The Creation of Sustainable Value from Cruise Tourism
An Empirical Study on Gotland, Sweden

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Abstract

Nowadays, cruise tourism is playing a significant role in international tourism and has brought vital economic benefits to ports and destinations. Apart from the economic impact, cruise tourism can also influence a destination in social and environmental aspects. Many researchers have highlighted that understanding how value creation can be achieved from cruise arrivals is vital to local businesses and cruise destinations. However, current research on the value creation of cruise tourism has some gaps such as the limited study sites and the lack of research on social and environmental aspects of sustainability.

Gotland is the largest island in the Baltic Sea. As a newly constructed cruise destination, research about the island is not yet as much as destinations like the Caribbean, and the existing research has primarily used qualitative methods.

This thesis draws on data from the sustainable visits project in 2018 and uses multiple regression research methods to construct three regression models for empirically analyzing the relationships between on-shore activity, tourism information and tourist's satisfaction on Gotland, and the impact of destination satisfaction on expenditure behavior. The purpose of this thesis is to study the sustainable value creation of cruise tourism on Gotland, Sweden, and contribute to the sustainable development of it as a tourism destination.

The study results show that the more abundant on-shore activities one enjoys, the higher the cruiser's destination satisfaction. The more tourism information about the destination one knows, the higher the cruiser's destination satisfaction. The higher the cruiser's destination satisfaction, the larger the cruiser's expenditure in the destination is. Thus, it is suggested to all stakeholders work on enriching on-shore activities as well as providing more high-quality tourism information through collaboration, and thus bringing more tourism expenditure.
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I. Introduction

1.1 Study background

The development of cruise tourism has gone through several stages ever since its inception in the 20th century. In the 1920s, cruising was the preferred mode of travel for people, but its traffic declined post-World War II. However, the latter part of the 20th century has witnessed a tremendous revival, as cruise companies grew rapidly (Johnson, 2002). Nowadays, cruise tourism is playing a significant role in international tourism, carrying a total of 29.7 million passengers worldwide, with a 4% increase from 2018 to 2019. Europe experienced a hearty 7.4% increase as new ships were launched in two key markets (Cruise Lines International Association, 2020b). In Sweden, the passenger volume was 59 thousand in 2019 (Cruise Lines International Association, 2020a).

Under such circumstances, cruising has brought vital economic benefits to ports and destinations, and the economic impacts of cruise activity on a destination are associated with different types of expenditure (Brida and Coletti, 2012). As reported, an estimated 148.4 million on-shore visits by passengers and crew helped generate $72.0 billion in direct cruise sector expenditures at destinations and source markets around the world (Cruise Lines International Association, 2020c). Apart from the economic impact, cruise tourism can also influence a destination in social and environmental aspects. Therefore, economic, social and environmental aspects of sustainability should all be taken into account in the context of sustainable tourism.

The development of tourism is closely connected with different stakeholders. For organizations, value creation is the core of effective development strategies, and they need to focus their energies on the creation of new value to be persistently successful (Moran and Ghoshal, 1996). This also applies to cruise companies, cruise destinations, and local businesses in the destinations. Many researchers have highlighted that understanding how value creation can be achieved from cruise arrivals is vital to local businesses and cruise destinations (Madsen, Wigger and Vinogradov, 2018). Thus, it is crucial to study the value creation of cruise tourism.

However, current research on the value creation of cruise tourism has some gaps. On the one hand, most studies have been predominantly focused on the Caribbean, while only limited research has been conducted on other geographic markets (Satta et al., 2015). As a newly constructed cruise destination, there is not as much research about Gotland in comparison to destinations like the Caribbean, and the existing research has primarily used qualitative methods. On the other hand, the economic value brought by cruise arrivals has been addressed by many studies, while social or environmental sustainability has been mentioned less. This study is designed to make
up for the gaps in these two aspects to some extent. In the remainder of this thesis, the research purpose and questions, the information about Gotland as a tourism destination, literature review, methodology, empirical results, conclusions, and discussions will be introduced in sequential order.

1.2 Research purpose and significance

In any hypothetical war in the Baltic Region, no piece of land holds the same strategic value as the Swedish island of Gotland. This large island dominates sea routes running in the Baltic Sea and provides air bases to any party that holds the island (Van Lokeren, 2015). Apart from its advantageous and strategic location, it is also a paradise island full of character, wilderness, and a coastline punctuated with sandy beaches and sculptural sea stacks. Historically significant, its main town, Visby, is a Viking-era wonder and UNESCO World Heritage Site (Visit Sweden, 2021). All these characteristics have contributed to Gotland becoming a Swedish summer vacation destination, driving the development of cruise tourism on Gotland and boosting the growth of the cruise industry in Sweden and Europe. At the same time, the development of cruise tourism has also had a considerable impact on this historic island, for example, by bringing about sustainability challenges. Gotland is a small island destination, so its research would definitely be different from that of a big city destination like Shanghai. Meanwhile, the research results of Gotland should be applicable to other similar small island destinations. Therefore, it is of great interest to study cruise tourism on Gotland.

The research purpose of this thesis is: Using quantitative research methods, this thesis project is going to study how cruise tourism can contribute to sustainable value creation and sustainable destination development, by analyzing data from Gotland, Sweden.

Choosing Gotland as its study site, this thesis paper has its significance of study both theoretically and empirically. Theoretically, this study might enrich two fields of literature, cruise tourism and value creation. For cruise tourism, this study extends the research object to Gotland and analyzes it from an empirical perspective, using multiple regressions to investigate the relationships between variables. In addition, this study will gain diverse insight into value creation by looking into different aspects of sustainability including economic and social sustainability. Empirically, through a combination of literature review, quantitative research and data analysis, this thesis paper hopes to provide insights on value creation of cruise tourism on Gotland.

