

NAVIGATING THE NEXUS: HOW CLIMATE CHANGE RISK PERCEPTION AND ECONOMIC DEPENDENCE INFLUENCE LOCAL SUPPORT FOR SUSTAINABLE TOURISM

Navegar no nexo: como a percepção do risco das alterações climáticas e a dependência econômica influenciam o apoio local ao turismo sustentável

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ABSTRACT

This study examines the mediating role of economic dependence in the influence of local people's climate change risk perception on their support for sustainable tourism development in a climate-sensitive and economically tourism-dependent region. Integrating Protection Motivation Theory and Social Exchange Theory the research analyzes how threat perceptions and economic interests shape sustainable tourism development attitudes. Structural Equation Modeling was used with data collected from 397 local residents in Rize, Türkiye. The findings show that climate change risk perception positively influences both economic dependence and support for sustainable tourism development, and economic dependence positively influences support for sustainable tourism development. Most importantly, economic dependence was found to play a significant partial mediating role in the relationship between climate change risk perception and sustainable tourism development support, i.e., the effect of climate change risk perception on sustainable tourism development is partially mediated by perceived economic security. The study contributes to theoretical understanding by identifying economic dependence as a key mechanism in the protection motivation theory -social exchange theory interaction and provides policy recommendations that balance climate risk communication with the economic benefits of sustainable tourism development. This is particularly important for regions facing dual pressures of climate change and economic interdependence.

KEYWORDS

Climate Change Risk Perception; Sustainable Tourism Development; Economic Dependence; Protection Motivation Theory; Social Exchange Theory.

RESUMO

Este estudo examina o papel mediador da dependência econômica na influência da percepção do risco das alterações climáticas pela população local no seu apoio ao desenvolvimento do turismo sustentável numa região sensível ao clima e economicamente dependente do turismo.

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Integrando a Teoria da Motivação para a Proteção e a Teoria da Troca Social, a investigação analisa como as percepções de ameaça e os interesses económicos moldam as atitudes em relação ao desenvolvimento do turismo sustentável. Foi utilizada a Modelagem de Equações Estruturais com dados recolhidos de 397 residentes locais em Rize, na Turquia. Os resultados mostram que a percepção do risco das alterações climáticas influencia positivamente tanto a dependência económica como o apoio ao desenvolvimento do turismo sustentável, e que a dependência económica influencia positivamente o apoio ao desenvolvimento do turismo sustentável. Mais importante ainda, verificou-se que a dependência económica desempenha um papel mediador parcial significativo na relação entre a percepção do risco das alterações climáticas e o apoio ao desenvolvimento do turismo sustentável, ou seja, o efeito da percepção do risco das alterações climáticas no desenvolvimento do turismo sustentável é parcialmente mediado pela segurança económica percebida. O estudo contribui para a compreensão teórica ao identificar a dependência económica como um mecanismo-chave na interação entre a teoria da motivação para a proteção e a teoria da troca social, e fornece recomendações políticas que equilibram a comunicação dos riscos climáticos com os benefícios económicos do desenvolvimento do turismo sustentável. Isto é particularmente importante para regiões que enfrentam pressões duplas das alterações climáticas e da interdependência econômica.

PALAVRAS-CHAVE

Percepção do Risco de Alterações Climáticas; Desenvolvimento Turístico Sustentável; Dependência Económica; Teoria da Motivação para a Proteção; Teoria da Troca Social.

2

INTRODUCTION

Climate change poses an increasingly significant and undeniable threat to the global tourism sector, profoundly affecting the environmental, socio-cultural, and economic foundations of destinations (Gössling et al., 2013; Scott et al., 2012). Rising temperatures, changes in rainfall patterns, extreme weather events, and the degradation of natural ecosystems directly affect tourism demand, destination attractiveness, and the long-term sustainability of tourism-dependent regions. Tourism's high dependence on natural resources and relatively stable climate conditions makes the sector particularly vulnerable to the adverse effects of climate change (Cook et al., 2024). This vulnerability is felt more acutely in nature-based and rural destinations, where environmental quality is a fundamental component of the tourism product and local livelihoods are largely dependent on tourism.

In response to these challenges, sustainable tourism development (SSTD) has emerged as a fundamental paradigm that aims to strike a balance between environmental protection, socio-cultural integrity, and economic sustainability in tourism destinations (Bramwell et al., 2017). SSTD aims not only to reduce the negative impacts of tourism on fragile ecosystems but also to increase destinations' capacity to adapt to climate-related risks. However, the effectiveness and

long-term success of sustainable tourism policies and practices largely depend on the support and participation of local communities in these efforts (Andereck et al., 2005; Lee & Jan, 2019). The local population is a key stakeholder in tourism development processes, and their attitudes toward sustainability policies can either facilitate or hinder the implementation of adaptation and mitigation measures.

Therefore, understanding the factors that shape the local population's support for SSTD has become a critical issue in tourism research. Among these factors, individuals' climate change risk perception (CCRP) plays a particularly important role. CCRP reflects individuals' cognitive assessments of the severity and likelihood of threats associated with climate change and determines how they respond to environmental challenges. Protection Motivation Theory (PMT) (Maddux & Rogers, 1983; Rogers, 1975) provides a robust theoretical framework for explaining how perceived threats direct individuals toward protective attitudes and behaviors. In the context of climate change, PMT suggests that individuals who perceive environmental risks as higher are more likely to support actions and policies aimed at reducing these risks. In this regard, CCRP is considered an important precursor to support for SSTD (Olya et al., 2019). In this context, it is important to note that the protective responses emphasized by Protection Motivation Theory can also be understood within a broader decision-making logic oriented toward prevention under uncertainty. This logic bears conceptual similarities to what Sunstein (2005) describes as *precautionary reasoning*, where individuals and institutions tend to favor protective actions when facing potentially severe but uncertain risks. However, the present study does not adopt the precautionary principle as a normative or legal framework. Rather, Sunstein's perspective is used here as an analytical analogy to illustrate how heightened perceptions of climate-related threats may orient individuals toward support for protective and sustainability-oriented measures. Accordingly, climate change risk perception in this study is conceptualized as a cognitive appraisal that activates a prevention-oriented decision logic, consistent with the behavioral assumptions of Protection Motivation Theory, without implying a strict precautionary or zero-risk stance.

It is essential to distinguish between risk perception and affective concern or worry, as these constructs represent conceptually different psychological processes. Risk perception primarily refers to a cognitive evaluation of the likelihood and potential severity of a threat, whereas concern or worry reflects an affective and emotional response to that threat (Larsen, 2007). In tourism research, this distinction has been emphasized by Larsen et al. (2009), who argue that

individuals may cognitively acknowledge risks without necessarily experiencing heightened emotional concern, and vice versa. Similarly, critical evaluations of risk perception theory in tourism have highlighted persistent conceptual problems arising from the conflation of cognitive risk appraisal with emotional reactions, uncertainty, or generalized anxiety (Korstanje, 2009; Korstanje, 2011). Failure to differentiate these dimensions may lead to conceptual ambiguity and measurement overlap. In line with this perspective, the present study focuses on risk perception as a cognitive appraisal of climate change–related threats, consistent with the assumptions of Protection Motivation Theory, rather than on affective concern or worry.

