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The structural relationship between tourist satisfaction and sustainable heritage tourism development in Tigrai, Ethiopia

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Abstract

Sustainable heritage tourism cannot be materialized without guaranteeing tourist satisfaction. To this end, this study aimed at examining the structural relationship between tourist satisfaction and dimensions of sustainable heritage tourism in Tigrai, the inception of ancient Ethiopian civilization. For this study, 392 domestic and international tourists were chosen using a convenience sampling method. After the data were cautiously screened for its suitability for Structural Equation Modeling (SEM), this paper tested four hypotheses. Unlike some criticisms that consider tourists as those who do not care about sustainability, the findings of this study underpinned that the respondents were aware of tourism sustainability. In particular, the socio-cultural sustainability was the strongest predictor of tourist satisfaction followed by institutional and economic sustainability. It is essential to guarantee significant cultural exchanges between tourists and the local community while their interaction is needed to be fully positive and peaceful. Tourists look for a direct connection with the local history and living culture. The findings of this study additionally call for better

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management of tourism activities for institutional sustainability is affecting tourist satisfaction. Tourists' perceptions of the economic dimensions appeared to affect their satisfaction with the industry. Environmental sustainability was found an insignificant predictor. This might be partly because the majority of the respondents were cultural tourists. Finally, a relevant conclusion, theoretical and managerial implications, and future research direction are included in this study.

Keyword: Tourism

1. Introduction

A strong interdependency between heritage and tourism is well recognized in tourism literature. Past studies (Green, 2010; Hoffman et al., 2002; Madden and Shipley, 2012; Vannarith, 2009) defined heritage tourism as a niche market of tourism industry which for the most part premise on local heritage resources, including archaeological sites, landmarks, galleries, religious spots, royal residences, and related spots. Being one of the oldest and rapidly growing segments of the tourism industry (Green, 2010; Timothy and Nyaupane, 2009) and very lucrative niche market (Green, 2010; Rowland, 2006), heritage-based tourism is an essential device to lessen destitution in developing countries (UNEP/WTO, 2004). The socioeconomic, demographic, and psychological behaviors of heritage tourists make heritage-based tourism an essential choice to guarantee community benefit without affecting inter-generational equity and the sustainability of heritage tourism development (Hughes and Carlsen, 2010; Green, 2010). It is conceivable to call attention to some exceptional highlights of heritage tourists. They are better-educated, greater spenders, travel in groups, have longer stay, and have higher incomes than do average tourists (Timothy and Boyd, 2006).

Heritage-based tourism must be managed in a sustainable way if not its outcomes would be very vicious to a given destination and its occupants. It tends to be either a gift or a revile, depending on how it is implemented and oversaw (Hall et al., 1993). In other words, heritage tourism is known for its double-edged sword whose results rely upon the manner in which the industry is practiced and monitored (Kasahun, 2013). In particular, past investigations demonstrate that if this tourism segment is overseen legitimately, it could add to the general development of the local community and to the administration and preservation of heritage sites (Hughes and Carlsen, 2010). It increases financial support for conservation from partners including governmental and non-governmental institutions, visitors, local community, and private sectors (UNEP/WTO, 2005). Besides, it limits rash control of priceless heritage assets (Totten, 2016). Be that as it may, the nexus between heritage tourism and sustainability remains to a great extent unexplored (Garrod and Fyall, 2000) and it needs

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due attention from researchers inspired by the notion of sustainable tourism (Totten, 2016). This was one inspiring element for the present investigation.

Heritage tourism should provide a reasonable level of tourist contentment and it must guarantee a momentous experience for them. Moreover, it should also raise their responsiveness about sustainability issues and endorse sustainable tourism practices among them otherwise its sustainability would be highly questionable (UNEP/WTO, 2004). Tourist satisfaction is a post-visit response of vacationers (Rajesh, 2013). It is a signal of goal execution. Satisfied tourists share positive sentiments with individuals whom they meet, providing free advertisement capable of promoting consistent travel to attraction sites (Kozak and Rimmington, 2000). Tourist satisfaction assumes a critical job in guaranteeing the long-term sustainability of tourist sites (Gidey and Sharma, 2017). However, the relationship between tourist satisfaction and sustainable heritage tourism development remained an overlooked issue about which there is very scant literature. Managing this issue in Tigrai setting, where no such study led up until now, was another rousing reason for the present investigation. This study has five main sections. The first section of this paper addresses a brief introduction. The second, third, and fourth parts of this paper center on the literature review, methods and materials, and results and discussion respectively. The conclusion, theoretical and practical implications, and related work are incorporated into the fifth (last) segment of this paper.

2. Background

2.1. Meaning of heritage tourism

Numerous researchers defined heritage tourism in different ways (Green, 2010; Hoffman et al., 2002; Madden and Shipley, 2012; Vannarith, 2009). Madden and Shipley (2012) defined heritage tourism as a niche market of the tourism industry which mostly basis on different legacies including historical buildings. Vannarith (2009) defined it as the inspiration to visit archaeological sites, monuments, museums, religious sites, palaces, and local cultural sites. For Hoffman et al. (2002) and Green (2010), this tourism segment is a broad concept alluding to a trip to archaeological and historical places, parks and museums to enjoy unique local culture and history. It is one of the biggest and rapidly growing niche markets (Green, 2010; Timothy and Nyaupane, 2009). It constitutes 40% of overall tourism earnings internationally and is growing at about 15% annually, three wise the growth of general tourism (Huibin et al., 2012). Especially, in the developing world, this tourism segment is viewed as a vital weapon to dispose of poverty and pledge sustainable community development (UNEP/WTO, 2004). However, the development of heritage tourism coincides with the approach of the need to ration our waning cultural heritage resources (Kasahun, 2013).

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As noted in the work of Rowland (2006), heritage tourism is a very lucrative (profitable) form of tourism in which visitors spend more cash and stay on vacation longer than the normal visitors. Past investigations support the reasons why heritage tourism is a profitable niche market (Green, 2010; Rowland, 2006). As indicated by Green (2010), heritage tourists are portrayed as well-educated, older, impacted by ladies, cosmopolitan, responsibility-driven, generous in spending, stay longer, need high-quality services, intrigued by a unique and authentic culture than average tourists do. Rowland (2006) shares this thought. As to him, heritage tourists, in general, tend to be well established (older) than do normal traveler, retired in many cases, bound to have advanced education and higher yearly pay, to take an interest in more exercises, and are more likely to stay in inns and motels.

2.2. Sustainable heritage tourism development

The investigation on interest for heritage has only commenced scraping up the surface. Not only the heritage tourism and sustainability nexus still remains to a great extent unexplored (Garrod and Fyall, 2000) but also frequently described by inconsistencies and clashes (Mohammadi et al., 2010). Albeit various investigations have been carried out on sustainable tourism, heritage tourism as a segment did not get satisfactory consideration from analysts who are keen on the idea of sustainable tourism (Totten, 2016). In spite of the fact that the role of heritage tourism in protecting historic, cultural, and natural resources is recognized in past studies (Green, 2010), its development may likewise cause negative environmental and sociocultural results. It might quicken the debasement of heritage sites and hinder multifaceted benefits from heritage resources (Aas et al., 2005; Mohammadi et al., 2010).

Heritage-based tourism is often considered as a double-edged sword, having both negative and positive effects (Huibin et al., 2012; Kasahun, 2013). In other words, the development of tourism in heritage places can be either a blessing or a nuisance, depending on how tourism development is managed and took care of (Hall et al., 1993). In one hand, it can play lions' share to the development of the local community and to sustain heritage sites for the age to come when it is very much overseen (Hughes and Carlsen, 2010). Totten (2016) contended that cautiously managed heritage tourism could bolster the community, increase investment in the area, and promote conservation.

