

The Determinant of Consumer Surplus for Tourist in Belakang Padang Island, Batam City, Riau Islands Province

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Abstract

1) The purpose of the research The study To analyze consumer surplus among tourists visiting Belakang Padang Island in Batam City, Riau Islands Province, and To analyze the factors influencing consumer surplus among tourists visiting Belakang Padang Island. 2) This study employs samples survey data and secondary and Using a quantitative approach 3) The results reveal that Education does have a significant effect, Ages not significant, the environment and other alternative tourist destinations are significant, environment and other tourism alternatives are significant, and travel costs have no impact on), and 4) major findings The findings of this study suggest that improvement of tourists education, maintaining and upgrading environmental quality, improving tourist attractions, and improving local capacity and participation.

Keywords: Consumer Surplus, Education, Ages Environment, Other Tourism Alternatives.

1. Introduction

The tourism sector has become the largest industry in the world and one of the most important sectors in generating foreign exchange that supports the economy, ranging from national systems to social life (Adnyana, 2020; Kyrlov et al., 2020; Poerwanto & Shambodo, 2020; Sari et al., 2020). The development of the tourism sector in Indonesia has shown positive achievements, as evidenced by the 2021 Tourism Competitiveness Index (TTCI), which ranked Indonesia 32nd, rising 12 places from 44th in 2019. With its rich natural resources, culture, and history, Indonesia is a highly attractive destination for tourists (Lestari et al., 2022; Manalu & Yuliantoro, n.d.; Peristiwa, 2020; Subarkah & Rachman, 2020). Regarding employment, the WTO notes that one in eight workers worldwide depends directly or indirectly on the tourism sector. Directly, tourism creates jobs in various fields such as hospitality, restaurants, transportation, and trade. Indirectly, tourism also creates employment in other sectors, such as agriculture, construction, and industry (WTO, 2022). In Indonesia, this sector creates jobs for almost 50 million people, with 24.41 million in the tourism sector and 24.92 million in the creative economy sector (Kemenparekraf, 2023).

One of the attractions that has been gaining attention in Batam City is Belakang Padang Island. As the initial site for Batam City's development, Belakang Padang Island has several old villages, where the local population has lived for generations. The Malay culture is very strong in this area, with the community still preserving their Malay identity, as evidenced by the use of Malay in daily life. The island also hosts an annual Malay cultural event, featuring competitions like Sea Eagle, Pacu Sampan, Gasing (spinning top), and other cultural performances. In addition to the Gasing game, Belakang Padang also has arts and crafts that can be relied upon as tourist attractions, including Dzikir Barat, various Malay dance performances, Pencak Silat, and Kompang. Furthermore, Belakang Padang has beautiful white sandy beaches, a view of Singapore's skyscrapers, and a view of Batam Island. In Tanjung Sari, Belakang Padang, there is also an old temple often visited by tourists (Leonar Rowardi et al., 2024).

Despite numerous studies on consumer surplus in tourism, research specifically focused on Belakang Padang Island is still limited. This highlights a significant research gap. This study aims to fill that gap by exploring the interaction between demographic variables, such as age and education level, along with other tourist factors, in determining consumer surplus. Understanding this will provide valuable insights for developing sustainable tourism policies in the region.

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2. Literature Review

2.1. Tourism Consumer Behavior

Horner and Swarbrooke (2021) define consumer behavior in tourism as the study of the reasons behind purchasing decisions and the decision-making process faced by consumers. This definition includes a comprehensive understanding of the needs, motivations, and preferences of individuals in choosing travel destinations and related products. Consumer behavior in tourism is not limited to the act of purchasing but also encompasses the preceding stages, such as information search, alternative selection, and evaluation of the experience after traveling. In tourism, consumer behavior involves various factors that can influence an individual's decision to visit a location. These factors include psychological aspects, such as motivations and attitudes, and external influences, such as social and cultural factors, which affect how consumers make their choices. For example, a person's motivation for traveling may be driven by a desire to relax, explore new cultures, or interact with the natural environment. Understanding consumer behavior is crucial for destination managers in designing offerings that accurately meet tourists' needs and expectations (Horner & Swarbrooke, 2021).

2.2. Tourism Economics

According to Simanjuntak et al. (2017), tourism can be understood as a series of activities undertaken by individuals to visit locations outside their usual place of residence. Various reasons drive individuals to engage in this activity, such as seeking satisfaction, fulfilling curiosity, or visiting places related to economic, social, cultural, religious, health, and research interests. Wahab (2016) identifies several economic benefits of tourism activities at the national (macro) level:

- Direct economic benefits:
 - a. Helps maintain the balance of the current account in the balance of payments,
 - b. Increases job availability,
 - c. Distributes income.
- Indirect economic benefits:
 - a. Creates a multiplier effect,
 - b. Increases tax revenues,
 - c. Markets certain products related to tourism,
 - d. Produces "spillover" effects that influence society.