1.3 Research questions

On the one hand, since it is of research interest to study the value creation of cruise tourism and the industry will bring sustainable values to tourism destinations, it is necessary to look at how to increase these values. On the other hand, the study of values
of the cruise business is often linked to the satisfaction of a destination, which will influence or be influenced by a range of factors (Satta et al., 2015), including on-shore activity, tourism information, and expenditure behavior. These three factors will be paid attention to in this paper. If the number of on-shore activities and tourism information are proven to influence positively to cruise tourists’ satisfaction, and cruise tourists’ satisfaction could also lead to higher expenditure, more ideas on creating sustainable economic and social values could be raised, and thus trigger sustainable destination development on Gotland.

Therefore, based on the purpose and significance of the research, my research questions are:

1) What’s the relationship between the number of on-shore activities and cruise tourists’ satisfaction with Gotland?
2) What’s the relationship between tourism information and cruise tourists’ satisfaction with Gotland?
3) In what way can tourists’ satisfaction with Gotland influence the economic value they create?

II. Gotland as a tourism destination

Gotland is the largest island in the Baltic Sea, situated roughly 60 miles off the coast of southern mainland Sweden. Almost 60,000 people live on the island year-round, a number that changes dramatically during the summer as Gotland is one of Sweden’s most popular summer destinations (Region Gotland, 2021c). Its fossil-rich limestone, weather and waves create a thoroughly unique nature, characterized by its sea stacks which can be explored at any time of the year. Visitors can also visit historical attractions such as old church ruins and stone ships. At one time, Gotland was the hanseatic epicenter, with Visby as the capital of the Baltic area. Since 1995, the city has been a UNESCO World Heritage Site. The well-preserved 13th century city wall of Visby encapsulates the city center and by simply wandering around the cobblestone streets, visitors encounter breathtaking old cloister ruins and historical buildings. In the Visby of today, old meets new and high-class restaurants, cozy cafés and exciting shops abound (Region Gotland, 2021a).

Gotland and Visby have received cruise tourists for more than two decades. The peak was in 2005, with 166 calls and 127,000 passengers. After this, there was a long decline in number. 2009-2017 saw only 40-50 calls per season (Persson-Fischier, 2019). Things changed in 2018 with Region Gotland and Copenhagen Malmö Port developing cruise-based tourism in the Baltic Sea and on the island of Gotland by building a cruise berth (Region Gotland, 2021b), and the new cruise quay has a capacity for ships up to 340 meters as well as all the facilities that a modern cruise company could need (Region
Gotland, 2021d). Thanks to this decision, there was a big rise in the numbers of calls and passengers (Persson-Fischier, 2019), which has brought sustainable values to the island such as the increase of economic benefits, job opportunities, etc.

Nonetheless, this rise has led to sustainability challenges. Economically, as very disadvantageous for Gotland, most of the revenue from the cruise quay went to Copenhagen Malmö Port rather than companies on Gotland, resulting in Gotland's regional authorities being questioned. Socially, the rural parts of Gotland are left out of this new opportunity, as most tourists stay in the town of Visby. This accentuates the conflict between regional authorities and local small stakeholders who didn't get the opportunity to develop their businesses. And environmentally, the not-in-order infrastructure and logistics caused problems in traffic situations, crowdedness at tourist sites, the collapse of the sewage system (Persson-Fischier, 2019), etc. Thus, research on how to promote Gotland's sustainable destination development in correlation with cruise tourism is urgently needed.

III. Literature review

3.1 Sustainability and cruise tourism

As defined by the World Tourism Organization, sustainable tourism should take complete account of its current and future economic, social and environmental impacts, addressing the needs of visitors, the industry, the environment and host communities (WTO, 2004). However, developing sustainable tourism does not mean searching for a balanced approach to the economic, social, and environmental issues of a destination, but the local destination favors one or two aspects over the others to reach a more realistic stage of sustainability (Hritz and Cecil, 2008). For destinations that rely on the development of cruise tourism, the aspects focused on differ from one another.

Many previous pieces of research have proven that cruise tourism can bring great economic benefits to destinations. It can facilitate economic opportunities in port communities and can be important for generating revenues to support protected area management (Cerveny, Miller and Gende, 2020). In research conducted in six ports-of-call from Miami, Florida to the Caribbean, respondents were found to participate in similar activities such as shopping, representing a significant proportion of the economic impacts of cruise ships on local economies (Teye and Paris, 2010). Ports of call, as a focal point of any cruise, provide value to passengers and economic benefits to local merchants and tour providers. Nevertheless, cruising also brings economic issues, such as the problem of inequitably distributed benefits between a cruise ship and the port, the competition for business between ports and with their neighbors, and so on (Klein, 2011).
Apart from monetary impact, cruise tourism can also make a nonmonetary impact on destinations. In terms of social perspective, cruising may cause a range of possible issues, such as pollution from people, homogenization of the port experience, and authenticity of cultural experience (Klein, 2011). The steady growth of cruise-ship travel globally has led to increasing concerns about the industry’s effects on the social environment of cruise destinations, where communities face challenges in managing visitor flow. In order to improve sustainable operations, training of tourism providers on the area’s natural and cultural heritage as well as opportunities for direct visitor contact with local people are of great need (Cerveny, Miller and Gende, 2020).

Concerning the environmental considerations, it is regarded as difficult to be assessed because of the way in which quantifying and costing environmental impacts can be presented and the allocation of effects to specific sources (Johnson, 2002). However, the problems are explicit. A cruise ship produces a number of waste streams that lay stress on the carrying capacity of the environment, including wastewater treatment, air emissions from engines, and solid waste (Klein, 2011). The environmental components of a “best practices” guideline for cruise tourism in Marine World Heritage sites include all these three aspects and also provide suggestions for the use of fuels and the restrictions on plastics (Cerveny, Miller and Gende, 2020), etc.