2.3. The relationship between tourist satisfaction and sustainable heritage tourism

Past investigations uncover that satisfaction alludes to the apparent contrast between earlier desire and saw execution after utilization (Oliver, 1980). In the tourism context, satisfaction basically stands for the function of pre-visit expectations and post-visit encounters. Tourists feel satisfied when the apparent exhibitions surpass

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earlier desires and they feel disappointed as their prior expectations exceed the perceived performances (Chen and Chen, 2010; Rajesh, 2013; Backman et al., 2000; Naidoo et al., 2011; Kozak and Rimmington, 2000). However, most studies carried out on tourist fulfilment with tourism focused on shorelines (Bernini et al., 2015; Hassan and Shahnewaz, 2014), national parks and nature-based attraction (Daud and Rahman, 2011; Naidoo et al., 2011; Okello and Yerian, 2009) and very rare studies were conducted on heritage sites (Chen and Chen, 2010; Gidey and Sharma, 2017). Thus, this study endeavored to fill this gap by examining the relationship between sustainable heritage-based tourism and tourist satisfaction in Tigrai setting.

It is unthinkable to search for sustainable heritage tourism development without ensuring tourist satisfaction (UNEP/WTO, 2004; Bernini et al., 2015). Tourist satisfaction and sustainable heritage tourism development are considered to be two sides of the same coin as noted in previous studies (Bernini et al., 2015; Kozak and Rimmington, 2000; Rajesh, 2013). Previous studies found that fulfilled tourists prescribe others to visit the destination, they share positive words of moth with their relatives and friends, and they remain loyal to the attraction sites they have visited. This, in turn, guarantees sustainable heritage tourism development without incurring high marketing cost (Kozak and Rimmington, 2000). Furthermore, as noted by Swarbrooke (1999), a sustainable attraction site should advance tourists' consciousness about sustainability issues and encourage sustainable tourism practices among them. Past studies recognized that visitor contentment has a pervasive impact on the continued existence of the tourism industry (Gursoy et al., 2007; Naidoo et al., 2011). For this reason, tourist satisfaction is acknowledged to be an important gauge of long-term tourism sustainability (Gidey and Sharma, 2017). It is a potential factor to support sustainable tourism development (Daud and Rahman, 2011; Razović, 2013).

From an economic aspect, tourist satisfaction can determine the long-term success of tourism business (Gursoy et al., 2007; Razović, 2013). An inability to satisfy tourist denies an opportunity to stay in the market for quite a while (Al-Ababneh, 2013; Daud and Rahman, 2011). Hence, tourist satisfaction is a significant component to determine sustainable tourism development in a given heritage site. It indicates the quality of tourism management in terms of services and motivation for visiting too (Razović, 2013; Wiwattanakantanga and To-ima, 2014). High level of tourist satisfaction implies the quality of tourism product meets tourist needs, which is also an essential factor of sustainable development (Razović, 2013; Wiwattanakantanga and To-ima, 2014). It likewise shows the escalating investment and competitiveness of tourist market (Razović, 2013; Wiwattanakantanga and To-ima, 2014).

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The significance of evaluating tourist satisfaction for sustainable tourism marketing is well recognized in the literature. Estimating tourist satisfaction assumes an imperative role in promoting tourism products and services in any touristic destination. Sustainable heritage tourism calls for active taking part of key stakeholders including nearby occupants, the government, the private sector and guests (Nicholas et al., 2009; Thapa, 2013). In principle, it is obvious that sustainable tourism development is not confined to the supply side (attraction sites) but also needs to incorporate tourists (the demand side). However, in practice, there is unbalanced attention given to both sides in the literature within the sustainable tourism development framework (Thapa, 2013). As such, most researches have concentrated on nearby inhabitants and the public sector while there is meager literature concerning visitor perspectives and sustainable tourism development (Deng and Bender, 2007; Nicholas and Thapa, 2010).

Tourists assume a key role in promoting sustainability. Hence, it is essential for tourism managers to comprehend tourist perceptions beyond market segmentation, satisfaction, and expenditure patterns (Nicholas and Thapa, 2010; Swarbrooke, 1999; Thapa, 2013; Weaver and Lawton, 2004). As recommended by Weaver and Lawton (2004), tourist satisfaction is very important to guarantee economic, ecological, and social sustainability. Nicholas and Thapa (2010) further confirm this thought. As they indicated, visitor expenditure is a principal determinant of the economic feasibility of tourism; tourist understanding of the environment is also likely to impact on the ecological sustainability of a tourist site; and the degree to which visitors interact with the host/local community has real ramifications for the social sustainability of a tourism development project. Pulido-Fernández and López-Sánchez (2016) uncover that tourists are developing familiarity with the environmental, social, and cultural impacts that tourism activity can generate. The above authors argue that tourists who encourage and get through sustainable tourism are responsive to the impacts that this activity can generate and therefore try to protect the attraction sites.

Despite the fact that tourists as important agents of sustainable tourism is noticed in the literature (Pulido-Fernández and López-Sánchez, 2016; Raymond and Brown, 2007; Weaver and Lawton, 2004), there is a paucity of research inspecting visitor perception toward tourism development in general and sustainable tourism development in particular (Raymond and Brown, 2007; Weaver and Lawton, 2004). Rather, the role of tourists in sustainable tourism remained an overlooked issue (Pulido-Fernández and López-Sánchez, 2016). Cottrell et al. (2004) claim that ignoring tourist in sustainable tourism research could partially be associated with a failure to recognize visitors' understanding about sustainability issue. As per the above authors, tourists were considered as the individuals those could not care about sustainability. However, Deng and Bender (2007) argue, tourist can identify what the local

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community cannot and their perception of tourism development can be different. Some past investigations analyzed resident fulfilment with dimensions of sustainable tourism development (Cottrell et al., 2013; Hussain et al., 2015; Cottrell et al., 2007) while tourist point of view remains an understudied issue.

Some scholars concentrated on analyzing the impact of environmental dimension (Andereck, 2009; Deng et al., 2003; Hillery et al., 2001; Rozelee et al., 2015; Andereck, 2009), environmental, social and cultural dimensions (Fan et al., 2012), economic, socio-cultural and environmental dimensions (Aydin and Alvarez, 2016; Cottrell et al., 2004; Deng and Bender, 2007; Moyle et al., 2012; Nicholas and Thapa, 2010; Thapa, 2013; Hsieh et al., 2016) on tourist perception/satisfaction. Only a few extended the use of the triple bottom line through the inclusion of institutional dimension (tourism management) (Wiwattanakantanga and To-ima, 2014) as a fourth major pillar of sustainable tourism development. Most studies were centered around nature-based attraction sites, for example, protected areas, parks (Andereck, 2009; Deng et al., 2003; Hillery et al., 2001; Moyle et al., 2012; Rozelee et al., 2015; Thapa, 2013) and only limited studies were directed on heritage sites (Aydin and Alvarez, 2016; Nicholas and Thapa, 2010).

In addition, conflicting research outcomes were reported by studies did on the relationship between dimensions of sustainable tourism and tourist satisfaction. An examination directed in West Virginia demonstrated that socio-cultural, trailed by environmental and economic dimension had a very strong influence on tourist satisfaction with tourism (Deng and Bender, 2007). Diverse findings were gotten in an examination did in China. Ecological sustainability was discovered most grounded predictor of tourist satisfaction, trailed by social and cultural sustainability (Fan et al., 2012). A comparative study conducted in Costa Rica and The Netherlands obtained results indicating that ecological, socio-cultural and economic sustainability were positioned as the first, second and the third most important predictors of tourist satisfaction with tourism respectively (Cottrell et al., 2004).