2.3. Demand Theory

In general, demand theory refers to the quantity of goods/commodities an individual wishes to consume at a specific time and at various price levels. Demand theory can be depicted by the demand curve, which shows the relationship between the quantity of a commodity demanded (*ceteris paribus*) and its price, with a downward slope (Pyndyck & Rubinfeld, 2018). In other words, demand theory explains that when the price of a good or commodity decreases, consumers tend to increase their consumption of that commodity (*ceteris paribus*), while if the price increases, consumers tend to reduce their consumption (*ceteris paribus*).

2.4. Consumer Surplus

According to Samuelson and Nordhaus (2009), consumer surplus is the difference between the total utility of a good and its total market value. King and Mazzotta (2014) define consumer surplus as the difference between the maximum amount someone is willing and able to pay for a good or service and the total actual price paid. For instance, if someone is willing to pay up to \$5 for a good X, but the market price is only \$3, the consumer surplus for this good X is \$2. Consumer surplus is an important indicator of well-being derived from the consumption of a good or service (Rolfe & Gregg, 2012). The area under the Marshallian demand curve and above the market price shows how much someone is willing to pay for the right to make a voluntary transaction at this price. Changes in consumer surplus can be used to measure the welfare effects of price changes.

2.5. Willingness to Pay (WTP)

The concept of Willingness to Pay (WTP) generally refers to the economic value of a product to an individual under certain conditions (Guntilake et al., 2007). The value of WTP provides information necessary for assessing economic sustainability, such as in setting transportation fares and entrance fees for tourist sites. In the context of tourism, a tourist will meet their needs by spending on transport, meals, or entrance fees. By spending this money, tourists feel satisfied with the products offered. In other words, the price paid represents the value exchanged and aligns with the quality expected by the tourists (Hudson & Simon, 2008).

3. Research Method

3.1. Research Approach

This study uses a quantitative approach. According to Creswell (2018), quantitative research focuses on testing objective theories by examining relationships between variables. These variables can be measured, typically using instruments, and the data generated is numeric and analyzed using statistical procedures. The primary goal of quantitative research is to determine cause-and-effect relationships and generalize the findings to a broader population.

3.2. Data

This study uses two types of data, primary data collected from 100 questionnaires completed by visitors to Belakang Padang Island, Batam City, Riau Archipelago Province.

3.3. Data Analysis

Data will be analyzed using binary logistic regression. Logistic regression is selected because it is effective in analyzing dependent variables that are binary—whether tourists feel they have received consumer surplus or not. According to Menard (2019), logistic regression can handle non-linear effects and interactions between variables, which is important in the complex context of tourist behavior.

3.4. Logistic Regression Model

The logistic regression model is expressed in the following equation:

$$Z_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + e$$

with:

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6$ = the estimated coefficients for each independent variable.

X_1 = Age

X_2 = Education Level

X_3 = Income

X_4 = Travel Expenses

X_5 = Environmental Quality

X_6 = Tourist Attraction

E = Error term.

4. Results and Discussions

4.1. Descriptive Analysis

4.1.1. Global Aspect

Belakang Padang Island, also known as Pulau Penawar Rindu, is located in Sekanak Raya Village, Belakang Padang District, Batam City, Riau Islands Province. The island is approximately 2.5 kilometers from the center of Batam City, situated to the southwest. It is located in a narrow strait separating it from Singapore and is part of the Riau

Islands Province. Geographically, Belakang Padang Island features a flat landscape with tropical vegetation covering much of its area. The island boasts beautiful white sandy beaches with calm, clear waters, making it a favored destination for visitors seeking a natural atmosphere far from the city's hustle and bustle.

4.1.2. Government Aspect

Belakang Padang District is led by a district head who oversees a secretary, functional positions, and several heads of sections, including:

- Head of Government Section,
- Head of Security and Order Section,
- Head of Public Services Section,
- Head of Community Welfare Section, and
- Head of Development and Community Empowerment Section.

The secretary oversees the head of general administration and the head of the program and financial sections (Lakip Belakang Padang District, 2021).

4.1.3. Economic Aspect

In 2023, the commercial infrastructure in Belakang Padang District includes three types of establishments: shopping clusters, markets with permanent buildings, and mini-markets/supermarkets. All these commercial establishments are located in Tanjung Sari Village (BPS, 2024).

The area also has 2 banking units and 3 cooperatives, 2 of which are savings and loan cooperatives. In agriculture, the crops cultivated include spinach (320 quintals), chili (180 quintals), water spinach (448 quintals), cucumber (540 quintals), and long beans (BPS, 2024).

In terms of hospitality, there are only 2 establishments in Sekanak Raya Village, functioning as inns or guest houses. Transportation services are limited to ojek (motorcycle taxis) and becak (pedicabs), with fixed fares ranging from Rp10,000 to Rp60,000. The becak, which is manually pedaled, offers a ride around the island for Rp60,000 (BPS, 2024).

There is also a famous coffee shop on the island located on the main road near the port, selling local Malay food products, tea tarik, and coffee tarik. It is always crowded with local residents and visitors from Batam City who come for breakfast.

4.2. Regression Analysis

The regression analysis result shown on Table 1.