To conclude, the development of sustainable tourism needs to take economic, social, and environmental issues into account, but different destinations may have different focuses according to the problems they are confronted with and the growth strategies they hold. As for Gotland, infrastructure and logistics are not in order because of the rapid growth of cruise tourism, resulting in both dangerous traffic situations and crowdedness at tourist sites. Regional authorities are being criticized by local businesses and small stakeholders for failing to take responsibility for the situation and support Small and Medium Enterprises (SMEs) to develop (Persson-Fischier, 2019). Thus, the regional authorities on Gotland may first need to concentrate on the economic and social aspects of cruise tourism, which are precisely what this thesis paper can contribute to.

3.2 Value creation and cruise tourism

The growing operational scale of the cruise tourism industry and its economic importance in wealth creation experienced by various countries have triggered several academics to study the monetary value of the cruise business on local communities. However, most studies have neglected to investigate the impact of cruise tourism assuming a long-term perspective, which could be linked to the positive Word-of-Mouth effect, i.e., the likelihood of recommending a destination visited during a cruise (Satta et al., 2015), or the satisfaction of a destination. There is a range of factors...
contributing to or defined by the overall satisfaction rate towards a certain destination, but three will suffice for illustration (Klein, 2011): on-shore activity, travel information, and expenditure behavior.

Tourists’ overall satisfaction depends on the experiences of every single factor, and each of them will affect tourists’ overall destination satisfaction. One of these factors is the on-shore activity. Studies have investigated specific attributes of cruise passengers’ satisfaction related to sightseeing and the highlights of visits to the city and its surroundings (Satta et al., 2015). It is one of the top factors influencing passengers’ motivations for taking a cruise vacation (Teye and Paris, 2010). For example, various criteria for a high-quality on-shore experience are identified, including sufficient time for sightseeing, variety of shops, the attractiveness of sightseeing attractions (Sun et al., 2019), etc. What’s more, a tourist’s destination satisfaction and intention to return to the visited port is higher when the cruiser purchases an excursion package (Parola et al., 2014), which is an essential part of the on-shore activities. Therefore, the thesis hypothesizes that:

**H1. The more on-shore activities one enjoys, the higher the cruiser’s destination satisfaction.**

Travel information, including from the municipal tourism office, tourism agencies, travel cruise agencies, distribution of tourist brochures, etc., has been proven to be related to tourists’ overall satisfaction with the destination (Satta et al., 2015). Different trips rely on different types of tourism information. For trips on public transport, the satisfaction rate is strongly correlated with stop-related service aspects, particularly travel information at stops. For cyclists, way-finding information is critically important, as well as the absence of hindrances on the road (Susilo and Cats, 2014). For internet users, they combine different online information sources to satisfy their information needs as their concerns regarding the accuracy and validity of provided information on the internet have been rising (Kourouthanassis et al., 2017), and they would like to see online tourism information that is provided with the author’s own travel experience or some specific local recommendations (Li, Wang and Huang, 2020). Based on the analysis of the travel information, the thesis hypothesizes that:

**H2. The more tourism information about the destination one knows, the higher the cruiser’s destination satisfaction.**

Current literature has suggested a significant relationship between customer satisfaction and consumer expenditure (Yeung et al., 2013). For instance, it has been argued that there is a positive relationship between satisfaction and consumer expenditures in studies of music festivals (Andersson, Armstrechter and Lundberg, 2017). The same situation applies to cruise tourism. Although findings of the effects of tourists’
satisfaction on their expenditure are sometimes contradictory (D’Urso, Disegna and Massari, 2020), different types of cruise-related expenditure, such as the purchase and sale of souvenirs (Cave, Jolliffe and DE Coteau, 2012), can not only add economic impacts to a destination, but also provide an additional benefit of showcasing the touristic attractions to thousands of people who can return as independent stayover tourists, as a way of improving destination satisfaction (Brida and Coletti, 2012). Tourists’ expenditure behavior can be affected by many factors, including the mobility pattern, on-shore visit choice, and time spent at a destination. In terms of time, previous research has revealed that visitors who stay in a single node spend more than those who tend to move to multiple nodes, thus also showing high levels of expenditure (Casado-Díaz et al., 2021). According to the above theoretical analysis, this thesis hypothesizes that:

**H3. The higher the cruiser’s destination satisfaction, the larger the cruiser's expenditure on the destination is.**

In conclusion, cruise tourism can add both monetary and nonmonetary values to a destination, which will stimulate its sustainable development. In order to study these values, attention will be paid to on-shore activity, travel information, and expenditure behavior. Within the context of Gotland, this research is designed to find out the impact of on-shore activity and tourism information on destination satisfaction, as well as the impact of destination satisfaction on expenditure behavior.

**IV. Methodology**

**4.1 Statistical review**

In quantitative social research, statistical methods are mathematical formulas, models, and techniques that are used in statistical analysis of raw research data. The application of statistical methods extracts information from research data and provides different ways to assess the robustness of research outputs (Springer Nature, 2021). Among many statistical methods, regression analysis will mainly be used to find the relationships between on-shore activities, tourism information and cruise tourists’ satisfaction, the reasons of which will be discussed later in the methodology section. Some measures such as mean and standard deviation will also be applied to the quantitative analysis.

As a statistical tool for the investigation of relationships between variables, investigators use regression analysis to ascertain the causal effect of one variable upon another. They also typically assess the “statistical significance” of the estimated relationships. Regression techniques have long been central to the field of econometrics, and increasingly, they have become important to lawyers and legal policy makers as
In cruise-related empirical and quantitative cruise tourism studies, theories and concepts regarding co-creation, value creation, customer value, product differentiation, and repeat visitation are often discussed. While according to a study, from 2010 to 2014, regression analysis method was used in 39% of the studies, which covered the largest percentage among analytical methods (Marcussen, 2016).

