of behavioral norms. Specifically, social capital such as trust among neighbors, collaborative community ecological governance, island ecological governance leaders, and neighbors' ecological attitudes in island societies may act as social catalysts for the transformation of individual ecological identity and self-efficacy into actual ecological value creation behaviors.

Secondly, the results of this study confirm that policy system perception and perceived benefits have not had a significant positive impact on the ecological value creation behavior of island residents, while residents' self-efficacy and ecological identity can have a positive impact on their ecological value creation behavior. This finding challenges the universal applicability of external incentives. This result shows that in an environment highly dependent on nature and with closely-knit community ties, the main driving force for pro-environmental behaviors does not come from external institutional constraints or the promise of expected benefits. In such an environment, the application of self-determination theory is more profound, that is, intrinsic motivations, including ecological identity and self-efficacy, may be more capable of driving ecological value creation behavior than external regulations and utilitarian benefits.

Then, the results of this study show that there is no significant correlation between policy system perception and ecological value co-creation behavior. This conclusion may be related to several factors. Firstly, the implementation, clarity of dissemination, and compatibility of policies at the grassroots level are insufficient, which may lead to inconsistency between perception and actual effect. Secondly, in an island environment with strong social capital and ecological identity, the behaviors of island residents mainly rely on internal driving forces, resulting in weakened external policy influence. Thirdly, the existing policies may not be able to effectively align with the social psychology of community residents, leading to policy perception failure. This suggests that future research on environmental behavior should more precisely analyze the interaction relationships among policy perception, policy quality, policy implementation, and community context, rather than simply assuming that policy perception will inevitably lead to cooperative behavior.

Finally, the results of this study indicate that ecological value co-creation behavior is positively correlated with residents' happiness. This conclusion provides empirical support for the idea that pro-environmental behaviors are beneficial to one's own well-being. Island residents' participation in ecological value co-creation is not only a sacrifice but also a way to gain happiness. At the same time, happiness may further strengthen their ecological identity, self-efficacy, etc., thereby promoting the positive cycle of ecological value co-creation behavior and residents' happiness.

5.2 Practical Insights

Firstly, focus on strengthening the internal motivation mechanism of island residents. Research shows that internal motivation can better promote pro-environmental behaviors. Therefore, in ecological governance, the island community should strive to cultivate the internal motivation system of the community. This can be achieved through the following methods: First, encourage and support the establishment of formal or informal organizations such as community environmental volunteer groups and cooperatives, and hold regular ecological governance-related activities to enhance mutual assistance and trust among community members. Second, publicly select environmental leaders and leverage their exemplary and leading roles. Third, conduct ecological education based on the local environment of the island, deeply reinforcing the understanding of island residents of the interdependence between themselves and the marine environment.

Secondly, establish and promote happiness-oriented ecological co-creation projects. When promoting ecological co-creation projects, design public welfare publicity with the core focus on enhancing happiness. In the design of ecological co-creation projects, some elements of multiple well-being such as intangible cultural heritage experience, social interaction, aesthetic taste, and green health can be integrated. For example, combining beach cleaning with hiking, natural photography, environmental reuse, etc. After the completion of the ecological co-creation project, through interviews or sharing of self-media stories, share and disseminate the stories of residents' joy and happiness growth due to their participation in the ecological co-creation project, thereby shaping the ecological value co-creation behavior into an island lifestyle that enhances residents' happiness.

Finally, shift external incentives to internal motivation. Although the research results show that perceived benefits have no direct impact on ecological co-creation behaviors, they do not deny the importance of perceived benefits. In practice, external economic incentives still need to be implemented, but economic benefits should not be the primary or sole means of driving residents to participate in ecological value co-creation, to prevent them from crowding out internal motivations. Specifically, relevant departments can explore incentive models that link economic benefits with the long-term effects of ecological protection and community welfare.

5.3 Research Limitations

This study explored the driving mechanisms of the ecological value co-creation behavior of island residents and its relationship with their sense of happiness, and obtained some enlightening conclusions. However, this study still has limitations. First, there are limitations in the research methods. This study adopted a cross-sectional survey design. Although it proposed hypotheses about the causal relationship between variables, the data were collected at the same time point and could not strictly verify the causal direction between variables. Future research can adopt longitudinal tracking design or situational experimental methods to better test the causal direction. Second, although the sample of this study surveyed several islands, due to the investigation cost, the sample could not cover the islands in different sea areas of China, nor could it investigate the islands under different cultural and political backgrounds of different countries. Therefore, the findings of this study need to be cautious when generalized to other cultural or geographical contexts of island communities. Future research can compare islands with different cultural backgrounds to test the universality and boundary conditions of the model. Third, although this study used relatively mature scales, it was limited by the length of the questionnaire and ignored some driving factors, such as ecological awareness. Future research can incorporate more driving factors into the model.

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Conflict of Interests

The authors declare that there is no conflict of interest regarding the publication of this paper.

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