Aydin and Alvarez (2016) analyzed tourist perception of sustainable tourism development in Cusco and they found that economic and socio-cultural sustainability pulled in the consideration of numerous visitors more than ecological sustainability. The work of Nicholas and Thapa (2010) directed in World Heritage Sites in St. Lucia analyzed tourist perception of economic, environmental and social dimensions and their support for sustainable tourism development. Economic dimension was found to have the highest predictive power followed by social dimension while the environmental dimension was insignificant. Wiwattanakantanga and To-ima (2014) examined the influence of four dimensions of sustainable tourism on tourist satisfaction in Thailand. They acquired results uncovering that socio-cultural and environmental were the first and second most imperative dimensions influencing tourist

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satisfaction, followed by the economic dimension. Institutional dimension was found to be the least important dimension affecting tourist satisfaction in their study area. On the ground of the aforementioned past investigations, the following four (4) hypotheses were developed and tested in the current study.

H1: There is direct relationship between environmental dimension and tourist satisfaction

H2: There is direct relationship between economic dimension and tourist satisfaction

H3: There is direct relationship between socio-cultural dimension and tourist satisfaction

H4: There is direct relationship between institutional dimension and tourist satisfaction

3. Materials and methods

3.1. Study area description

The Tigrai Regional State is one of the nine regional states of Ethiopia. This region is the genesis of the ancient Ethiopian civilization and the entryway to the Christianity, Islam, and Judaism into the nation. It is a standout amongst the most alluring destinations in Ethiopia having a truly exceptional and intriguing history. The region is enriched with gigantic cultural, natural, and historical attraction sites. Different remarkable pre-Christian obelisks, innumerable stone inscriptions, dozens of rock-hewn churches, ancient built monasteries, palaces, and imperial tombs are among the significant legacies of the region. Thus, it is believed that Tigrai was at one time the nation's architectural workshop and considered as a genuine pearl of the tourist destinations in Ethiopia (Gidey and Sharma, 2017; Tigrai Culture and Tourism Agency, 2014).

For administrative purpose, these major attractions are categorized into six major clusters: Mekelle, Wukro, Gheralta, Aksum, Maichew, and Humera Clusters (Gidey and Sharma, 2017). The present study focuses on the first four clusters (See Fig. 1). In spite of its ownership of immense heritage resources, tourism development in the region is found in its infant age (Gidey and Sharma, 2017; Asfaw and Gebreslassie, 2016). Although both tourist flow and recipient considerably increased since 2000 (Gidey and Sharma, 2017; Tigrai Culture and Tourism Bureau, 2017; Tigrai Culture and Tourism Agency, 2011), there is still a very huge disparity between the potential and performance of tourism development in the region.

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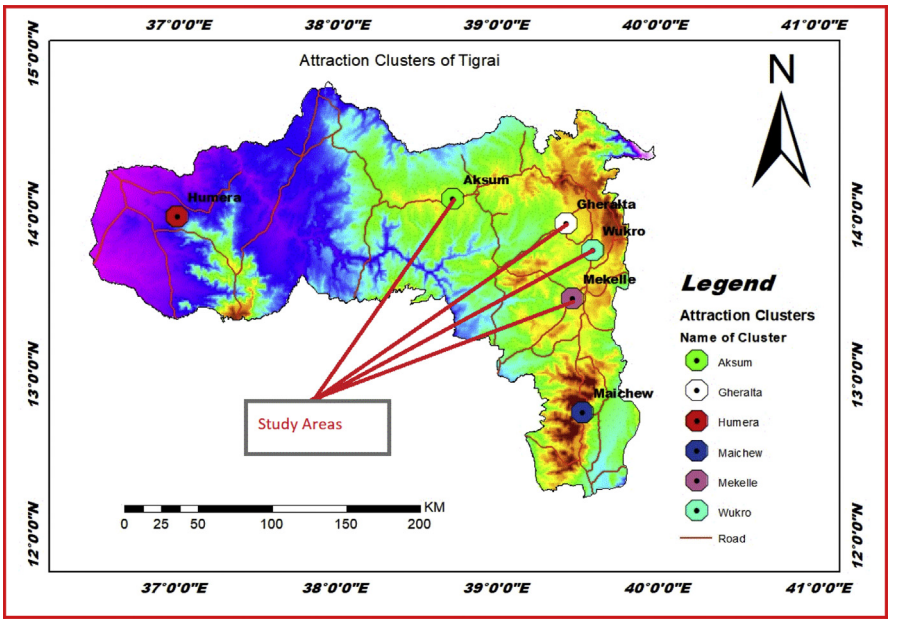

Fig. 1. Study area map.

(Source: Prepared by the corresponding author, 2019)

3.2. Research design, sample size, and sampling techniques

This study applied descriptive research design (Cui, 2008; Floy, 2015; Vannarith, 2009; Watterson, 2010). The population of the study was tourists of different nationalities (both domestic and international). This study used a quantitative research approach. The Tigrai Regional State was chosen deliberately for a few reasons. In contrast to different parts of Ethiopia, in Tigrai, there were no responsible culture and tourism offices at sub-region, district and sub-district levels until the most recent months of 2015 (Tigrai Culture and Tourism Agency, 2014). Because of this reason, there was constrained endeavor to survey the progress of sustainable tourism development in the region and no consistent monitoring and evaluation actions were attempted in light of the prior signs of negative effects ascribed to the tourism industry.

Second, the regions' geographic location on the Ethio-Eritrean war zone where the "No War No Peace Strategy" proceeded throughout the previous 20 years influenced the image of the region as a tourist attraction destination. Third, no comprehensive study has been conducted in this region on the issue under scrutiny. Mekelle, Gheralta, Wukro, and Aksum clusters were chosen for their ability to pull numerous visitors, have generally rich attraction sites and experience tourism activity for an extended stretch of time. In addition, the researcher's familiarity with the region and geographical proximity to his working university,

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Mekelle University, was another imperative basis utilized amid the determination of study area.

A convenience sampling method was used to draw samples from tourists. In 2017/2018, 56,797 international tourists and 399,316 domestic tourists (a total of 456,113 tourists) visited Tigrai Region (Tigrai Culture and Tourism Bureau, 2018). An online sample size calculator was used to determine the minimum sample size required for this study. Accordingly, 384 is the minimum sample required for the above-mentioned total population. To this end, 500 questionnaires were distributed among tourists who visited different heritage sites in Tigrai during the study period. For the sake of capturing diversified opinion of the study population, data were collected during both the high and low seasons (between July 2017 and June 2018). Finally, 450 questionnaires were returned, and 392 were found usable, giving 78.4 % response rate. As stated in the literature, a sample size of 200 and higher is quite enough to run a multivariate analysis (Byrne, 2010; Iacobucci, 2010; Kline, 2011). Along these lines, the sample size (n = 392) used in this study is adequate to perform Structural Equation Modeling (SEM).

3.3. Instrument development procedure

Initially, items were collected from past studies (Aydin and Alvarez, 2016; Cottrell et al., 2004; Deng and Bender, 2007; Fan et al., 2012; Moyle et al., 2012; Nicholas and Thapa, 2010; Rajesh, 2013; Ramdas and Mohamed, 2014; Shen and Cottrell, 2008; UNEP/WTO, 2004; Weaver and Lawton, 2004; Hsieh et al., 2016) and semi-structured interviews with a few key informants. Next, the Delphi Method and Structural Equation Modeling (SEM) techniques were used to develop and validate sustainability indicators. The present researchers published this instrument, which is adopted in the current study, in the Journal of Tourism Management (Asmelash and Kumar, 2019).

Perceived overall sustainable heritage tourism was operationalized as the average of four dimensions and sixteen sub-dimensions. Respondents were requested to express their agreement (anchored at 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree and 5 = strongly agree). Six (6) indicators measured in a negative direction were recorded in a positive direction for further analysis. Items for tourist satisfaction with tourism were derived from tourism literature (Canny, 2012; Da Costa Mendes et al., 2010; Lee, 2009; Rajesh, 2013; Shen and Cottrell, 2008; UNEP/WTO, 2004; Wiwattanakantanga and To-ima, 2014). Tourist satisfaction was operationalized as the average of eight indicators by asking respondents their fulfillment with various aspects of tourism in the study area. All indicators were measured via a 5-point point scale anchored (1) strongly dissatisfied, (2) dissatisfied, (3) neutral, (4) satisfied and (5) strongly satisfied.