Despite its utilities and usefulness, the technique of regression analysis suffers from several limitations. For example, the functional relationship that is established between any two or more variables on the basis of some limited data may not hold well if more and more data are taken into consideration (Homework1, 2021). In other words, the strength of regression analysis is strongly influenced by the number of variables in the questionnaire and the number of respondents in the sample.

4.2 Research strategy

Many writers on methodological issues find it helpful to distinguish between quantitative research and qualitative research, and the distinction represents a useful means of classifying different methods of social research (Bryman, 2016). With a purpose of understanding the relationship between an independent and dependent variable in a population, this thesis has chosen quantitative research method in order to dive into the relationship between on-shore activities, tourism information and cruise tourists’ satisfaction with Gotland. What’s more, as a technique that allows additional factors to enter the analysis separately so that the effect of each can be estimated, multiple regression is then chosen among the statistical methods in quantitative research area, because it is valuable for quantifying the impact of various simultaneous influences upon a single dependent variable (Sykes, 1993).

During 2018 and 2019, members of Gotland Cruise Network and researchers at Uppsala University conducted a research project with the theme of "sustainable visits" through a questionnaire survey of cruise tourists to obtain data about their visit route, expenses, preferences, etc., aiming to help companies develop business better, improve the tourist experience and disperse cruise tourism benefits to local entrepreneurs and communities. Cruise tourists, who were given the chance to spend a day travelling on-shore, were invited to fill out the questionnaire. This thesis is based on the data in 2018 from this project1. Using such a database has both merits and demerits. The advantage is that it is a project carried out by scholars and professionals, and thus the reliability of the data can be guaranteed. However, the disadvantage is that the data was obtained more than two years ago. In these two years, the world has gone through the Covid-19

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1 2018-2019 “Sustainable visits: between the map and the visitor experience”, funded by Region Gotland and Tillväxtverket, seven participants, two years. Project manager: Sabine Gebert Persson, department of Business administration, Uppsala University.
pandemic, in which travel and tourism is among the most affected sectors (UNWTO, 2020). This situation may cause the problems that the obtained experimental results to some extent don’t conform to the current environment, because cruise tourists’ behavior might have changed due to the pandemic.

As a good software to describe statistics, study correlations between variables, and conduct regression analysis, Stata will be mainly used to analyze the data in this thesis. SPSS will also help in doing “Stepwise” regression.

4.3 Description of database

The questionnaire (see full version of the questionnaire in the appendix) consists of 18 questions concerning tourists’ information or experience before, during, and after a visit to Visby. To meet the needs of tourists of different nationalities, all the questions in the questionnaire are presented in three languages: German, English and Swedish. It is good to see that there is a combination of choices and writing space for people to write down their own thoughts. From the perspective of each question alone, the expression of the sentences is accurate, which can quickly make people understand the intention behind the question. However, from the perspective of the overall question setting, this thesis believes that the purpose of the questionnaire is mainly for marketing the tourism industry of Gotland, not for social research, and thus the understanding of specific issues is not deep enough to support certain scientific research. In terms of the quality of given choices, it is appreciated that there are many types of scales in the questionnaire, including nominal, ordinal, interval, and ratio scales. In general, the questionnaire has enough given options and clearly expresses the intentions behind it.

There are a total of 199 valid answers. The survey respondents were between 10 and 89 years old and came from Europe, North America, Oceania and South America, with more female than male. Most of the respondents don’t have problems with travelling possibility, and they think boat trips and destinations are equally important, while there are also disabled people and people who focus more on the boat trips or the destinations. Some people have done what they expected to do on Gotland while others haven’t. People’s answers in terms of demographics, satisfaction, tourism information and on-shore activities are relatively complete. However, for the purpose of protecting personal privacy, many people did not fill in the content of expenditure behavior, which may reduce the reliability and accuracy of the results.

Among these survey results, information on demographics, on-shore activities, tourism information, expenditure behavior, and tourists’ satisfaction will be used in this thesis based on the hypotheses stated earlier.

4.4 List of variables

There are three types of variables in this research, dependent variables,
independent variables, and control variables. Control variables are tourists' age, nationality, the main reason for the trip and whether they have done what they have expected or not. Expect for tourists' age, the other four control variables will be operated as dummy variables. In Model 1, the dependent variable is tourists’ satisfaction, and the independent variable is the abundance of on-shore activities. In Model 2, the dependent variable is also tourists’ satisfaction, and the independent variable is the knowledge degree of tourism information. And in Model 3, the dependent variable is tourists’ expenditure, and the independent variable is tourists’ satisfaction. The list of variables can be seen in the table below.

<table>
<thead>
<tr>
<th>Type</th>
<th>Variable</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dependent variable</td>
<td>Tourists’ satisfaction</td>
<td>TS</td>
</tr>
<tr>
<td>(Model 1&amp;2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dependent variable</td>
<td>Tourists’ expenditure</td>
<td>TE</td>
</tr>
<tr>
<td>(Model 3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Independent variable</td>
<td>On-shore activities</td>
<td>ACT</td>
</tr>
<tr>
<td>(Model 1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Independent variable</td>
<td>Tourism information</td>
<td>INFO</td>
</tr>
<tr>
<td>(Model 2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Independent variable</td>
<td>Tourists’ satisfaction</td>
<td>TS</td>
</tr>
<tr>
<td>(Model 3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control variable</td>
<td>Age</td>
<td>AGE</td>
</tr>
<tr>
<td></td>
<td>Nationality</td>
<td>NA</td>
</tr>
<tr>
<td></td>
<td>Main reason for the trip</td>
<td>AIM</td>
</tr>
<tr>
<td></td>
<td>Whether tourists have done what they</td>
<td>MATCH</td>
</tr>
<tr>
<td></td>
<td>have expected or not</td>
<td></td>
</tr>
</tbody>
</table>

Table 1: List of variables

4.5 Regression models

To find out which of the listed variables really contribute to predicting the dependent variable, the researcher first used Stepwise regression in SPSS. It helped to exclude some variables that couldn’t contribute significantly to the dependent variable. Combing the results in SPSS and three hypotheses, three models are built up for
regression analysis. Stata would be used for further regression analysis.

