

# Tourist “sustainable intelligence” as a premise of segmentation

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**Abstract— It is incontestable that sustainable tourism has long been worldwide main issue, however, only a few focus on the tourist as the key factor. In regard to tourist concern, it is essential to discuss tourist “sustainable intelligence” in which it shows tourists’ ability to use their knowledge and experience of the impacts of tourism on the environment to develop a behaviour that contributes to sustainable tourism. Utilizing the method of latent class analysis, the findings of this paper are derived from the concept of tourist “sustainable intelligence”. Three latent classes of tourists were formed showing diverse levels of knowledge, commitment, attitude and/or behaviour. These three tourist clusters are the reflective, unconcerned and pro-sustainable tourists.**

Data were collected from three hundred respondents who had stayed at least one night in Bandung. A simple random sampling was conducted to generate valid surveys. The Statistical Package for the Social Sciences (SPSS) version 21.0 was used to analyse the data generated from the respondents.

This paper will identify the implications for destination management through segmentation and the possibility to purchase sustainability as well as contribute to the literature the viable concept of “sustainable intelligence”.

**Keywords:** sustainable tourism, sustainable intelligence, segmentation, latent class analysis

## I. INTRODUCTION

Today, tourism is one of the major economic creators particularly in developing countries. It has been expanding largely and rapidly in terms of its potential in economic growth, providing 9% of the world’s GDP (UNWTO, 2013). However, at the same time it also creates diverse impacts economically, socially and environmentally. As the environmental concerns increase, it is imperative that all stakeholders respond to this issue in all aspects to achieve more sustainable tourism. Commendable efforts have been conducted to mitigate the adverse impacts, while generating benefits from tourism. In addition, researches have been substantially conducted to encourage sustainable strategic management particularly to preserve environment (Saufi et al., 2014; Mika, 2015; Gössling et al., 2016). However, most of the topics have been focusing on the destinations instead of the tourists.

Numerous scholars have adopted many approaches to define sustainable tourism that has limitation from the tourists’

perspective. Visitors are one of the key factors to attain successful tourism sustainability and are expected to behave in an environmentally sustainable manner. Understanding tourists’ ability to apply their knowledge, commitment and attitude through their behaviour in terms of consumption and production is crucial to enhance the new tourism model in which the main value is sustainability. The importance of tourists’ roles as the key to achieve more value in sustainability has shifted the focus from the tourism supply to demand (Budeanu, 2007; Dolnicar et al., 2008; Lita et al., 2014; Pavia et al., 2015; Juvan and Dolnicar, 2016). In addition, Swarbrooke and Horner (2007) emphasize the importance of tourist behaviour in tourism studies particularly their pro-sustainable behaviour. Despite the tourist heterogeneity, destination managers and policymakers need to distinguish the market segments based on consumer behaviour to design the marketing planning and strategies.

This study aims to identify the demand segments in the urban destination shown by tourists’ level of commitment, behaviour and knowledge towards the destination sustainability. This is reached by clustering the tourists to Bandung based on the latent variables showing high sustainable intelligence, proceeded by the socio-economic features of the identified segments.

## II. THEORETICAL FRAMEWORK

Sustainable tourism is defined as tourism that considers the current and future tourism impacts economically, socially and environmentally, at the same time catering the needs for the visitors, the environment, the industry and host communities (UNWTO, 2013, p. 17). This trending topic has been encouraging the emergence of numerous documents such as Global Code of Ethics for Tourism, 1997; The European Charter for Sustainable Tourism Protected Areas, 2001; and Global Sustainable Tourism Criteria , 2013. Pro-sustainable tourists promote and consume sustainable tourism and concern with the impacts of the tourism activities and tend to protect the destination.

Consumer behaviour towards sustainability has become an intense scientific debate. People have different perceptions towards sustainability, thus it creates a gap between the expressed attitude and the actual purchase behaviour as well as the diversity of the variables selected when analyzing sustainable behaviour. The variety is constructed according to the researchers’ comprehension of sustainability. This study uses the sustainable intelligence to segment tourist

heterogeneity using some variables related to tourist behaviour towards destination sustainability.