However, explaining local communities' support for SSTD solely through risk perception can lead to an incomplete perspective, especially in destinations where economic factors are decisive. Beyond being an environmental activity, tourism is a fundamental source of income and employment for many local communities. In this context, individuals' levels of economic dependence (ED) on tourism can significantly shape how they interpret climate change risks and respond to them. For individuals who derive a large part of their livelihood from tourism revenues, the economic consequences of sustainability measures or climate adaptation strategies can have a complex effect on their attitudes toward SSTD.

Social Exchange Theory (SET) (Blau, 1964; Homans, 1958) offers a complementary perspective for understanding this process, arguing that individuals base their decisions on perceived benefits and costs. According to SET, local communities tend to support tourism development and related policies when they perceive the economic, social, or environmental benefits of tourism to outweigh the costs. In the context of climate change and sustainable tourism, SET suggests that ED on tourism may condition how individuals' perceptions of environmental risks translate into attitudes.

This gap is particularly evident in terms of the potential mediating role of economic dependency in the relationship between CCRP and SSTD. It remains unclear whether individuals who are aware of the risks of climate change but also depend on tourism for their livelihoods will support sustainable tourism out of a motivation to protect their long-term economic interests, or whether they will disregard these risks in favor of short-term economic gains (Cook et al., 2024; Nunkoo & Ramkissoon, 2010). Resolving this uncertainty is of great importance, particularly in understanding the reactions of local communities in regions that are sensitive to climate change and economically dependent on tourism.

In this context, this study aims to examine the relationships between local communities' perception of climate change risks, their ED on tourism, and their support for SSTD by adopting a complementary theoretical perspective informed by Conservation Motivation Theory and Social Change Theory. The study uses each theory in the dimensions most appropriate to it conceptually, addressing risk-based cognitive assessments and change-based economic assessments within the same analytical framework.

The field of application for the research is the province of Rize, located in Turkey's Black Sea Region. Prominent for its rich natural landscapes and strong agricultural tradition (particularly tea cultivation) Rize has become increasingly dependent on tourism revenues in recent years. This structure, where environmental sensitivity and ED coexist, makes Rize a suitable research area for examining the relationship between CCRP and sustainable tourism support.

This study aims to contribute to the tourism literature in various ways. First, it fills an important gap in the literature by empirically testing the mediating role of ED in the complex relationship between CCRP and support for sustainable tourism development. Second, it brings together PMT and SET within a complementary theoretical framework, providing a more comprehensive explanation of the interactions between risk perception, economic motivations, and protective attitudes. Finally, the findings are expected to contribute to the development of policies and strategies aimed at increasing local support for SSTD in regions that are sensitive to climate change and economically dependent on tourism.

THEORETICAL FRAMEWORK AND HYPOTHESIS DEVELOPMENT

Climate change is recognized as one of the most important and urgent challenges for the tourism sector as well as globally (Farid et al., 2016; Scott et al., 2011). The high dependence of the tourism industry on the natural environment and climatic conditions makes it highly vulnerable to the impacts of climate change (Alizadeh et al., 2021; Scott et al., 2012). Climate change-induced risks such as sea level rise, increase in the frequency and severity of extreme weather events (droughts, floods, storms), biodiversity loss and water stress seriously threaten the attractiveness, infrastructure and overall functioning of destinations (Amelung et al., 2007; Dube, 2024; Moreno, 2010). This means that the future climatic suitability of coastlines and natural landscapes may change and some areas may lose the study seeks to understand how economic interests under the threat of climate change influence individuals their attractiveness while others may potentially become more suitable, especially in countries like Turkey where

beach tourism and nature-based tourism such as mountain tourism are at the forefront (Bonzanigo et al., 2016; Scott & Becken, 2010; Zeydan & Zeydan, 2025). Moreover, the tourism sector is a significant contributor to climate change, especially due to carbon emissions from transportation and accommodation (Gössling et al., 2013; Lenzen et al., 2018). This bidirectional relationship (both affecting and being affected) necessitates the development of climate change adaptation and mitigation strategies in tourism (Scott, 2011).

In this context, the concept of sustainable tourism has come to the fore as a response to the threats posed by climate change and the environmental impacts of tourism (Torkington et al., 2020). Sustainable tourism is a holistic approach that aims to minimize the negative impacts of tourism and maximize its benefits for local communities by balancing environmental, socio-cultural and economic dimensions (Bramwell et al., 2017; Hunter, 2002) and aims to secure the well-being of the public and the quality of the tourism experience in the long term (Higgins-Desbiolles, 2018; Lee & Jan, 2019). However, there are significant challenges in implementing sustainable tourism policies, particularly due to tensions between economic growth objectives and environmental protection (Torkington et al., 2020; Weaver, 2011).

The aim of this study is to examine the impact of CCRP on SSTD and the mediating role of ED in this relationship in the context of Rize province. In order to make sense of this complex web of relationships and to ground the hypotheses, PMT (Maddux & Rogers, 1983; Rogers, 1975) was primarily taken as a basis, but complementary perspectives such as SET (Blau, 1964; Homans, 1958) were also utilized to explain the role of economic factors more comprehensively.

CLIMATE CHANGE RISK PERCEPTION AND SUPPORT FOR SUSTAINABLE TOURISM: A THEORETICAL PERSPECTIVE

PMT is a cognitive appraisal model that aims to explain how individuals are motivated to protect themselves in the face of a threatening situation (Marikyan & Papagiannidis, 2023). The theory was first developed by Rogers (1975) in the context of health communication and was created to make sense of individuals' reactions to threatening messages. Over time, this theory has not only been limited to health behaviors, but also to environmental psychology ((Kothe et al., 2019; Shafiei & Maleksaeidi, 2020), disaster management (Cook et al., 2024; Faryabi et al., 2023; Kurata et al, 2023), climate change (Cismaru et al., 2011; Karakuş et al., 2025; Li et al., 2023; Villamor et al., 2023) It has become a common and valid theoretical framework used to make sense of individuals' protective behaviors in different fields such as .

PMT assumes that when individuals face a threat, they evaluate both the severity of the threat and their own level of vulnerability; they also evaluate the effectiveness of the solution to protect against the threat and the individual's capacity to implement this solution (self-efficacy) (Farivar et al., 2024). This evaluation process is shaped by two basic cognitive structures: threat appraisal and coping appraisal (Floyd et al., 2000; Maddux & Rogers, 1983). Threat appraisal is based on the individual's perception of how serious the threat is and the extent to which he or she might be exposed to it (Milne et al., 2000).