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3.4. Data analysis methods

Initially, the data acquired by the means of the questionnaires were first checked to identify missing values, outliers, homoscedasticity and unengaged responses with the help of the Software Packages for Social Sciences (SPSS) version 23 and Excel 2007. Second, unidimensionality, multivariate normality, multicollinearity, construct reliability were checked utilizing an Exploratory Factor Analysis (EFA). Third, Confirmatory Factor Analysis (CFA) was used to check the convergent validity, discriminant validity and measurement model fit of the dataset. Finally, SEM was utilized to assess the structural model fit and for testing the hypotheses. This study utilized AMOS version 23 to examine the structural relationship between the dimensions of sustainable heritage tourism and tourist satisfaction.

4. Results and discussion

4.1. Socio-demographic characteristics of respondents

Out of 392 respondents, 263 (67.1%) were domestic tourists and the rest 129 (32.9 %) were foreign tourists. The number of male and female respondents was equivalent: one hundred ninety-nine (50.8 %) were males and 193 (49.2%) were females. Majority of the respondents were single (58.5%) followed by married (41.3%) and divorced (0.3%). Most of the respondents were found in the ages between 21 and 35 years (49%) followed by below 20 (21.2%), 36−45 years (19.1%) and 46−60 years (10.7%). Majority of the respondents were government employees (33.2%) followed by private workers (26.3%), students (23.7%), and others (16.8%). Among the 392 respondents, the educational attainment of 41.6%, 25.8%, 23.2% and, 9.4% was First Degree, Masters Degree, Diploma and below and Ph.D. and above respectively. The majority of the respondents (28.8%) had an average annual income varying between 351-500 USD. The rest 24.5%, 24%, and 22.7% had an average annual income of the above 1000 USD, below 350 USD and 501−1000 USD respectively.

Respondents' source of information was found to be different, providing internet (44.6%) and friends/relatives' recommendation (40.3%) paying a pivotal role. Printed materials such as guidebooks (12.8%) and newspapers/magazines (2%) had played their contribution in promoting the heritage sites. As far as the visit motivation of the respondents is concerned, the majority (53.3%) came for vacation purpose followed by religious (32.1%), business activities (12.5%), and research (2.0%) activities. Tourist length of stay in Tigrai varied between a few days and several weeks. The majority (48.2 %) of the respondents stayed one week, 40.6 % of them below one week, and 11.2% above one week. Equally important, an attempt was made to assess whether respondents were the first time or repeat visitors.

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Accordingly, the majority of them (55.9%) were repeated visitors while 44.1% were first-time visitors.

4.2. Descriptive statistics

The respondents were asked to show their level of agreement with fifty-three items speaking to sustainable heritage tourism. They were likewise solicited to express their level of satisfaction with eight items measuring tourist satisfaction. The results are incorporated into Table 1. Eleven items were utilized to assess respondents' perceptions of economic dimension. All but three items reported relatively good mean scores. The poor contribution of the tourism industry to create job for differently able individuals (Mean (M) = 2.70, Standard Deviation (SD) = 1.318), unstable and poor quality of tourism-related jobs (M = 2.89, SD = 1.249), and the absence of sufficient pay from the tourism industry to the nearby occupants (M = 2.98, SD = 1.366) were noted by the respondents.

The environmental dimension was estimated utilizing twelve items. Respondents modestly valued the wholeness of heritage tourism and the environment (M = 3.42, SD = 1.273), the presence of basic tourist facilities (M = 3.23, SD = 1.306) and the protection of nature (M = 3.23, SD = 1.328). In addition to this, they focused on the issues related to the industry's overconsumption of water and electricity resources (M = 3.23, SD = 1.319), and the role the tourism industry for water, sound, soil and air pollution (M = 3.26, SD = 1.333). The mean values of the rest indicators vary between 3.10 (the practices of reusing/recycling scarce resource) and 3.19 (the impact of tourist activities on the wildlife).

Respondents' view of socio-cultural sustainability was examined using 18 items. The role of local culture for heritage tourism development (M = 3.68; SD = 1.233), the interaction between the visitors and the local community (M = 3.47; SD = 1.218), the regard for the rights of the local residents (M = 3.43; SD = 1.326), the equality of access to the attraction sites (M = 3.38; SD = 1.309), the power of the local residents to manage their lives (M = 3.31; SD = 1.268), and the authenticity of the local lifestyles (M = 3.30; SD = 1.314) are top positioned issues. On the other hand, the respondents indicated negative emotions with some socio-cultural components including differently able individuals' less benefit from the tourism industry (M = 2.93, SD = 1.370), less concern to differently able tourists (eg. Wheelchair users) (M = 2.99, SD = 1.380), and illegal movement of heritage resources (M = 3.08, SD = 1.312). The respondents also reported decently positive views of the rest nine items representing the dimension under investigation.

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The mean scores of twelve items were conveyed to assess participants' perceptions of institutional dimension. Accordingly, respondents perceived the majority (10) of the items more negatively. They contested the failure to incorporate a local knowledge into the heritage site management (M = 3.06, SD = 1.344), the weak participation of the local residents in decision making process (M = 3.04, SD = 1.369), the pitiable public-private partnership in the tourism industry (M = 3.01, SD = 1.324), the nonappearance of clear sustainable heritage tourism master plan (M = 3.13, SD = 1.407), the poor identification of core and buffer zones of the attraction sites (M = 3.15, SD = 1.360), the loose integration between heritage tourism and community developmental activities (M = 3.15, SD = 1.350), the absence of strong regional support for tourism development projects (M = 3.12, SD = 1.352), and the weak consciousness of local leaders about the tourism industry (M = 3.10, SD = 1.321). The respondents strongly pronounced two major problems: residents' token share of tourism income (M = 2.88, SD = 1.346) and poor performance and weak support for the conservation of heritage sites at the local level (M = 2.97, SD = 1.273).

Respondents were satisfied with the welcoming approach of the nearby inhabitants (M = 3.79, SD = 1.148), the allure of the attraction places (M = 3.76, SD = 1.273), and tour guides' treatment of their clients and the neighborhood occupants (M = 3.51, SD = 1.197). They additionally demonstrated a moderate level of fulfillment with the wellbeing and security at the heritage places (M = 3.49, SD = 1.249), the reasonability of entrance fees to the heritage places (M = 3.46, SD = 1.285), and the provision of credible information about the heritage sites (M = 3.34, SD = 1.277). Notwithstanding, their satisfaction level considerably diminished with the accessibility to attraction sites with a particular focus on the physical distance, price and information (M = 3.29, SD = 1.249), and the accommodation (quality of foods and drinks, customer handling, price fairness) in service sectors (M = 3.21, SD = 1.3388).

4.3. Missing values, outliers, and multivariate normality

Before running the Structural Equation Modeling (SEM), the data were screened for its applicability to the proposed model. In this step, some missing values were identified with the help of Microsoft Excel 2007 and they were replaced using simple imputation, whereby missing values were replaced by an arithmetic mean (Byrne, 2010). The missing values per variable do not surpass 5% as proposed by Tabachnick and Fidell (1996), providing that missing value is not an issue in the data. Outliers stand for an extreme score on two or more variables. This was checked using Mahalanobis Distance (D^2) for each case (Byrne, 2010). Outliers did not affect the data in this study. Observed values fall approximately along the straight line, indicating that the observed values are the same as

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we would expect to get from a normally distributed dataset (Field, 2009). In order to confirm the normality distribution, the kurtosis and skewness were checked. The obtained results do not exceed between +2 and -2, demonstrating that normal distribution of data was met (Garson, 2012).