1) Model 1 for on-shore activities
\[ TS = \alpha_0 + \alpha_1 ACT + \alpha_2 AGE + \alpha_3 AIM + \alpha_4 MATCH + \varepsilon \]

2) Model 2 for tourism information
\[ TS = \beta_0 + \beta_1 INFO + \beta_2 AGE + \beta_3 NA + \beta_4 MATCH + \varepsilon \]

3) Model 3 for tourists’ expenditure
\[ TE = \gamma_0 + \gamma_1 TS + \gamma_2 AIM + \gamma_3 MATCH + \varepsilon \]

4.6 Research ethics

Before respondents fill in the questionnaire, they would read instructions from the researchers. In the instructions, it was stated clearly that all the responses would be recorded by scholars from Uppsala University and used only in scientific analyses, and would be handled in ways that meet scientific, ethical and legal requirements. The respondents didn’t need to offer their names, addresses, emails, etc., which kept the data anonymous. The scholars invited respondents to fill in their age, gender, and nationality but they were not forced to do so, in order to ensure confidentiality and informed consent. As for the researcher of this thesis, she has the ability to be self-aware, ethical, and possess a critical lens while conducting the research as well.

V. Empirical results

5.1 Descriptive statistics of variables

As stated earlier, dependent variables include tourists’ satisfaction (TS) and tourists’ expenditure; independent variables include on-shore activities (ACT), tourism information (INFO), and tourists’ satisfaction (TS); control variables are tourists' age (AGE), nationality (NA), the main reason for the trip (AIM) and whether they have done what they have expected or not (MATCH). In this thesis, these variables are operationalized as Table 5-1 shows.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Code</th>
<th>Operationalization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tourists’ satisfaction</td>
<td>TS</td>
<td>The result of Question 13</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The sum of answers in Question 17; Currency has been converted into SEK according to currency exchange rate on April. 15th, 2021.</td>
</tr>
<tr>
<td>Tourists’ expenditure</td>
<td>TE</td>
<td>The result of Question 9 (Options G, H, I, J are removed.)</td>
</tr>
<tr>
<td>On-shore activities</td>
<td>ACT</td>
<td></td>
</tr>
<tr>
<td>Tourism information</td>
<td>INFO</td>
<td>The result of Question 10</td>
</tr>
</tbody>
</table>
The result of Question 2

Nationality

The result of Question 3;

Respondents are identified by continents.

Main reason for the trip AIM

The result of Question 5

Whether tourists have done what they have expected or not MATCH

The result of Question 11

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Table 2: Operationalization of variables

Among these variables, TS and INFO belong to interval scales; AGE, TE and ACT belong to ratio scales; NA, MATCH, and AIM belong to nominal scales.

<table>
<thead>
<tr>
<th>Information</th>
<th>No</th>
<th>Valid percent</th>
<th>Information</th>
<th>No</th>
<th>Valid percent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
<td><strong>MATCH</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>≤20</td>
<td>5</td>
<td>2.6</td>
<td>Yes</td>
<td>155</td>
<td>79.9</td>
</tr>
<tr>
<td>21-50</td>
<td>33</td>
<td>17.0</td>
<td>No</td>
<td>4</td>
<td>2.1</td>
</tr>
<tr>
<td>51-60</td>
<td>37</td>
<td>19.1</td>
<td>Partly</td>
<td>35</td>
<td>18.0</td>
</tr>
<tr>
<td>61-65</td>
<td>25</td>
<td>12.9</td>
<td>Total</td>
<td>194</td>
<td>100.0</td>
</tr>
<tr>
<td>66-70</td>
<td>46</td>
<td>23.7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>71-80</td>
<td>42</td>
<td>21.6</td>
<td>Europe</td>
<td>152</td>
<td>77.6</td>
</tr>
<tr>
<td>&gt;80</td>
<td>6</td>
<td>3.1</td>
<td>North America</td>
<td>26</td>
<td>13.3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>194</td>
<td>100.0</td>
<td>Oceania</td>
<td>17</td>
<td>8.7</td>
</tr>
<tr>
<td><strong>AIM</strong></td>
<td></td>
<td></td>
<td>South America</td>
<td>1</td>
<td>0.5</td>
</tr>
<tr>
<td>Option c</td>
<td>81</td>
<td>41.1</td>
<td><strong>Total</strong></td>
<td>196</td>
<td>100.0</td>
</tr>
<tr>
<td>Option b</td>
<td>65</td>
<td>33.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Option a</td>
<td>31</td>
<td>15.7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Option d</td>
<td>20</td>
<td>10.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>197</td>
<td>100.0</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 3: Profile of respondents

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>Maximum</th>
<th>Minimum</th>
<th>St. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>TE</td>
<td>91</td>
<td>589.690410</td>
<td>1365.0000</td>
<td>80.0000</td>
<td>273.980102</td>
</tr>
<tr>
<td>ACT</td>
<td>193</td>
<td>4.59</td>
<td>6</td>
<td>1</td>
<td>1.437</td>
</tr>
<tr>
<td>TS</td>
<td>195</td>
<td>6.18</td>
<td>7</td>
<td>2</td>
<td>1.019</td>
</tr>
<tr>
<td>INFO</td>
<td>191</td>
<td>5.24</td>
<td>7</td>
<td>1</td>
<td>1.057</td>
</tr>
</tbody>
</table>

Table 4: Descriptive statistics of variables

From the above two tables, it is obvious that these respondents generally participate in some activities on the island, but there is a certain gap in the number of participating on-shore activities. Most of the respondents feel satisfied with their
travelling experience on Gotland, and the internal gap is relatively small. What’s more, they didn’t have a good demand of Gotland’s tourism information. However, the biggest gap among these respondents lies in their tourism expenditure while onshore: some people spent a lot, but some spent very little, resulting in a huge standard deviation.