The extent to which individuals perceive climate change as a risk significantly affects the measures and attitudes they will take against this risk (Olya et al., 2019; Rogerson, 2016; van der Linden et al., 2016). According to PMT, motivation to protect is influenced by two key cognitive appraisal processes: threat appraisal (perceived severity and perceived vulnerability) and coping appraisal (response effectiveness and self-efficacy). In the context of climate change, high risk perception (high threat appraisal) leads individuals to be more likely to engage in behaviors to mitigate (mitigation) or adapt to (adaptation) the negative impacts of climate change (high coping appraisal) (Fletcher et al., 2021; Poudyal et al., 2021; S. Wang et al., 2019). Indeed, using the PMT, Lee & Jan(2024) demonstrated that tourists' perceived threat severity and vulnerability influence their pro-environmental behavior intentions through their coping appraisals and psychological resilience. In the tourism literature, the impact of CCRP on the behavior of tourists and locals has been examined in several studies (Lee & Jan, 2019; Shakeela & Becken, 2013). These studies suggest that the CCRP plays a central role in understanding attitudes and behaviors related to sustainability.

In the context of the current study, CCRP directly overlaps with the threat assessment component of PMT. It consists of how serious local people perceive the potential negative consequences of climate change (e.g. water scarcity, increase in serious diseases, decrease in standard of living) (perceived seriousness) and how likely they or their region is to be affected by these consequences (perceived vulnerability). According to PMT, the higher the threat assessment, the greater the individual's motivation to engage in a protective behavior.

It includes the individual's belief in how effective the proposed protective behavior will be in reducing the threat (response efficacy) and the individual's belief in his/her own ability to perform the behavior successfully (self-efficacy). In our study, SSTD can be considered as a potential coping or adaptation strategy to the threat of climate change. Sustainable tourism

practices can help mitigate the impacts of climate change by reducing the environmental footprint of tourism and at the same time make tourism more resilient to the negative impacts of climate change. The success of sustainable tourism depends heavily on the support and participation of local people and other stakeholders (Andereck et al., 2005; Hien et al., 2024; Su et al., 2017; Sunuantari & Kliček, 2024). In this framework, PMT predicts that individuals who perceive the risk of climate change as high (high threat assessment) will be more motivated to support sustainable tourism development, which they see as a potential solution to deal with this threat. This is associated with the perception of SSTD as both an effective response to mitigate the threat (response effectiveness) and a strategy that can be supported by local people (expressions of support with self-efficacy implications). Therefore, the following hypothesis was developed based on PMT:

H1: Climate Change Risk Perception has a positive and significant effect on Support for Sustainable Tourism Development.

The main reason for choosing PMT in the current study is its structural integrity and explanatory power in explaining individuals' responses to climate change risk. In this process, the mediating role of individuals' level of ED (especially individuals who make their living from the tourism sector) in this relationship is revealed. The theoretical contribution of the study is enhanced by the fact that the theory allows for a more in-depth analysis of the relationship between threat perception and protective behavior by evaluating it together with individual interest-based variables such as economic dependency.

THE ROLE OF ECONOMIC COMMITMENT: PMT AND SET PERSPECTIVES

ED refers to the extent to which individuals or households base their livelihoods on a particular economic activity (in this case tourism). Local people's attitudes towards and support for tourism are often explained by SET (Ap, 1992; Cook & Rice, 2006). According to SET, individuals decide whether or not to support tourism by evaluating the perceived benefits (economic gain, employment, socio-cultural interaction, etc.) and costs (environmental degradation, increased cost of living, crowding, etc.) (Andereck et al., 2005; Gursoy et al., 2002; Perdue et al., 1990). If benefits are perceived to outweigh costs, support tends to increase. ED refers to the extent to which individuals or households base their livelihoods on a particular economic activity and can be considered as an important benefit perception in the SET framework. Individuals or

communities that rely heavily on tourism for their livelihood are more likely to support the continuation and sustainability of tourism, as this directly protects their own economic interests (Gursoy & Rutherford, 2004; Lee, 2013; Su et al., 2017). Indeed, studies such as Hien et al. (2024) and Kitnuntaviwat & Tang (2008) have shown that local people who are economically dependent on tourism are generally more favorable towards tourism development. These findings point to the role of economic interests in tourism support.

To understand the role of ED in the relationship between CCRP and SSTD, PMT alone may not be sufficient and needs to be supported by theories that emphasize economic motivations, such as SET. The direct effect and mediating role of economic commitment on SSTD is more related to rational cost-benefit analysis, and this is where the SET provides a more explanatory framework. SET assumes that individuals seek to maximize perceived rewards (benefits) and minimize costs in their social and economic relationships (Cook et al., 2013). SET is a theoretical approach that suggests that individuals act by making cost-benefit evaluations in their social relationships and interactions (Ng, 2024). According to this theory, individuals make decisions by mentally weighing the rewards they will receive from the relationships or interactions they participate in and the costs they will face. Founded by Homans (1958) and later developed by social theorists such as Blau (1964), SET assumes that individual and collective behaviors are based on rational preferences. In this framework, individuals participate in social processes that they think will benefit them, while they prefer to stay away from processes that will harm them or are not rewarding enough. SET is built on the principle of reciprocity. According to this principle, individuals expect to see a return for their contributions to another person or a structure (e.g. society or the state) (Cropanzano et al., 2017).

In this context, the fact that environmental threats such as climate change increase the risks to the continuity of economic interests at the local level may affect the level of ED of individuals on the tourism sector. When an individual perceives that tourism activities are under threat due to climate change in his/her environment, he/she may feel a higher level of dependence on tourism as someone who makes a living from this sector. In this situation, where the perception of risk triggers the individual's motivation to maintain existing economic interests, the individual may experience a stronger sense of economic dependence. Although the existing literature has separately examined the effect of CCRP on SSTD (via PMT) and the effect of ED on STD (via SET), the complex interaction between these three variables, particularly the potential mediating role of ED in the relationship between CCRP and SSTD, has not been explored in sufficient depth.

Theoretically, it can be predicted that high CCRP will reinforce levels of ED (Hien et al., 2024; Nunkoo & Ramkissoon, 2010; Prasad & Kumar, 2022), especially among individuals whose livelihoods depend on tourism. The hypothesis established in this context is as follows:

H2: Climate change risk perception has a positive and significant effect on economic dependence.

In the current study, SET provides a theoretical basis for explaining the mediating role of ED variable. The study investigates how individuals' income or economic benefits from tourism play a role in the relationship between their CCRP and their support for sustainable tourism development. In this framework, it is hypothesized that individuals who derive high levels of economic benefits from tourism tend to be more supportive of sustainable practices in this sector because this supportive behavior will serve to protect their existing economic interests. Therefore, economic commitment represents the expectation of reward in an individual's behavioral decision, and in the context of SET, these behaviors are explained by the principle of mutual benefit. The hypothesis established in this context is as follows:

H3: Economic dependence has a positive and significant effect on support for sustainable tourism development.