4.4. Multicollinearity

Multicollinearity insinuates the presence of a very strong correlation between variables representing the same underlying construct (Byrne, 2010). An endeavor was made to check whether the dataset was free from the issue of multicollinearity or not. This was addressed through three different approaches. First, the determinant matrix was found to be 2.014E-3 (0.002014), which is greater than the necessary value of 0.00001. Second, Tolerance (T) and Variance Inflation Factor (VIF) values were examined. Tolerance value less than the cutoff value, 0.20 and Variance Inflation Factor (VIF) greater than 5 indicate the problem of multicollinearity (Garson, 2012). In this study, the tolerance (1.00) and VIF (1.00) values of the data fall within the acceptable ranges. Third, an attempt was made to see the correlation coefficients between indicators. Accordingly, none of the indicators in the correlation matrix found to have correlation coefficient value higher than 0.8 (Field, 2009). In this manner, it is conceivable to infer that the data were free from the issue of multicollinearity.

4.5. Constructs' unidimensionality

An attempt was made to check the unidimensionality of five constructs represented by 61 items. A principal component analysis (PCA), varimax rotation, was applied in order to distinguish the underlying dimensions of the items. In some disciplines such as tourism where information is often less exact, 60% (and sometimes less) of total variance is considered as satisfactory (Hair et al., 2010). To this end, the results of this study showed five distinct dimensions explaining 55.951 % of the total variance in the dataset, indicating that it meets the minimum requirement though it is necessary to include some more dimensions in future studies. The five constructs obtained an overall Cronbach's alpha value of 0.966, which is higher than the cut point of 0.6 recommended by Nunnally and Bernstein (1967). In this study, the Kaiser-Meyer-Olkin (KMO) value is 0.949, which falls into the range of being superb (Hair et al., 2010; Field, 2009). A statistically significant Bartlett's test of Sphericity ($p < .05$) signifies that correlations between indicators were sufficiently large for PCA (Hair et al., 2010). For the current study, Bartlett's test is highly significant (X^2 (1830) = 15920.869, $p < 0.001$), indicating that factor analysis is appropriate.

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The five constructs were named as economic sustainability, environmental sustainability, socio-cultural sustainability, institutional sustainability, and tourist satisfaction. The highest variance was explained by the socio-cultural sustainability that explained 34.021% of total variance with an Eigenvalue of 20.753. The second higher amount of variance was explained by the institutional sustainability: 7.438% of total variance with an Eigenvalue of 4.537. The third construct, environmental sustainability, explained the third higher variance (6.591% of total variance) has an Eigenvalue of 4.021. Economic sustainability, the fourth construct, explained 4.657% of total variance with an Eigenvalue of 2.841 while the fifth construct was tourist satisfaction that explained 3.244% of total variance with an Eigenvalue of 1.979.

4.6. Measurement model results

Following the assessment of missing values, outliers, multivariate normality, multicollinearity, and construct unidimensionality, the data were examined for its suitability for further analysis. Internal reliability underpins how strong the measuring items are holding together in measuring the respective construct (Field, 2009). The value of Cronbach's Alpha should exceed 0.7 internal consistency of an instrument to be achieved (Hair et al., 2010; Kline, 2011). All the above-mentioned constructs scored Cronbach Alpha values greater than 0.7. Economic sustainability consisted of three sub-dimensions namely employment quality, economic viability, and local prosperity having Cronbach Alpha values of 0.791, 0.837, and 0.822 respectively. The sub-dimensions of the second factor (environmental sustainability) include physical integrity ($a = 0.834$), resources efficiency ($a = 0.838$), biological diversity ($a = 0.809$) and environmental purity ($a = 0.831$). The third factor (socio-cultural sustainability) has five further sub-dimensions: social equity, visitor fulfillment, local control, community wellbeing, and cultural richness with Cronbach Alpha values of 0.820, 0.806, 0.859, 0.782, and 0.752 respectively.

The four sub-dimensions of institutional dimension, namely local oriented control policy, local planning policy, political participation, and government support at different levels have alpha values of 0.852, 0.861, 0.858, and 0.840 respectively. The construct tourist satisfaction was also found very reliable ($a = 0.883$). Overall, the institutional sustainability had relatively the highest reliability ($a = 0.941$) followed by socio-cultural ($a = 0.939$), environmental ($a = 0.930$) and economic ($a = 0.914$) sustainability. As suggested by Nunnally and Bernstein (1967) work, the items in this study have sufficient internal consistency (See Table 1).

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Table 1. EFA, descriptive statistics, and construct reliability results.

Sustainability Indicators	FL[a]	M[b]	SD[c]	a[d]
Economic Sustainability		**3.05**		**0.914**
Employment Quality				0.791
EQ1: Number of job opportunity for the local residents	.546	3.25	1.365	
EQ2: Level of equity among men and women in the tourism job	.669	3.08	1.307	
EQ3: Employment of differently able individuals in the tourism industry job	.669	2.70	1.318	
EQ4: Percentage of quality (stable, high paid, permanent and full-time) tourism jobs	.686	2.89	1.249	
Economic Viability				0.837
EV1: Level of local economic diversification due to heritage tourism	.785	3.24	1.329	
EV2: Seasonality level of heritage tourism	.741	3.15	1.191	
EV3: Amount of income to the local communities	.742	2.98	1.366	
Local Prosperity				0.822
LP1: Variety of local products available because of heritage tourism	.755	3.18	1.296	
LP2: Availability of markets for local products	.745	3.07	1.285	
LP3: Degree of financial leakage away from the destination	.605	2.91	1.203	
LP4: Adequacy of tourists' average length of stay	.655	3.07	1.240	
Environmental Sustainability		**3.20**		**0.930**
Physical Integrity				0.834
PI1: Integration of heritage tourism and the environment	.645	3.42	1.273	
PI2: Suitability of facilities to heritage tourism	.713	3.23	1.306	
PI3: Private sector and local community's sensitivity to the environment	.712	3.18	1.334	
Biological Diversity				0.809
BD1: Pressure of tourist activities on fauna and flora species	.744	3.19	1.324	
BD2: Value to and protection of the natural environment	.752	3.23	1.328	
BD3: Efforts made to minimize damages on the environment	.693	3.20	1.294	
Resource Efficiency				0.838
RE1: Percentage of water and energy resources consumption caused by heritage tourism	.724	3.23	1.319	
RE2: Renewable resources reusing/recycling practices	.726	3.10	1.221	
RE3: Quality of solid waste management actions	.763	3.17	1.353	
Environmental Purity				0.831
EP1: Level of pollution (water, sound, soil, and air) due to heritage tourism	.693	3.26	1.333	
EP2: Amount of litter attributed to heritage tourism	.715	3.14	1.259	
EP3: Actions undertaken to reduce pollution (eg. air, sound, water)	.663	3.12	1.274	
Socio-Cultural Sustainability		**3.19**		**0.939**
Social Equity				0.820
SE1: Residents and tourists' equal access to similar heritage tourism activities	.557	3.38	1.309	
SE2: Proportion of income from heritage tourism to physically differently able local residents	.564	2.93	1.370	
SE3: Number of additional services (eg. water, electricity, health facilities) caused by heritage tourism	.574	3.02	1.345	

(*continued on next page*)

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Table 1. (*Continued*)