Table 1. Results of the Overall Fit Test

Output	Result
Number of observations	100
LR chi2(6)	66.02
Prob > chi2	0.000
Pseudo R2	0.4764
Log likelihood	-36.28395

Based on Table 1, the Prob > chi2 value is 0.0000, which leads to the rejection of the null hypothesis (H0).

Table 2. Results of Partial Test

Consumer Surplus	Coef.	Std. Err.	z	P>z	[95% Conf. Interval]
Age	0.181	0.395	0.46	0.647	-0.595, 0.957
Education level	0.823	0.335	2.46	0.014*	0.167, 1.480
Income	0.578	0.292	2.60	0.009*	0.186, 1.329

Consumer Surplus	Coef.	Std. Err.	z	P>z	[95% Conf. Interval]
Travel Expenses	0.000	0.000	1.20	0.230	0.000, 0.000
Environmental Quality	0.989	0.313	3.16	0.002*	0.376, 1.604
Tourism Attraction	0.713	0.272	2.62	0.009*	0.180, 1.245
Constant	0.000	0.000	-4.85	0.000	0.000, 0.001

Significant at 95% confidence level

From Table 2, the following conclusions can be drawn:

- The education variable shows a significant result with a coefficient of 0.823 and a p-value of 0.014. This indicates that a higher level of education is positively related to consumer surplus.
- The income variable also shows a significant influence with a coefficient of 0.578 and a p-value of 0.009. This means that tourists with higher incomes are likely to experience a greater consumer surplus.
- The quality of the environment has a significant coefficient of 0.989 with a p-value of 0.002. This suggests that positive perceptions of the environmental condition significantly influence consumer surplus. Tourists who are satisfied with the environment tend to feel that their experience is more valuable, increasing their consumer surplus.
- The attraction variable shows a positive coefficient of 0.713 with a p-value of 0.009, indicating that the attractions offered on Belakang Padang Island significantly influence consumer surplus.

4.3. Policy Implications

The policy implications can be formulated to increase consumer surplus:

- Education of Tourists:

Tourist education plays an important role in increasing consumer surplus, as higher education levels enable tourists to appreciate their travel experiences more. Therefore, the government and destination managers in Belakang Padang Island should enhance tourist education by providing informative and interactive travel guides. Digital-based tourism literacy programs, such as e-guides or travel apps, can enrich tourists' understanding of local history, culture, and environment. Educational tourism programs for children and families, such as local arts workshops or coastal ecosystem tours, can add value to the experience while also serving as an attraction.

- Preservation and Enhancement of Environmental Quality:

Preserving the environment is key to improving consumer surplus. Therefore, efforts to preserve the environment on Belakang Padang Island should be a top priority. Community-based ecotourism programs can be implemented, involving local communities in managing ecosystems, such as mangrove maintenance, waste management, and marine conservation. The implementation of plastic-free zones can also be a strategic step to maintain cleanliness and reduce negative environmental impacts.

- Development of Tourist Attractions:

Enhancing the variety and uniqueness of tourist attractions is crucial in attracting tourists and improving their experience. Belakang Padang Island can strengthen its appeal by diversifying its tourism products, such as cultural tourism, ecotourism, and adventure tourism. Annual cultural festivals featuring traditional performances, local cuisine, and handicrafts can serve as effective promotional events. Additionally, technologies such as augmented reality (AR) can be used to create interactive tourism experiences, such as virtual tours of historical sites or unique ecosystems on the island. This development will not only increase tourist interest but also create unforgettable experiences, thus enhancing consumer surplus.

- Increased Local Participation:

Involving local communities in tourism management is a strategic step toward creating sustainable tourism. Training programs for locals, such as homestay management, tour guiding, and the making of local crafts, can increase their participation in the tourism industry. Community-based tourism can also be developed, where tourists stay in local homestays and engage in the daily activities of the community, such as cooking or fishing. Partnerships with local MSMEs (Micro, Small, and Medium Enterprises) to provide products and services for tourism can increase local

income while enriching tourists' experiences. With this approach, the local community becomes a key actor in destination management, supporting the local economy and enhancing the quality of the tourist experience (Setiawan et al., 2021).

5. Conclusion

Belakang Padang Island, Batam City, Riau Islands Province, is still largely unknown to people outside Batam City and Riau Islands Province, as well as other regions in Indonesia. Indonesians are more familiar with Penyengat Island, located in Tanjung Pinang City, Riau Islands Province. Therefore, there is a need for the Batam City and Riau Islands Province Tourism Offices to promote Belakang Padang Island so that it becomes known to other regencies in the Riau Islands Province and other regions in Indonesia.

Some key conclusions from the research are as follows:

- Consumer surplus influences the number of visitors to Belakang Padang Island.
- Income positively affects consumer surplus, and sellers must engage with tourists effectively when they visit food stalls, tourist sites, and other locations.
- Young adult tourists dominate visits to Belakang Padang Island, with few older visitors.
- The environment also greatly influences tourist visits.
- Tourist attractions play a key role in drawing tourists, with good facilities, comfort, and easy transportation being important factors.

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