5.2 Correlation matrix of variables

In order to understand the relationships between the variables, the following table shows the correlations of the variables designed in these models.

<table>
<thead>
<tr>
<th></th>
<th>TS</th>
<th>TE</th>
<th>ACT</th>
<th>INFO</th>
<th>AGE</th>
<th>M</th>
<th>AIM</th>
</tr>
</thead>
<tbody>
<tr>
<td>TS</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TE</td>
<td>0.2758**</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACT</td>
<td>0.8579**</td>
<td>0.2084*</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>INFO</td>
<td>0.9502**</td>
<td>0.2641*</td>
<td>0.8066**</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AGE</td>
<td>-0.1529*</td>
<td>-0.0481</td>
<td>-0.1744*</td>
<td>-0.1533*</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>-0.2254**</td>
<td>-0.0880</td>
<td>-0.0976</td>
<td>-0.2161**</td>
<td>0.1130</td>
<td>1.000</td>
<td></td>
</tr>
<tr>
<td>AIM</td>
<td>-0.0210</td>
<td>0.2427*</td>
<td>0.0593</td>
<td>-0.0927</td>
<td>-0.0973</td>
<td>-0.1084</td>
<td>1.000</td>
</tr>
</tbody>
</table>

M stands for MATCH

Significance levels: *p<0.05, **p<0.01.

Table 5: Correlation matrix of variables

From the results of the correlation analysis, TS and ACT are positively correlated, with a correlation coefficient of 0.8579, which is significant at the 1% level; TS and INFO are also positively correlated, with a correlation coefficient of 0.9502, which is significant at the 1% level; TE and TS are positively correlated, with a correlation coefficient of 0.2758, which is significant at the 1% level. Therefore, it can be initially considered in this thesis that there are significant relationships among the variables, and further empirical analysis can be carried out to finally determine the correlations between the variables.

Moreover, it can be found in the correlation matrix that the coefficients between some variables are extremely high, which might cause the multicollinearity problem. If multicollinearity exists, it may reduce the precision of the estimated coefficients, which weakens the statistical power of the regression model (Frost, 2017). However, all three regression models have passed the collinearity test in Stata, as the results are all around 1, which are acceptable and can be considered that multicollinearity won’t cause severe problems on the study results.

5.3 Regression results

Based on the empirical models shown in the previous part, the following table lists the regression analysis results, which are only valid in those equations that are used.
The R-squared of model (1) is 0.7571, and the F value is 143.56, which is significant at the 1% level, indicating that the model fit is established. From the regressions results, the following equation could be set up: \( TS = 0.5893ACT + 0.0008AGE - 0.0181MATCH - 0.0786AIM + 3.8230 \). The coefficient of \( ACT \) is 0.5893, which has a positive effect on tourists' satisfaction at the significance level of 1%, indicating that for every additional unit of on-shore activities, tourists' satisfaction increases by 0.5893 units, which validates the hypothesis H1. Compared with \( ACT \), the coefficient of \( AGE \) in this equation is much smaller, which means that in this model, \( AGE \) contributes much less to \( TS \) than \( ACT \), and \( ACT \) is a much more important predictor. The same rule could be applied to other variables that have quite small coefficients both in this equation and the others.

The R-squared of model (2) is 0.9142, which is extremely high. This means that the model used here can well explain the changes of the dependent variable. And the F value is 480.75, which is significant at the 1% level, indicating that the model fit is
established. The equation would be: \( TS = 0.9265\text{INFO} - 0.0029\text{AGE} + 0.0203\text{MATCH} + 0.0932\text{NA} + 1.3432 \). The coefficient of INFO is 0.9265, which has a positive effect on tourists' satisfaction at the significance level of 1%, indicating that for every additional unit of the knowledge of tourism information, tourists' satisfaction increases by 0.9265 units, indicating the hypothesis H2 is correct. Tourists' satisfaction is positively related to tourism information.

The R-squared of model (3) is 0.1119, much smaller than that of model (1), but a small R square does not necessarily mean that there is no relationship among the variables. It is likely that the selected model is not good enough because there may be other functional relationships between the variables or there are other variables contributing more to the change of the dependent variable. In this study, due to the limited selection of variables in the database, it is difficult to further optimize the model. The F value is 4.70, which is significant at the 1% level, indicating that the model fit is established. The equation of this model is: \( TE = 104.6206\text{TS} + 75.4484\text{AIM} - 20.1236\text{MATCH} - 222.1599 \). The coefficient of TS is 104.6206, which has a positive effect on tourists’ expenditure at the 1% level of significance, indicating that every additional unit of tourists’ satisfaction will increase tourist’s expenditure by 104.6206 units. This finding verifies the hypothesis H3 of this thesis: The higher the cruiser’s destination satisfaction, the larger the cruiser’s expenditure on the destination is.