Sustainability Indicators	FL[a]	M[b]	SD[c]	a[d]
Visitor Fulfilment				0.806
VF1: Percentage of tourists encouraged to learn about local cultures	.604	3.30	1.390	
VF2: Quality of host-guest interaction	.626	3.47	1.218	
VF3: Percentage of heritages sites accessible to physically differently able tourists (eg.Wheelchair users)	.636	2.99	1.380	
VF4: Effectiveness of registering and handling visitors' complaints	.651	3.03	1.338	
Local Control				0.859
LC1: Protection of individual and collective rights of the local people	.577	3.43	1.326	
LC2: Local people's responsibility and control over their lives	.659	3.31	1.268	
LC3: Local residents' knowledge of heritage tourism and its sustainability	.691	3.13	1.316	
LC4: Presence of local help for residents on how to portray their culture to tourists	.655	3.15	1.346	
Community Wellbeing				0.782
CW1: Contribution of local cultural values for heritage tourism development	.560	3.68	1.233	
CW2: Retention of local lifestyles	.587	3.30	1.314	
CW3: Percentage of criminality, alcoholism, vandalism etc caused by heritage tourism	.601	3.04	1.319	
CW4: Quality of recreational opportunities for residents due to heritage tourism	.635	3.07	1.347	
Cultural Richness				0.752
CR1: Availability of maintenance and restoration funds	.530	3.07	1.338	
CR2: Availability of guidelines for "what to do" and "not to do" in attraction sites	.496	3.06	1.336	
CR3: Incidents of illicit trafficking of historical and archaeological artifacts	.351	3.08	1.312	
Institutional Sustainability		**3.10**		**0.941**
Local-Oriented Control Policy				0.852
LCP1: Controlling practices of local tourism development	.628	3.33	1.321	
LCP2: Presence of tourism planner among the local residents	.583	3.20	1.285	
LCP3: Inclusion of indigenous knowledge in heritage sites management	.580	3.06	1.344	
Political Participation				0.861
PP1:Level of local residents' participation in tourism decision-making process	.672	3.04	1.369	
PP2: Quality of public-private partnership in tourism	.709	3.01	1.324	
PP3: Local residents' participation in benefit sharing from tourism	.667	2.88	1.346	
Local Policy Planning				0.858
LPP1: Availability of clear sustainable heritage tourism master plan	.715	3.13	1.407	
LPP2: Implementation of land zoning practices in the attraction sites	.629	3.15	1.360	
LPP3: Inclusion of heritage tourism into community development program	.614	3.15	1.350	
Political Support at Different Levels of Government				0.840
PS1: Presence of support for development projects at regional level	.737	3.12	1.352	
PS2: Local leaders' towards heritage tourism development	.685	3.10	1.321	
PS3: Level of support for conservation of heritage sites at the local level	.603	2.97	1.273	

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Table 1. (*Continued*)

Sustainability Indicators	FL[a]	M[b]	SD[c]	a[d]
Tourist Satisfaction		**3.48**		0.883
SA1:Attractiveness of the destination	.556	3.76	1.273	
SA2: Hospitability of the local residents	.711	3.79	1.148	
SA3: Tourism staff treatment of tourists and local residents	.740	3.51	1.197	
SA4: Reasonability of entrance fee to attraction sites	.663	3.46	1.285	
SA5: Quality of information offered at attraction sites	.672	3.34	1.277	
SA6: Safety and security of the destination	.704	3.49	1.249	
SA7: Accessibility of the destination (in terms of physical distance, price, information)	.729	3.29	1.242	
SA8: Accommodation (quality of food and drinks, customer handling, price fairness) in service sectors	.693	3.21	1.338	

[a] Factor Loading.
[b] Mean Score.
[c] Standard Deviations.
[d] Cronbach Alpha Values.

An appraisal of data validity came next to the above-mentioned activities. Instrument validity refers to the ability of an instrument to measure what it intended to measure for a latent construct (Hair et al., 2010; Field, 2009). Convergent validity, one form of validity, assesses the extent to which two measures capture a common construct (Carlson and Herdman, 2012; Hair et al., 2010). The convergent validity can also be measured by computing the Average Variance Extracted (AVE) and Composite Reliability (CR) for every construct (Tabachnick and Fidell, 1996). The AVE speaks to the average amount of variance that a construct explains in its indicator variables relative to the overall variance of its indicators (Henseler et al., 2014) while CR refers to the reliability and internal consistency of a latent construct (Holmes-Smith, 2001).

A value of 0.5 and higher for AVE and 0.7 and higher for CR is required for convergent validity of an instrument to be achieved (Hair et al., 2010). As can be seen from Table 2, all but one (tourist satisfaction = 0.493) the constructs recorded AVE values higher than the benchmark recommended by Fornell and Larcker (1981) and Hair et al. (2010). Particularly, the institutional sustainability scored the highest AVE value (0.695), followed by economic sustainability (0.676), environmental sustainability (0.646), socio-cultural sustainability (0.645), and tourist satisfaction (0.493). This evinces that the constructs of interest achieved the expected level of convergent validity.

Discriminant (divergent) validity refers to measurements that are not supposed to be related are actually unrelated (Hair et al., 2010). It can be checked through three different ways. First, to satisfy this requirement, each construct's Average Variance Extracted (AVE) must be compared with its squared correlations with other

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Table 2. Convergent validity.

Convergent Validity	ECS	ENS	SCS	INS	TSATS
Average Variance Extracted (AVE) $AVE^{1} = \sum K^2/n$ (>0.5)	0.676	0.646	0.645	0.695	0.493
Composite Reliability (CR) $CR^{2} = (\sum K)^2/[(\sum K)^2 + (\sum \varepsilon)]$ (>0.7)	0.75	0.799	0.664	0.705	0.887
Convergent Validity	**Established**	**Established**	**Established**	**Established**	**Almost Established**

(Note: ECS = Economic sustainability, ENS = Environmental sustainability, SCS = Socio-cultural sustainability, INS = Institutional sustainability, TSATS = Tourist Satisfaction).

[1] K= refers to factor loading of every items and n= represents number of items in the data set.

[2] K= refers to factor loading of every items, n= represents number of items in the data set and ε= stands for the error terms.

constructs in the model (Henseler et al., 2014). As can be seen from Table 3, all constructs in this study scored AVE values greater than the squared correlations. Second, items redundancy was assessed using discrepancy measure called Modification Indices (MI), which was found lower than 15, indicating that there is no problem of item redundancy in the dataset (Awang, 2012). Third, the correlations between exogenous constructs lower than 0.85 was another requirement to examine the discriminant validity and correlations exceeding 0.85 reveal that the two exogenous constructs are either redundant or have serious multicollinearity problem (Field, 2009). In this study, none of the correlations was found greater than 0.85, showing that the constructs have adequate discriminant validity.

After all these steps were passed through, an attempt was made to evaluate the measurement model fit. The CFA supported the measurement model for the four sustainability dimensions. All indicators loaded on their respective latent constructs. The standardized factor loadings ranged from 0.69 (EPII or environmental purity) to 0.86 (REII or resource efficiency) and all t-values were found statistically significant

Table 3. Discriminant validity.

Constructs	Factor Correlation (r)	Square factor correlation (r^2)	AVE1 & AVE2 (AVEs should be > r^2)	Discriminant Validity
ENS<–>ECS	0.381	0.145161	0.646, 0.676	**Established**
ENS<–> TSATS	0.351	0.123201	0.646, 0.493	**Established**
ENS <–>INS	0.496	0.246016	0.646, 0.695	**Established**
ENS<–>SCS	0.557	0.310249	0.646, 0.645	**Established**
ECS<–>TSATS	0.418	0.174724	0.646, 0.493	**Established**
INS<–>ECS	0.492	0.242064	0.695, 0.646	**Established**
SCS<–>ECS	0.54	0.2916	0.645, 0.646	**Established**
INS<–>TSATS	0.574	0.329476	0.695, 0.493	**Established**
SCS<–>TSATS	0.585	0.342225	0.645, 0.493	**Established**
SCS<–>INS	0.852	0.725904	0.645, 0.695	**Not Established**

(Note: ECS = Economic sustainability, ENS = Environmental sustainability, SCS = Socio-cultural sustainability, INS = Institutional sustainability, TSATS = Tourist Satisfaction).