The use of SET in this study allows understanding not only individuals' general dispositions towards climate change risk, but also how their economic interests shape these dispositions. This theory allows the level of economic commitment to be considered not only as a structural variable but also as a fundamental element that directs the behavioral motivation of the individual.

MEDIATING ROLE OF ECONOMIC COMMITMENT (H4)

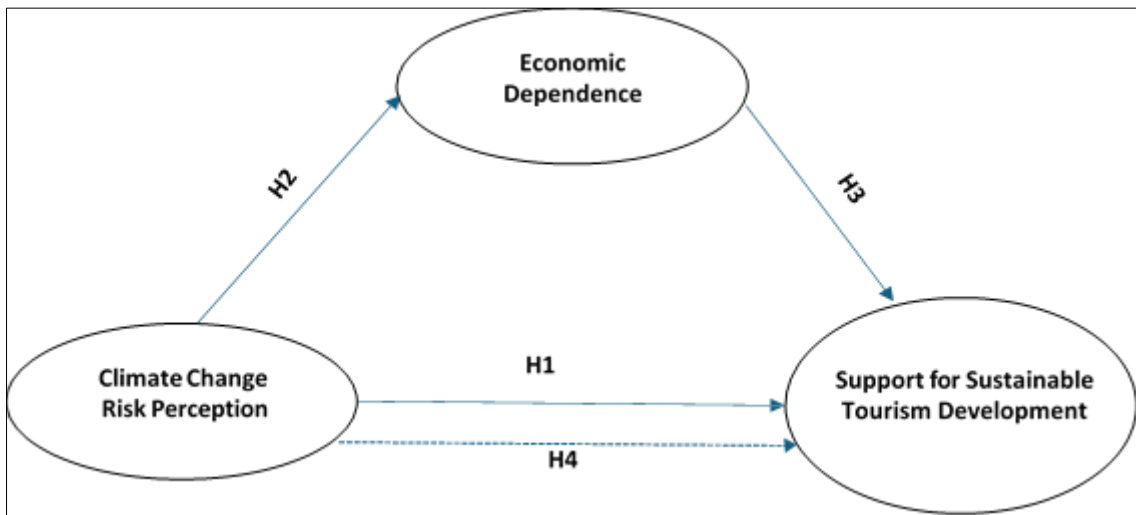
The integration of PMT and SET helps explain the mediating role of economic commitment. According to PMT, CCRP increases threat perception. This threat perception creates a sense of personal and economic vulnerability, especially for those economically dependent on tourism (PMT - Threat Appraisal). SET comes into play, suggesting that this increased perception of risk and vulnerability reinforces the motivation to protect the economic benefits derived from tourism. To protect their economic interests at risk, individuals tend to more strongly support SSTD, which they believe will secure long-term benefits (PMT - Coping Appraisal & SET - Benefit Maximization). Increased perception of risk and awareness of its potential impact on their

economic well-being may lead individuals to SSTD more strongly in order to protect their existing economic interests. In this context, PMT suggests that increased threat perception (CCRP) may lead to a protective behavior (SSTD), while SET suggests that this behavior (SSTD) may be associated with an effort to maximize expected benefits (protection of ED). However, this relationship may not always be linear or simple. Some studies have also shown that high economic commitment may lead individuals to disregard the negative environmental impacts of tourism or climate change risks for short- term economic benefits (Hien et al., 2024; Nunkoo & Ramkissoon, 2010; Prasad & Kumar, 2022). This suggests that the mediating role of ED may vary by context and requires a more nuanced analysis.

Thus, the impact of CCRP on SSTD operates, in part, through individuals assessing this risk in terms of its potential impacts on their economic commitment and well-being, and viewing sustainability as a means to protect these economic interests. In light of this integrated theoretical framework, the further hypotheses of the study are grounded as follows (reference to hypothesis H4 in Fig.1):

H4: Economic Dependence mediates the effect of Climate Change Risk Perception on Support for Sustainable Tourism Development.

Figure 1. Conceptual model



Source: Prepared by the author (2025).

RESEARCH DESIGN

STUDY REGION

Local people living in Rize constitute the population of this research. According to 2023 data, the population of Rize is 350.506. Of this population, 175,231 are men and 175,275 are women. In percentage terms, 50.006% to 49.994% is observed. It can be stated that these rates are quite close to each other. Rize has a surface area of 3.919 km² and 89 people per square kilometer. Rize population density is 89/km². The 3 most populous districts are Merkez/Rize (147,996), Çayeli (43,075) and Ardeşen (42,467) (Nufusu, 2024).

The main sources of income of the local people in Rize are tea cultivation, animal husbandry, fisheries, beekeeping and tourism (Çokişler et al., 2014; Eröz & Bozok, 2018; Özalp & Sütü, 2011). In Rize, the tea production center of Turkey, tea cultivation constitutes the majority of economic activities (Çaykur, 2019). Animal husbandry activities such as transhumance, dairy and meat production are also common (Eröz & Bozkurt, 2018). Fishing, especially anchovy fishing, is important in the province, which is on the Black Sea coast. High-quality honey production such as Anzer honey and tourism revenues resulting from the natural beauties of the region also significantly support the economy (Demir, 2013). In addition, forestry, local handicrafts and small trade activities are other activities that contribute to the livelihood of the people. Among these activities, tea farming and tourism activities are the activities from which the local people earn the most income (Rize Provincial Directorate of Culture and Tourism, 2024; Türkyılmaz, 2015). Tourism activities are important for the local people living in Rize. When tourism statistics are examined, it is observed that a total of 1,341,996 tourists visited Rize in 2023 (Rize Provincial Directorate of Culture and Tourism, 2024). A total of 16 different tourism activities such as thermal tourism, plateau tourism, nature and sports tourism, trekking, mountaineering, river sports, bird watching, nature photography, cave tourism, camping-caravan tourism, congress tourism, flora and fauna observation, jeep safari, bicycle tourism and helicopter skiing (heliski) can be realized in Rize (Rize Provincial Directorate of Culture and Tourism, 2022). TÜRSAB (2024) has shared 2023 Turkey tourism data. According to these data, a total of 54315542 people visited Turkey in 2023. An average of 952 dollars per person was spent in tourism activities. According to these data, based on the average expenditures of tourists visiting Rize in 2023, tourism income is calculated as 1.277.580.192 dollars. It is thought that this income will significantly affect many sectors with the multiplier effect of tourism income. 16 different types

of tourism are practiced and the local people living in Rize province, which generates significant income from tourism, were determined as the population in this study.