5.4 Robustness test

To ensure the robustness of the conclusions, this thesis conducted a robustness test. As there are many indicators to measure tourists’ satisfaction, this thesis uses the indicator of the possibility of tourists recommending the destination to others to replace the original indicator of tourists’ satisfaction, and other variables remain unchanged. The results are as follows:

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACT</td>
<td>0.4716***</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(8.78)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>INFO</td>
<td></td>
<td>0.7016***</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(9.25)</td>
<td></td>
</tr>
<tr>
<td>RE</td>
<td></td>
<td></td>
<td>67.4191**</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(2.30)</td>
</tr>
<tr>
<td>AGE</td>
<td>0.0095*</td>
<td>0.0063</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(1.88)</td>
<td>(1.26)</td>
<td></td>
</tr>
<tr>
<td>MATCH</td>
<td>-0.0623</td>
<td>0.0742</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(-0.64)</td>
<td>(0.74)</td>
<td></td>
</tr>
</tbody>
</table>
Table 7: Robustness test results

It can be seen from the above table that the regression results of the robustness test are basically the same as the original analysis. Although there are some differences in the significance levels of some variables, the changes are not big, indicating that the research conclusions of this thesis have relatively good robustness.

VI. Conclusions

6.1 Study conclusions

This thesis begins with a review of the relationships between on-shore activities, tourism information and cruise tourists' satisfaction about Gotland, and the literature related to tourists' satisfaction and tourists' expenditure. Based on Gotland's tourism status and value creation theory, the paper proposed three hypotheses; subsequently, data from the sustainable visits project in 2018 was selected as the sample. Tourists' satisfaction and tourists' expenditure were used as the explanatory variables, and respectively, using on-shore activities, tourism information and tourists' satisfaction as explanatory variables. After reasonably selecting control variables, three regression models were constructed for the study, and the conclusions were as follows:

The more on-shore activities one enjoys, the higher the cruiser’s destination satisfaction. Governments and tourism companies on Gotland could strive to create a variety of on-shore activities for tourists to enjoy under the context of sustainability, attract more and more tourists, and thus improve tourists’ satisfaction.

The more tourism information about the destination one knows, the higher the cruiser’s destination satisfaction. The abundance of tourism information is crucial to improving tourists’ satisfaction, and all stakeholders related to Gotland tourism should pay attention to this so as to improve tourists’ satisfaction.

The higher the cruiser’s destination satisfaction, the larger the cruiser's
expenditure on the destination is. According to the research results, tourists’ expenditure is expected to increase with the growth of destination satisfaction, which is contributed by more on-shore activities participated in and more tourism information possessed. Detailed suggestions to the stakeholders on Gotland will be given in the next section.

6.2 Suggestions

Tourism has responsibilities not only to itself as an industry which serves economic growth, but to its customers, investors, and staff, to governance, to society, and to other nations, and over time. To fulfill such a wide range of responsibilities, the tourism industry needs to embrace collaboration with civic society and stewards who care beyond selfish interests, since the concept of collaboration suggests the joint effort of individuals to achieve a common objective (Liburd and Edwards, 2018). Therefore, sustainable tourism development needs stakeholder collaboration, which has become a critical issue in sustainable tourism due to the increasing complexity and interdisciplinary nature of the domain (Hu et al., 2019). According to the community-centered tourism framework, stakeholders in tourism encompass the government and related departments, business operators, tourists as well as tourism industry associations and DMOs (Higgins-Desbiolles et al., 2019). On Gotland, main stakeholders include Destination Gotland, Region Gotland (the government entity), Cruise Gotland network, and small business owners, as well as other tourism-related individuals.

As the empirical results have proven that more abundant on-shore activities and more tourism information could lead to higher tourists’ satisfaction, and thus bring more tourism expenditure, suggestions could be given to these three aspects to increase economic and social values brought by cruise tourism on Gotland in the context of sustainable destination development.

In terms of on-shore activities, many respondents think that historical places and buildings such as churches and museums on Gotland are the most unforgettable parts of their travel experience. They enjoy wandering and shopping in the old town, and some tourists are attracted to some festivals on the island, such as Medieval Week and Harvest Festival, but an explicit shortcoming is that the infrastructure construction is not complete yet. Examples include a lack of public transportation and restroom facilities which is inconvenient for tourists. One of the problems faced by Gotland’s business development is that tourists are mainly concentrated in Visby, making it difficult for business owners in other regions to enjoy the economic values brought by cruise tourism. However, a more complete transportation system can contribute to bringing businesses out to rural communities and satisfy the demands of business owners outside Visby. For the government, landscape protection and infrastructure
construction are advised as two key projects of them, as they need to strategically develop tourism resources on the basis of well-preserved historical relics and improve infrastructure without destroying the local ecology. It is recommended that all kinds of tourism organizations and small business owners obey the government's unified planning, design tourism resources, organize tourism activities, and provide other resources needed by tourists. The above suggestions all require stakeholder collaboration.

In terms of tourism information, many respondents stated that they knew very little about Gotland before entering the ship, and the tourism information on the ship was insufficient. There were even fewer channels for obtaining tourism information after boarding the island. As an ancient town with a long history, the existing tourism information in Visby does not meet the needs of tourists, especially those who are interested in history. Under such circumstances, firstly Destination Gotland can cooperate with Region Gotland and Cruise Gotland to increase the tourist information resources on board by providing educational videos, travel brochures or digital materials, so that tourists can better understand the destination and plan their own tourist routes before going onto the island. Secondly, with the help of Region Gotland, related companies could improve and promote the existing Gotland travel applications, integrate various travel information, and create one-stop online travel service. In addition, there are some tourism resources that have been in disrepair and urgently need the improvement of information services, including some historical hiking trails, public restrooms, and transportation system. Combined with the landscape protection mentioned above, Region Gotland could collaborate with some small business owners to boost the project.