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(See Fig. 2). The fit indices suggest that the measurement model is acceptable with X^2 (242) = 544.247, p < 0.001, CMIN/DF, 2.249, GFI = 0.896, NFI = 0.910, IFI = 0.948, TLI = 0.940, CFI = 0.947, RMSEA = 0.057) (Bentler and Bonett, 1980; Hair et al., 2010; Hooper et al., 2008; Kline, 2011; Wheaton et al., 1977). The CFA for the tourist satisfaction construct also supported the data with factor loading varying between 0.53 (SAT1 or attractiveness of the destination) and 0.77 (SAT5 or quality of information offered at attraction sites).

4.7. Structural model and hypothesis testing

The hypothesized relationships among the five constructs were tested in the structural model (maximum likelihood estimation method) (See Fig. 3). As can be seen from Table 4, the results reveal a good model fit of the structural model with

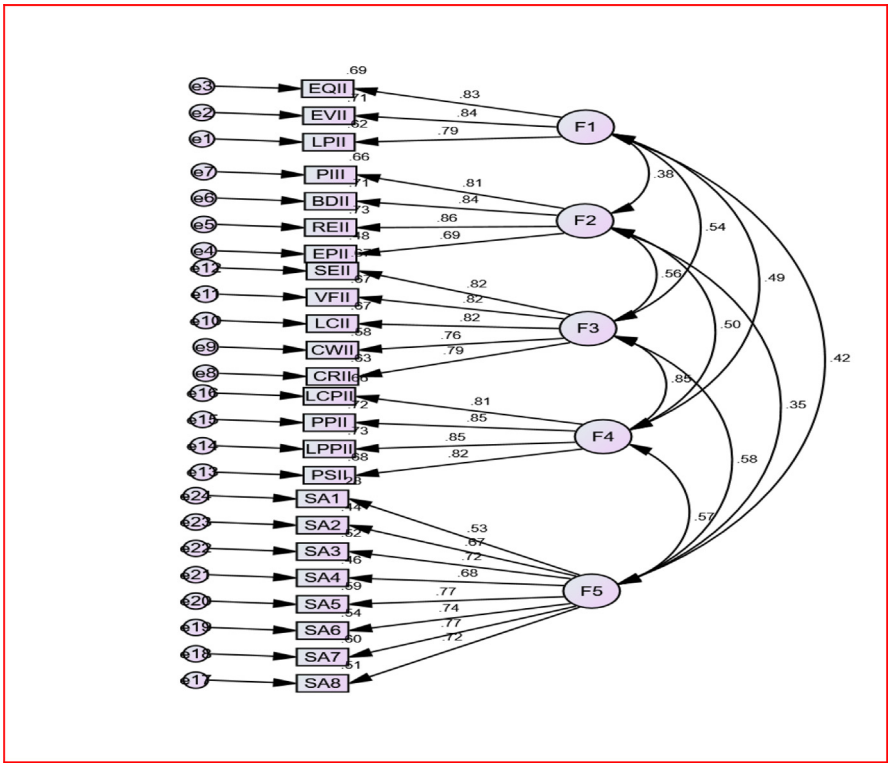

Fig. 2. Confirmatory Factor Analysis Results. Note: F1 = Economic Sustainability, F2 = Environmental Sustainability, F3 = SCSU = Socio-Cultural Sustainability, F4 = INSU = Institutional Sustainability, F5 = Tourist Satisfaction, EQII = Employment Quality, EVII = Economic Viability, LPII = Local prosperity, SEII = Social Equity, VFII = Visitor Fulfilment, LCII = Local Control, CWII = Community Wellbeing, CRII = Cultural Richness, PIII = physical Integrity, BDII = Biological Diversity, REII = Resources Efficiency, EPII = Environmental Purity, LCPII = Local-oriented Control Policy, PPII = political Participation, LPPII = Local Policy Planning, PSII = Political Support, SA1 = destination attractiveness, SA2 = hospitality of the local people, SA3 = Tour guides treatment of tourist and local people, SA4 = Reasonability of entrance fees to attraction sites, SA5 = quality of information offered at attraction sites, SA6 = Safety and security, SA7 = accessibility of destination, SA8 = accommodation quality, and e1-e24 = error terms of the constructs in the model.

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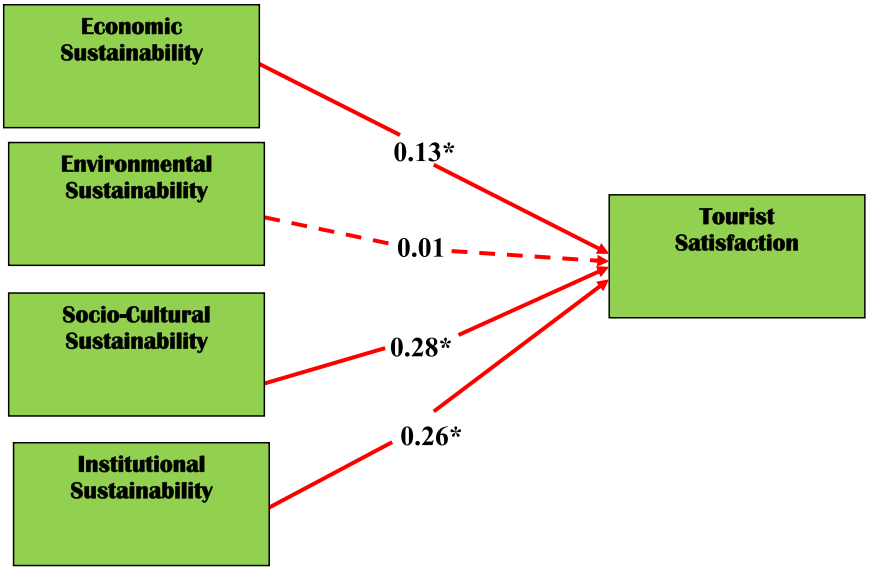

*p<0.05

Fig. 3. Structural model.

Table 4. Fitness indices.

Name of Category	Name of Index	Level of Acceptance	Index value
Absolute fit	Chi-Square	P > .05	P = 0.000
	RMSEA	RMSEA between .03 and .08	RMSEA = .057
	GFI	GFI>.90	GFI = .896
Incremental fit	CFI	CFI >.90	CFI = .947
	TLI	TLI >.90	TLI = .940
	IFI	IFI>.90	IFI = .948
	NFI	NFI >.90	NFI = .910
Parsimonious fit	Chisq/df	Chisq/df <3.0	Chisq/df = 2.249

(Note: RMSEA = Root Mean Square Estimation Approximation, GFI = Goodness Fit Index, CFI = Comparative Fit Index, TLI = Tucker Lewis Index, NFI = Normed Fit Index).

X^2 (242) = 544.247, p < 0.001, CMIN/DF, 2.249, GFI = 0.896, NFI = 0.910, IFI = 0.948, TLI = 0.940, CFI = 0.947, RMSEA = 0.057 (Bentler and Bonett, 1980; Hair et al., 2010; Hooper et al., 2008; Kline, 2011; Wheaton et al., 1977).

At this level of analysis, SEM was deployed to assess the influence of the four sustainability dimensions (economic, environmental, socio-cultural and institutional) on tourist satisfaction with sustainable heritage tourism development (See Table 5). Accordingly, the socio-cultural sustainability was found to be the strongest predictor of tourist satisfaction (p = 0.020, β = 0.28) followed by institutional sustainability (p = 0.019, β = 0.26) and economic sustainability (p = 0.029, β = 0.13). The fourth dimension (environmental sustainability was found not to be a significant predictor

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Table 5. Hypothesis test.

Hypothesis No	Hypothesis	Stand. estimates	t-values	Decision
H1	There is direct relationship between environmental dimension and tourist satisfaction.	0.013	0.221	Rejected
H2	There is direct relationship between economic dimension and tourist satisfaction	0.132	2.177*	Accepted
H3	There is direct relationship between socio-cultural dimension and tourist satisfaction	0.283	2.327*	Accepted
H4	There is direct relationship between institutional dimension and tourist satisfaction	0.262	2.342*	Accepted

*$p < 0.05$.

of tourist satisfaction ($p = 0.825$, $\beta = 0.01$). Taken together, all four dimensions explained 55.951 of the variance in satisfaction.