MEASUREMENT INSTRUMENTS

The questionnaire used in this study consists of two parts. The first part focuses on the measurement of the variables in the measurement model. In the second part, questions about the demographic characteristics of the local people participating in the study are included. In the current study, CCRP is analyzed as an independent variable. In the measurement of climate change risk perception, the scale developed in the study Zobeidi et al. (2020) was utilized. The scale consists of 5 statements. The scale of support for sustainable tourism development, which is examined as a dependent variable in the research, is the scale developed in the study of Lee (2013). This scale also consists of 5 statements. Finally, in the measurement of the ED scale, which is examined as a mediating variable in the research, Teng (2019) was utilized in. The scale developed by Teng (2019) consists of 5 statements. A 5-point Likert scale (1=strongly disagree to 5=strongly agree) was used for all scales to be answered by the local people. CCRP was measured using scale items designed to capture respondents' cognitive evaluations of climate change-related risks, including perceived likelihood and perceived severity. Consistent with the conceptualization adopted in this study, the items focus on risk appraisal rather than emotional reactions such as worry or concern. This operationalization aligns with prior research emphasizing the distinction between cognitive risk perception and affective responses (Larsen, 2007; Larsen et al., 2009) and is consistent with the theoretical assumptions of Protection Motivation Theory.

An online survey was prepared by utilizing Google forms, which are very advantageous in terms of time and cost. The online questionnaire was filled in by local people with the help of 3 interviewers. The interviewers were selected from local people living in Rize. This facilitated data collection from all districts of Rize. Thanks to the surveyors, data was collected from 398 local people living in Rize face- to-face and online with the help of E-survey.

SURVEY

Data were collected in November-December 2024 with the help of the questionnaire created in the current study. The online questionnaire form was created in such a way that the participants were required to fill in all questions. In this way, there was no missing value in the collected

data. In filling out the questionnaire used in the study, 3 surveyors from Rize were utilized. The surveyors collected data from all districts of Rize according to population density and intensity of tourism mobility. The collected data also shows parallelism in the regions with population density and tourism mobility. The fact that the interviewers were selected from the local people living in Rize had a significant impact on the number of responses. A total of 398 usable data were obtained in the study. Since it was mandatory to fill in all of the statements in the questionnaire form, no missing values were identified. Then, Mahalonobis distances, which are important for the normality assumption in the study, were examined. At this point, 1 subject (participant 242) who violated normality was excluded from the study (Hair et al., 2013). After the outlier analysis, it was decided to proceed with the analysis with a total of 397 usable questionnaires. Kline (2023) and Reisinger and Mavondo (2008) emphasize that it is sufficient to reach a sample group 10 times the observed value in their studies. In the current study, the observed value is 15. Based on this equation, $15 \times 10 = 150$ questionnaires is sufficient as a sample size for this study. Since the study was analyzed with a total of 397 usable data, it can be stated that the collected data is sufficient. On the other hand, it is recommended to reach a minimum of 384 samples in studies with a population size of 100 000 or more (Byrne,2010; Çokluk et al.,2016; Israel,1992; Ural & Kılıç,2005). In the current study, it can be said that sampling adequacy is ensured since the sample group that emerged according to both calculations was reached.

DATA COLLECTION

The data of this research were applied to local people living in Rize between December 15-30, 2024. In the application of the questionnaires to the local people, help was received from 3 surveyors who are local people living in Rize. With the survey form prepared online, data was collected from all districts of Rize by the surveyors. Rize is divided into 12 regions, including 11 districts and 1 center. In the current research, the maximum diversity sampling method was preferred to represent all regions of Rize. In the maximum diversity sampling method, the characteristics of the participants are first defined. The reason for this definition can be shown as aiming to reach participants with different structures. In the current study, 12 regions of Rize were identified and a total of 398 people living in these regions were reached (Yağar & Dökme, 2018:5). Since 1 questionnaire was excluded in the analysis before the normality test (Mahalonobis), 397 usable questionnaires remained in the ongoing analysis. Local surveyors ensured data collection from all regions according to the maximum variation sampling method.

It can even be stated that these data are in parallel with the population density of the regions (See Table 1).

Demographic information on age, gender, job, education, income and the district in which they live are given in Table 1.

Table 1. Respondent demographic characteristics

Demographic information	f	%	Demographic information	f	%
Gender			Job		
Female	204	51.4	Public sector staff	58	14.6
Male	193	48.6	Private sector is a tourism-related business	61	15.4
Age			Private sector is not a tourism-related business	89	21.7
20 and below	69	17.4	Retired	29	7.3
21-30	119	30.0	Student	46	11.6
31-40	133	33.5	Unemployed	40	10.1
41-50	64	16.1	Other	77	19.4
51 and above	12	3.0	Which district of Rize do you live in?		
Education			Center/Rize	129	32.5
Primary school	24	6.0	Ardeşen	94	23.7
High school	141	35.5	Çamlıhemşin	39	9.8
Associate degree	52	13.1	Cayeli	38	9.6
Bachelor's degree	153	38.5	Derepazari	6	1.5
Postgraduate	27	6.8	Fındıklı	19	4.8
Income			Güneysu	7	1.8
1700 and below	158	39.8	Hemşin	22	5.5
17001-25000	57	14.4	İkizdere	5	1.3
25001-33000	34	8.6	İyidere	7	1.8
33001-41000	44	11.1	Kalkandere	8	2.0
41001-49000	16	4.0	Market	23	5.8
49001 and above	88	22.2			

Source: Prepared by the author (2025).

Table 1 provides statistical information on the demographic characteristics of local people. In summary, Table 1 indicates that the demographic findings are female (51.4%), between the ages of 31 and 40 (33.5%), bachelor's degree (38.5%), income of 1700 TL and below (39.8%), private sector is not a tourism-related business (21.7%), Center/Rize (32.5%).

FINDINGS

PRE-ANALYSIS REQUIREMENTS

It is known that there are 3 variables and 15 statements in the current research. Before proceeding to the analysis in the research, it is necessary to determine the missing value. In the

current study, it is known that the surveyors collected the data face-to-face and online. These data were collected with the help of an online questionnaire. In the online questionnaire, the participants responded to all statements as the questionnaire was set to be incomplete without answering the statements. Therefore, no unanswered statements were found in the questionnaires obtained. For this reason, statistical techniques were used to determine whether the data obtained provided a normal distribution. At this stage, the level of normal distribution of the data obtained by looking at the kurtosis and skewness values was tried to be explained. The skewness value is based on the range of -3, +3 and kurtosis value is based on the range of -7, +7 (Curran et al.,1996; Dedeoğlu & Boğan, 2021). The lowest skewness value is -2.211 (SSTD5) and the highest skewness value is 0.561 (ED4). The highest kurtosis value is 6.339 (SSTD5) and the lowest kurtosis value is -1.269 (ED2). Sample size plays a critical role in the assumptions of estimation methods used in Structural Equation Modeling (SEM). The literature emphasizes that when the sample size exceeds 200, the effect of deviations arising from the multivariate normality assumption on parameter estimates is negligible, and the Maximum Likelihood (ML) method produces robust results against such deviations (Kline, 2011). In this study, the sample size (n=397) is well above the threshold value, indicating that slight deviations in the data did not adversely affect the overall validity of the model and the reliability of the parameter estimates.