In terms of tourism expenditure, shopping, accommodation and dining are the main expenses of tourists. For the respondents this time, they only have one day to travel on-shore, so they hope that the government can coordinate with small business owners about the opening time to match with arrival ships, so as to extend the consumption time of tourists and bring greater economic benefits. Destination Gotland can also cooperate with merchants on the island to carry out some preferential activities to stimulate consumption. The government also needs to address the aforementioned issue of revenue distribution, and it is a good idea to offer policy support to these tourism organizations and businesses.

Since tourism has many forms on Gotland including tourism for fishing, heritage, leisure, education, business, etc., there might be more opportunities for collaboration, waiting for future research and practice to discover.

VII. Discussions
There are some limitations of this thesis, which call for further research in the future. First of all, in terms of questionnaire design and data quality, the data used in this thesis comes from an existing research project and is not collected by the author herself. This will lead to a certain gap between the questionnaire design and the research purpose, which has a negative impact on the quality of the data and thus affects the accuracy and depth of the conclusions. At the same time, the amount of data is relatively too small to represent all cruise tourists, which will cause certain deviations in the research results. Therefore, this thesis suggests that future research can follow the basic steps of research design, which means to start with data collection, strive to expand the amount of data, and increase the representativeness of research conclusions.

In addition, from the perspective of the empirical model, this thesis uses the degree of pleasure of tourists with the travel experience to measure satisfaction, and selects a number of control variables based on the questionnaire settings. However, this choice is not comprehensive enough, because there are many indicators that can measure tourists' satisfaction, as well as many other possibilities for control variables. Future research can consider using a multi-dimensional indicator to comprehensively evaluate tourists' satisfaction, such as the degree of pleasure of tourists with the travel experience, the possibility of recommending destinations to others, etc. The choice of control variables can also be expanded, so as to get more valuable conclusions.

Finally, sustainable value creation itself is a big topic which involves many elements. The sustainable development of cruise tourism in Gotland has just started, and there are still many areas worthy of improvement, especially in terms of environmental aspects which are mentioned less in this thesis. This thesis only studies a small part of this big topic and puts forward some suggestions for the development of Gotland's tourism. In the future, experts and scholars are expected to continue studying this topic and paying attention to the sustainable value creation of cruise tourism on Gotland and its tourism development as a whole. To achieve this, on the one hand, other theories can be applied into analysis; on the other hand, qualitative research method can also be combined. For example, researchers can conduct interviews to collect detailed information from cruise tourists.

To summarize, based on the data in 2018 from the "sustainable visit" research project conducted by members of Gotland Cruise Network and researchers at Uppsala University, this thesis tried to investigate the relationships between on-shore activities, tourism information and cruise tourists’ satisfaction with Gotland, and the way in which tourists' satisfaction influence the economic value they create. The research results support the hypothesis of this thesis and have made certain contributions to the expansion of the research area of value creation theory and cruise tourism, and also provided suggestions for the sustainable development of cruise tourism on Gotland.
References


[34]Sykes, A.O., 1993. An Introduction to Regression Analysis. p.34.


Appendix

1. Questionnaire 2018: Research study - Cruise tourism on Gotland summer 2018

1) Sex:
2) Age:
3) Nationality:

Part 1:
4) Is there anything that restricts your possibility to move (could be physical impairment, travelling with child needing a stroller)?
5) What is the main reason for this trip?
   a) The boat trips
   b) Destinations
   c) Boat trips and destinations are equally important
   d) Others
6) Have you booked a guided tour on the island (Gotland) or in Visby?
   Yes or No
   6a) If yes, when did you book it?
       Before the cruise; During the cruise
7) Have you, or are you planning to participate on a guided tour on any of the OTHER destinations during your cruise?
   a) Yes, where?
   b) Maybe, haven’t decided yet.
   c) No.
8) What made you disembark here in Gotland?
9) What are you expecting to see/experience during your stay in Gotland? Several options are possible.
   a. Historical sites
   b. Interesting architecture
   c. Culture (arts, music, etc.)
   d. Local food culture
   e. Shopping
   f. Nature
   g. Something different/unexpected
   h. I have no particular expectations
   i. Can’t/don’t want to answer
   j. Other/my own comment
10) According to your own perception – how much knowledge about Gotland did you have before disembarking?
1-7 (Almost no knowledge – A great deal)

10a) Is the majority of your knowledge about Gotland gathered/generated during the cruise?
Yes or No

10b) In case you had previous knowledge about Gotland, where did you retrieve the information?
   a) The Internet
   b) Brochures
   c) From friends
   d) Other sources

Part 2: Questionnaire – after visit to Visby
11) Did you find time or the opportunity to do the things you hoped for during your trip?
   a) Yes
   b) No
   c) Partly

   11a) If no - what was the reason?

12) Did you do something unexpected, if yes – what?

13) How pleased are you with the visit?
    1-7 (Not at all pleased – Very pleased)

14) What was most enjoyable?

15) What was most enjoyable?

16) Which modes of transportation were you using during your visit to Gotland? (multiple answers are possible)
   a) Rental car
   b) Taxi
   c) Shuttle
   d) Bicycle
   e) Tourist bus
   f) Public transportation
   g) None

17) During your visit, how much money do you estimate you spend on:
   a) Food and beverages
   b) Shopping (souvenir etc.)
   c) Admittance fees
d) Transport (excluding guided tours)
e) Don’t want to answer/ cannot answer

18) How likely is it that you will visit Gotland again?
1-7 (Very unlikely – Very likely)

18a) In the event of your re-visit to Visby/Gotland– how likely is it that you will stay to the next day or longer?
1-7 (Very unlikely – Very likely)

18b) Would you recommend Gotland as a place to visit to others?
1-7 (Very unlikely – Very likely)

Other comments?