The present findings strengthen past investigations (Cottrell et al., 2004; Deng and Bender, 2007; Fan et al., 2012; Wiwattanakantanga and To-ima, 2014), whereby each dimension of sustainable heritage tourism has different predictive power and this varies from study to study. In particular, the findings have established positive and direct significant relationships between three dimensions of sustainable heritage tourism development and tourist satisfaction with tourism: economic, socio-cultural, and institutional sustainability. In contrast to different past studies (eg. Cottrell et al., 2004; Deng and Bender, 2007; Fan et al., 2012) which suggest that environmental dimension was the strongest predictor of tourist satisfaction, the findings of the present study show that environmental sustainability was insignificant predictor of tourist satisfaction in the study area (Hypothesis H1 was not accepted). This might be related to the reason that the current research did not focus on nature-based attraction sites where an environmental issue may take a higher precedence in visitors' perception (Aydin and Alvarez, 2016). This study rather examined the structural relationship between four dimensions of sustainable tourism and tourist satisfaction in heritage sites context.

This study uncovers that economic sustainability directly and positively affects tourist satisfaction. Thus, Hypothesis H2 was accepted, demonstrating that the more (less) tourists show a positive perception of economic sustainability, the higher (lesser) satisfaction they would display with tourism. The affirmation of Hypothesis H2 is in line with the works of Hsieh et al. (2016), Deng and Bender (2007), Cottrell et al. (2004), Aydin and Alvarez (2016). Supporting Fan et al. (2012), Cottrell et al. (2004), and Deng and Bender (2007) results, the present findings indicate that the socio-cultural dimension has a direct and positive impact on tourist satisfaction (Hypothesis H3 was accepted). Specifically, the current findings reveal that tourist

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favorable perception of the socio-cultural dimension leads to a softer and favorable evaluation of tourism destination and their better satisfaction would be inevitable.

The results of this study elucidated that there is institutional sustainability is the second important predictor of tourist satisfaction with tourism (Hypothesis H4 was accepted). This finding further advances the understanding of the structural relationships between dimensions of sustainable tourism development and tourist satisfaction with tourism through the inclusion of a fourth dimension (institutional sustainability). Some previous studies (Aydin and Alvarez, 2016; Cottrell et al., 2004; Deng and Bender, 2007; Fan et al., 2012; Hsieh et al., 2016) concentrated on two or three dimensions of sustainable tourism development. Fan et al. (2012) examined the relationship between environmental, cultural and social sustainability without the inclusion of institutional and economic sustainability while Aydin and Alvarez (2016), Cottrell et al. (2004), Hsieh et al. (2016), and Deng and Bender (2007) investigated the relationship between environmental, socio-cultural and economic dimensions and tourist satisfaction. Wiwattanakantanga and To-ima (2014) made a limited attempt to include institutional dimension (represented by tourism management) in their study in Thailand. The findings of the present study obtained a direct and positive relationship between an institutional dimension and tourists' satisfaction (H4 accepted). This would help to open further investigation and debate on the issue under discussion.

5. Conclusion

The fulfillment of tourism sustainability is unfathomable in the absence of tourist satisfaction with tourism (Swarbrooke, 1999). Keeping this in mind, this paper attempted to analyze the influence of the dimensions of sustainable heritage tourism on tourist satisfaction in Tigrai Regional State utilizing SEM. The results of the present study explain that tourists have great comprehension of tourism sustainability. Some past studies (Deng and Bender, 2007; Nicholas and Thapa, 2010; Thapa, 2013) bolstered these findings. What is vital to note here is that each dimension of sustainable tourism has a distinctive level of influence on tourist satisfaction.

In this investigation, aside from H1, all hypotheses (H2, H3, and H4) were accepted, demonstrated that tourist perceptions of socio-cultural sustainability, institutional sustainability, and economic sustainability affected their satisfaction with tourism. These dimensions were situated the first, second, and the third predictors of tourist satisfaction with tourism respectively. However, the fourth dimension, environmental sustainability, was found to be an insignificant predictor. These results meant that since most of the respondents were cultural (heritage) tourists, their perceptions of the social equity, visitor fulfillment, local control, community wellbeing, and cultural richness profoundly influence their satisfaction

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with tourism. Their understandings with regards to institutional sustainability also influence their satisfaction with the industry. Moreover, tourists are cognizant about the local economic development and their satisfaction was affected by their perceptions of this dimension.

This study has some theoretical contributions to the discussion about tourist satisfaction with the dimensions of sustainable tourism. To begin with, it could expand the existing Triple-Bottom-Line Approach (which constrained to the economic, socio-cultural, and environmental dimensions) through the inclusion of institutional sustainability. Some scholars incorporated institutional dimension as the fourth element in their investigation regarding resident satisfaction with sustainable tourism. The present study, however, argues that this dimension should also be considered in similar issues from tourist perspectives. Furthermore, the application of a comprehensive set of sustainability indicators representing four (4) dimensions and sixteen (16) sub-dimensions and the incorporation of the DPSIR Framework would incite further investigation and dialog in such manner.

This study has also managerial implications. As the strongest predictor of tourist satisfaction, destination managers and decision makers must give careful consideration on the socio-cultural sustainability. Tourists must be encouraged to have meaningful interaction with the local people, learn local culture, and access to local history and culture. They should be allowed to observe the living culture of the local community so that they can get authentic and genuine information about the people they visit. This could limit tourist disappointment caused by an inadequate interpretation from inexperienced guides. Tourists must be provided with clear guidelines with respect to what is permitted and restricted in each site and this, thusly, would limit the conceivable antagonistic vibe between the local people and the tourists. Upgrading the host-guest communication, enhancing the enlistment and administration of tourist grievances, and ensuring accessible tourism must be taken seriously.

Destination managers and decision makers ought to dedicate to execute their institutional obligation and let stakeholders (including tourists) feel happy with it for this dimension pervasively affects tourist satisfaction. They should develop and execute clear local and regional frameworks that encourage local community participation in tourism planning, decision-making, and benefit sharing. A consideration of indigenous knowledge in heritage site management, improving public-private partnership, introducing clear site plans and land zoning policies are the major signals of urgent intervention for a better tourist satisfaction and an effectively sustainable heritage tourism development.

Tourism managers should also gear the industry in a way it guarantees economic sustainability in the region. Otherwise, it could be a reason for tourist dissatisfaction. They should work for better employment quality, economic viability, and local prosperity. Numerous individuals (young, females, and differently able people) must get

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tourism job, there must demand-based handicraft production and proper market linkage for it, due attention is required for new destination development and increment of tourists' length of stay. Although environmental sustainability is found to have no notable influence on tourist satisfaction, this dimension would be an important factor affecting tourist satisfaction with nature-based tourism. For this reason, research-based intervention is demanding to address problems related to physical integrity, biological diversity, resource efficiency, and environmental purity in the region.

6. Related work

This study has some limitations, which are good opportunities for future research. First, a longitudinal investigation is highly demanding for a better understanding of the change and continuity with the relationship between sustainability dimensions and tourist satisfaction over time. Second, still, the absence of consistent findings regarding the relative contribution of each dimension on tourist satisfaction with tourism development calls for further research to examine the reason why such variations happen. Third, conducting further research during the relatively stable political situation and better social order would result in obtaining different research findings. Finally, inclusion of some additional sustainability dimensions such as infrastructural and technological sustainability with the aforementioned four sustainability dimensions would improve the total variance explained by the dataset.

Declarations

Author contribution statement

Atsbha Gebreegziabher Asmelash, Satinder Kumar: Conceived and designed the experiments; Performed the experiments; Analyzed and interpreted the data; Wrote the paper.

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Competing interest statement

The authors declare no conflict of interest.

Additional information

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