RELIABILITY AND VALIDITY ANALYSIS

In the current study, factor analysis method was utilized to determine the construct reliability of the variables. Factor analysis is divided into two as exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). EFA is used to determine between which dimensions the statements of a newly developed scale are distributed and is usually applied in the first stage of the scale development process. On the other hand, CFA is used to test the validity of constructs, but there is an important difference here: CFA is applied in cases where the constructs to which the statements in the scale belong have been previously tested. This analysis focuses on the validation of these constructs (Çokluk et al., 2016; Hair et al., 2014).

In this study, CFA was deemed appropriate based on the above explanations. Because the construct validity of the scales in the current study has been tested in previous studies (Lee,2013; Teng,2019; Zobeidi et al.,2020). Table 3 shows the results of the CFA analysis of the scales used in the current study.

Table 2. Confirmatory factor analysis

Dimensions	Items	Mean	Std. Factor Load	t values	CR	AVE	Cronbach's Alpha	Correlation (Correlation Squares)
CCRP	CCRP1	4.22	0.697	Fixed*	0.832	0.500	0.825	SSTD, 0.119 (0.014)
	CCRP2	4.34	0.754	0.080				ED, 0.487 (0.237)
	CCRP3	4.24	0.779	0.088				
	CCRP4	3.74	0.682	0.095				
	CCRP5	3.62	0.613	0.090				
SSTD	SSTD1	4.27	0.560	0.145	0.842	0.528	0.825	ED, 0.210 (0.044)
	SSTD2	4.27	0.624	0.152				
	SSTD3	3.87	0.583	0.159				
	SSTD4	3.80	0.918	0.156				
	SSTD5	4.56	0.869	Fixed*				
ED	ED2	2.87	0.902	0.160	0.861	0.620	0.865	
	ED3	2.71	0.713	0.114				
	ED4	2.67	0.942	0.161				
	ED5	3.26	0.521	Fixed*				
Fit indices: X2/sd= 2.636; AGFI= 0.909; CFI=0.955; RMSEA=0.064; GFI=0.938; SRMR=0.066; TLI= 0.944 *1' Fixed.								

Source: Prepared by the author (2025).

Table 2 shows the results of confirmatory factor analysis for the scales used in the study. While the lowest CR value in the scales used in the study is CCRP with 0.832, the highest CR value is ED with 0.861. It is understood that these values are above the accepted value of 0.70 in the literature (Hair et al., 2013). When the AVE values of the scales in the study are analyzed, it can be stated that the lowest value belongs to the CCRP (0.500) variable, while the highest AVE value belongs to the ED (0.620) scale. It can be said that the AVE values of the scales in the study are above the threshold value (0.50) accepted in the literature (Hair et al., 2013). Therefore, since the CR and AVE values of the scales in the study meet the desired threshold values, it can be stated that the scales provide convergent validity. In addition, it is observed that the correlation coefficients between each of the scales in the study are below the squared correlation coefficients. In this case, it can be stated that the scales also provide discriminant validity. Another value in Table 3 is the Cronbach's Alpha value. Cronbach's Alpha value was used to test the reliability of the scales in the current study. The threshold value accepted in the literature is observed as 0.70 (Hair et al., 2013). In the current study, the lowest Cronbach's Alpha value is 0.825 (Support for Sustainable Tourism Development, Climate Change Risk Perception) and the highest Cronbach's Alpha value is 0.865 (Economic Dependence). Since these values are above the desired threshold value (0.70), it can be stated that the reliability of the scales is also ensured.

HYPOTHESIS TESTING

DIRECT EFFECT TESTING

Structural Equation Modeling (SEM) is used to create models that allow for the holistic testing of direct and indirect effects (Hair et al., 2014). In this context, SPSS and AMOS 24 software were used to test the model developed in the study (Y. Wang et al., 2022). In the study, the effect levels of the hypotheses were evaluated in line with the criteria suggested by Kline (2011:185). Accordingly, standardized factor loadings (β) are interpreted as low when they are 0.10, medium when they are around 0.30, and high when they are above 0.50.

In addition, the R^2 values of the variables tested in the model were also examined based on Kline (2011:185) classification. According to this classification, R^2 values are considered low if they are less than 0.01, medium if they are around 0.10, and high if they are greater than 0.30. Detailed data on the SEM results of the hypotheses formed in the study are presented in Table 3.

Table 3. Structural equation modeling

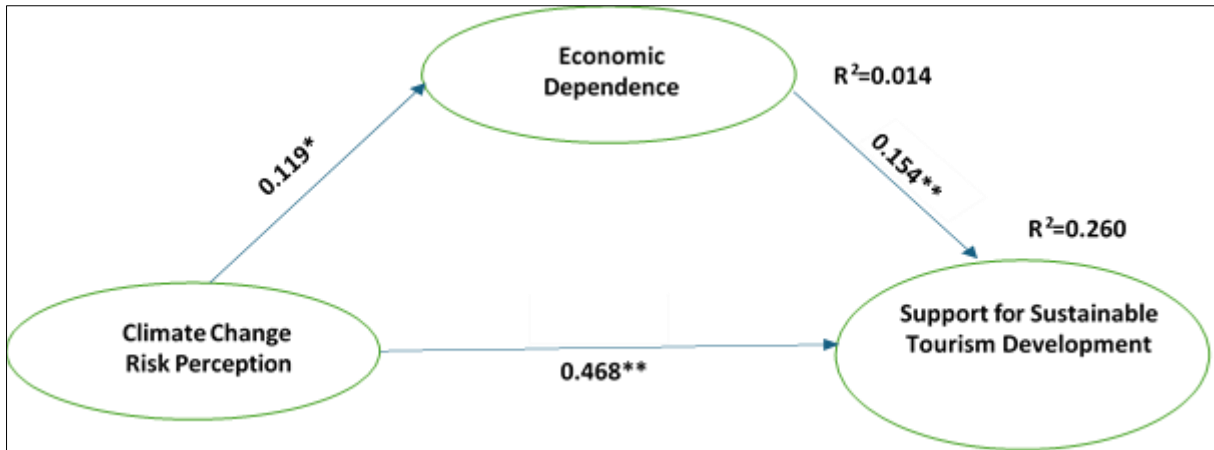
Hypotheses	Relationships	Std. Factor Load (β)	t values	P value	Results	Power of Influence (a^1)
H1	CCRP SSTD →	0.468**	6.813	.000	supported	Near High Medium
H2	CCRP → ED	0.119*	2.059	.039	supported	Near Low Medium
H3	ED SSTD →	0.154**	3.021	.003	supported	Near Low Medium

Fit indices: $\chi^2/df= 2.636$; AGFI=0.909; CFI=0.955; RMSEA=0.064; GFI=0.938; SRMR=0.066; TLI= 0.944; ** $p < .01$; * $p < .05$
 R^2 : SSTD= 0.260; ED =0.014
 CCRP: Climate Change Risk Perception, SSTD: Support for Sustainable Tourism Development,
 ED: Economic Dependence
 $a^1=0.10$ and below low; 0.30 and above medium; 0.50 and above high

Source: Prepared by the author (2025).

When the values given in Table 6 are analyzed, it is observed that all hypotheses measuring direct effects are accepted. If the hypotheses are analyzed one by one, it can be said that the impact level with the highest value is H1 (CCRP SSTD \Rightarrow 0.468**). Hypothesis H2 has the lowest effect level (CCRP \rightarrow ED= 0.119*). The effect level tested in hypothesis H3 is (ED \rightarrow SSTD= 0.154**) Near it can be stated that it is found as Low Medium. It can be stated that all of these hypotheses have a positive and significant effect. As significance levels, hypotheses H1 and H3 have a significance level of 0.01, while hypothesis H2 is significant at 0.05 level. It is understood from the analysis that the collected data is compatible with the model ($\chi^2/df= 2.636$).

Figure 2. Path analysis



Fit indices: $\chi^2/df= 2.636$; SRMR=0.066; CFI=0.955; AGFI=0.909; TLI=0.944; RMSEA=0.064;

Source: Prepared by the author (2025).

Climate Change Risk Perception, which is examined as an independent variable in the research, has an explanatory power of 0.468 on the dependent variable Support for Sustainable Tourism Development. In addition, CCRP has an explanatory power of 0.119 on Economic Dependence, which is considered as a mediating variable. It can be said that ED has an explanatory power of 0.154 on the dependent variable Support for Sustainable Tourism Development. These levels of influence are observed on the arrows in Figure 2.

INDIRECT EFFECT TESTING

Bootstrap confidence interval method was used to test the mediating role of ED variable. This method is an approach that is stated to provide the most reliable and accurate results under most conditions (Preacher & Hayes,2008). In order to determine the mediation effect of the variables used in the study, bootstrap confidence interval method was preferred and BC (bias-corrected) bootstrap technique was used among these methods (Hayes, 2009; Preacher & Hayes, 2008).

Within the scope of the BC bootstrapping technique, it is first necessary to define a specific sample size. As a widely accepted standard in the literature, 1000 replications and 95% confidence interval were preferred (Cheung & Lau,2008). During the analysis of the mediating effect of the SEM model, the results were interpreted based on the table proposed in the study of Zhao et al. (2010:201). In the current study, the results regarding the mediating effect of ED variable are presented in Table 4.

Table 4. Mediating Role of Economic Dependence

FN	Relation	Specific Indirect effect	p	Confidence intervals		relation	Direct effect	p	Type of mediation	Support
				Lower	Upper					
H6	CCRP→ED→SSTD	0.018	0.049	0.002	0.037	CCRP→SSTD	0.307	0.006	complementary (Mediation)	Yes

Notes. CCRP: Climate change risk perception, SSTD: Support for Sustainable Tourism Development, ED: Economic Dependence

Source: Prepared by the author (2025).

When Table 7 is analyzed, it can be stated that ED variable has a mediating effect on the effect of CCRP on Support for SSTD (Indirect effect= 0.018; p=0.049 CI [0.002 to 0.037]). The coefficient of the mediation effect of the ED variable is 0.018 and this coefficient is between the lower bond and upper bond values. In addition, the lower bond and upper bond values do not contain the value "0" for these reasons, it can be said that this mediation effect is significant (Preacher & Hayes,2008). For the interpretation of the mediation effect, the study of Zhao et al. (2010, p. 201) was used. According to Zhao et al. (2010) model, it can be expressed as direct effect= 0.307; p=0.006, indirect effect= 0.018; p=0.049. The results obtained according to this model show that ED variable has a partial mediation effect in the effect of CCRP on Support for Sustainable Tourism Development, which is expressed as complementary mediation (Zhao et al., 2010).

DISCUSSIONS

The first main finding of the study is that CCRP positively and significantly affects the SSTD (H1). This result is consistent with the basic propositions of PMT (Maddux & Rogers, 1983; Rogers, 1975) and previous studies in the context of climate change (Lee & Jan, 2024; Olya et al., 2019; Poudyal et al., 2021). Individuals' perception of climate change as a serious threat (high threat assessment) motivates them to engage in protective behaviors (in this case, SSTD) against this threat. Local people's awareness of the potential negative consequences of climate change leads them to view sustainable tourism practices as an effective coping strategy (high response effectiveness and self-efficacy) to mitigate these risks and protect the long-term prosperity of the region. This finding suggests that raising climate change awareness, especially in tourism destinations, can be a key factor in mobilizing public support for sustainable practices.

Second, the study found that CCRP positively influences ED (H2). This finding supports the logical inference that when climate change risks put pressure on livelihoods in particular, individuals will feel more connected to these resources. When local people perceive that climate change threatens economic activities such as tourism, their ED on tourism becomes more pronounced

for those who earn their livelihoods from this sector. This suggests that the threat assessment dimension of the PMT (perceived vulnerability) may encompass not only physical but also socio-economic vulnerabilities. Although this specific relationship is less examined in the literature, our finding provides important evidence that risk perception may increase economic anxiety and thus psychological commitment to economic activities.

The third important finding is that ED positively and significantly affects SSTD (H3). This result is in line with the main arguments of the SET (Blau, 1964; Homans, 1958) and numerous studies in the tourism literature (Cook et al., 2024; Gursoy & Rutherford, 2004; Lee, 2013). Individuals who derive economic benefits from tourism tend to support tourism sustainability in order to ensure the continuity of these benefits. The motivation to protect their current economic interests drives them towards strategies that will provide long-term benefits, such as SSTD. This suggests that a rational cost-benefit analysis plays a role in local people's support for tourism development.

The most central finding of the study is that ED partially mediates the relationship between CCRP and SSTD (H4). This suggests that the impact of CCRP on SSTD operates not only directly but also indirectly through economic commitment. High CCRP increases individuals' economic commitment, and this increased economic commitment in turn strengthens the CCA. This "complementary mediation" (Zhao et al., 2010) makes sense when PMT and SET are considered from an integrated perspective: The threat of climate change (PMT-threat appraisal) leads individuals to recognize that their economic interests (SET-expected benefit) are at stake and to support a protective and beneficial strategy (PMT-coping appraisal & SET-rational action) such as sustainable tourism to protect these interests. This finding illuminates a mechanism that has not been directly addressed in the literature before and highlights the complex role of economic motivations in the transformation of risk perception into behavior. However, contrary to the findings in some studies (Nunkoo & Ramkissoon, 2010; Prasad & Kumar, 2022) that high economic commitment may subordinate environmental concerns, this study found that ED in the Rize context positively influenced SSTD. This is perhaps due to the fact that SSTD is perceived by the local population not only as an environmental measure, but also as a guarantee of long-term economic sustainability.

THEORETICAL IMPLICATIONS

Through the integration of PMT and SET, this study provides a novel theoretical framework to explain the impact of CCRP on support for SSTD and the mediating role of economic commitment in this relationship. Threat assessment and coping assessment processes within the PMT were functional in understanding the extent to which individuals take climate change seriously and what behaviors they would engage in response to this threat. The findings of the study showed that when individuals perceive a high level of climatic threat, they consider sustainable tourism as a solution to this threat. On the other hand, emotional attachment, satisfaction and positive attitudes towards destinations significantly increase loyalty, especially in media and content-driven tourism types (e.g. film tourism). Such contextual experiences can directly shape individuals' behavioral intentions towards a destination (Aguilar-Rivero et al., 2025). This indicates that PMT can predict not only individual conservation behaviors but also environmental behaviors that involve societal benefits. On the other hand, the inclusion of SET in the study provided a strong theoretical foundation, especially in explaining the economic commitment variable and understanding how individuals' behavioral tendencies are shaped by cost-benefit analysis. It was observed that the higher the economic commitment of local people to tourism, the higher their tendency to support sustainable tourism practices. This finding is consistent with SET's core assumptions of reciprocity and expectation of reward.

One of the most unique contributions of the study is the empirical demonstration that economic commitment plays a complementary mediating role in the relationship between CCRP and SSTD. This finding suggests that climate change threat perception not only leads to direct behavioral consequences, but also influences individuals through their economic interests. Thus, this study fills an important gap in the literature on the multi-layered relationships between risk perception and economic interest-based behaviors in the context of climate change in tourism and demonstrates the power of interdisciplinary theoretical integration.

PRACTICAL IMPLICATIONS AND POLICY RECOMMENDATIONS

The findings of the study show that the success of sustainable tourism policies depends not only on efforts to raise environmental awareness, but also on multidimensional approaches that take into account the economic realities of local people. Individuals who perceive high levels of climate change risk perceive sustainable tourism as an adaptation and coping strategy. This

suggests that policymakers need to increase climate risk communication while at the same time making the regional economic benefits of sustainable tourism more visible.

Given that the economic benefits that local people derive from tourism positively affect their support for sustainable practices, it is important to increase and equitably distribute these benefits for sustainability policies to become more effective. In this context, public policies that encourage local entrepreneurship, support community-based tourism models and provide economic incentives for sustainable practices can increase both public support and climate adaptation capacity.

Especially in regions that are economically dependent on tourism, sustainable tourism strategies need to be designed not only in terms of environmental benefits, but also in terms of income security, employment sustainability and local economic resilience. Accordingly, local governments and tourism planners need to integrate climate change risk communication with a language and planning approach that directly addresses economic livelihood concerns.

Finally, the fact that tourism is both exposed to and contributes to climate change necessitates a holistic governance approach. The findings of the study show that local people should be treated not only as passive spectators but also as active stakeholders in the fight against climate change. In this context, strengthening local participation mechanisms, increasing investments in technologies that reduce the carbon footprint of the tourism sector and prioritizing climate-adaptive infrastructure investments should be among the main strategies recommended. In this way, both sustainable tourism policies strengthened with the support of local communities and destinations that are resilient to climate change will become possible.

CONCLUSIONS

Given the increasing pressure of climate change on tourism destinations and the critical importance of local communities developing adaptation strategies to this change, this study aims to examine in depth the impact of local people's support for CCRP, SSTD and the mediating role of ED in this complex relationship. The theoretical framework, which integrates PMT and SET in an innovative approach, provides an important basis for comprehensively explaining how individuals' perceptions of environmental threat not only trigger protective behavioral tendencies, but also dynamically interact with their expectations of economic benefits and how this interaction shapes their behavioral outcomes. The findings from data collected from 397

individuals living in Rize province, a tourism destination in Turkey with both high economic and ecological vulnerability, provide strong empirical support for this integrated model.

The main findings of the study revealed that high CCRP significantly increases individuals' support for sustainable tourism. This result reaffirms that the threat appraisal and coping appraisal components of PMT are functional in shaping individuals' adaptive behaviors in complex socio-ecological systems such as tourism. In addition to these cognitive appraisals, the preservation of authenticity in local offerings – such as regional culinary assets – plays a vital role in fostering emotional bonds and nostalgic sentiments, which ultimately enhance local support and long-term loyalty to the destination (Cankül & Çıtak, 2025). In addition, CCRP was found to positively reinforce the level of economic commitment, which in turn triggers individuals' motivation to protect their existing economic interests. When local people perceive the possibility that tourism activities may be negatively affected by climate change as a threat, they tend to emphasize their economic ties with this sector more and tend to secure these ties through sustainability.

One of the most original contributions of the study to the literature is the empirical evidence that economic commitment plays a critical complementary mediating role in the relationship between CCRP and SSTD. This finding strongly suggests that the behavioral consequences of environmental threat perceptions are not limited to individual risk awareness, but should also be considered in conjunction with an individual's expectations of economic interests and motivations to protect these interests. In other words, support for sustainable tourism is shaped at the intersection of both a reflection of environmental concerns caused by climate change and a rational search for continuity of economic benefit expectation under this threat.

The theoretical model and empirical findings of this study make important contributions to the literature in terms of addressing the multidimensional and dynamic relationships between climate change perception, economic interests and sustainability support behaviors in the field of tourism in a holistic manner. The findings clearly demonstrate the necessity of strategically integrating the economic expectations and realities of the local people and increasing environmental sensitivity in the development of sustainable tourism policies, not only in Rize but also in other destinations with similar socio-economic and ecological conditions. This holistic approach is indispensable for the creation of sustainable tourism models that are resilient to climate change and socially accepted.

LIMITATIONS AND FUTURE RESEARCH RECOMMENDATIONS

As with any study, this research has some limitations. First, the study has a cross-sectional design, which may have a limited ability to understand the causal relationships between variables. Future longitudinal studies may better understand the dynamics of these relationships over time. Secondly, the study only covers the local population in Rize province. The generalizability of the findings to destinations in different cultural and geographical contexts may be limited. It would be useful to conduct similar studies in regions with different types of tourism (e.g. mass tourism, rural tourism) and different levels of economic dependency.

Third, in this study, economic commitment is considered as a general construct. Future research could further examine different dimensions of ED (e.g. direct dependence on tourism revenue, indirect dependence, perceived economic benefits) and their relationship with CCRP and SSTD. Furthermore, examining different dimensions of CCRP (e.g. cognitive, affective) and their effects on behavioral intentions separately may also contribute to the literature.

Finally, this study was based on PMT and SET. Future research could develop more comprehensive models by integrating other behavioral theories such as Theory of Planned Behavior (TPB), Value- Belief-Norm Theory (VBN) or Social Cognitive Theory. Furthermore, comparative studies that include the perspectives of tourists, tourism operators and other stakeholders, as well as local people, can provide a more holistic understanding of sustainable tourism development.

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