The term “sustainable intelligence” used in this study was adopted from the work of Lopez-Sanchez and Pulido-Fernandez (2016) that stated it as „the ability of tourists to apply their experience and knowledge regarding the effects of tourism on the environment in which it is practiced. Developing proactive behaviour towards sustainable tourism, from the perspective of both consumption and production.“ In this study, several variables are selected to define tourist sustainable intelligence. Adapted from Lopez-Sanchez and Pulido-Fernandez’s study on tourist sustainable intelligence, eight variables are selected as follows:

**Table 1** Preselected variables showing the level of tourist sustainable intelligence

Variable	Definition
Variable 1	Knowledge of sustainable tourism destination
Variable 2	Involvement in the sustainable tourism activities
Variable 3	Sustainable behaviour during stay
Variable 4	Appraisal of characteristics of destination sustainability
Variable 5	Willingness to pay for a more sustainable tourism destination
Variable 6	Acknowledgment of responsible business behaviour
Variable 7	Willingness to give a financial donation for planned and organized sustainable activities in the destination
Variable 8	Attitude towards the policy of a tax to improve the destination sustainability

### III. CASE STUDY

This study was conducted in Bandung City, which is the capital city of the West Java Province, located at the latitude of 768 metres above sea level, with an area of 168 km<sup>2</sup>. With the total population of 2.5 million people, it has become the third densely populated city after Jakarta and Surabaya (BPS Kota Bandung, 2014). The city also provides diverse tourist attractions ranging from beautiful nature and cultural affluence, shopping tourism to culinary tourism. With all these attractions, it has become one of the cities hunted by visitors. In addition, Bandung has been appointed to build creative tourism. Moreover, the Asian African Conference was held in this city and its commemoration has elevated the number of tourists significantly. Furthermore, the infrastructure development has made it easily accessible from the surrounding cities. For that reason, it is renewing the urban tourism outlook continuously. Over the last decades, its appeals have been attracting more and more domestic and foreign tourists, however they have also offered enormous challenges for the city to deliver sustainable urban development and to maintain a high quality of life for its residents. This study was meant to cater the policymakers and destination managers with the importance of segmentation based on tourist sustainable intelligence.

### IV. METHODOLOGY

Latent class analysis (LCA) was used in this study to identify subgroups in empirical data to generate a number of clusters or segments of tourists with distinct levels of sustainable intelligence. LCA is a statistical technique to study the existence of one or several latent variables from the previous set of observed variables and the typology of each one (Collins and Lanza, 2010). This latent class model also shows the interrelationship among the observed indicators to understand and characterize the latent variables (McCutcheon, 1987). It has been widely used in other social sciences like psychology and only a few used it in tourism field. However, more and more scholars have been using this methodological tool in tourism field (Alegre et al. 2011, Molin et al., 2016).

At the first stage, eight variables are preselected to define tourist behaviour towards sustainability as shown in Table 1. After eliminating the two out of eight variables initially selected, the latent variables are defined as tourist sustainable intelligence.

The survey was conducted in Bandung City in all most visited destinations like museums, Saung Angklung Udjo, factory outlets, and historical sites. A simple random sampling method was utilized to generate 300 valid surveys from tourists who had stayed at least one night in Bandung. The data generated from the respondents were analysed using the Statistical Package for the Social Sciences (SPSS) version 21.0.

### V. FINDINGS AND DISCUSSION

After initially selecting eight variables and eliminating two of them using the correlations between the variables, three segments were identified based on the value of the three segments and the socio-demographic features of each segment – reflective, unconcerned and pro-sustainable tourists. The survey focused on the tourist characterizations in terms of their knowledge, commitment and attitude/behaviour towards sustainability. The three segments were generated from the six latent variables known as tourist sustainable intelligence.

#### Segment 1: reflective tourist

The first segment is identified as reflective tourists dominated by 72% of the respondents. This type of tourists has more than sufficient knowledge of sustainable tourism represented by 42% having general understanding and 34% having in-depth understanding shown by 68% of the tourists behave towards sustainability and 69% value all the sustainable characteristics in the destination.

In spite of being highly knowledgeable, behaving appropriately and having a positive consideration towards sustainability, this segment does not approve of the economic aspect, represented by 82% who are not willing to spend for a more tourism sustainability. The respondents thought that sustainable destination is supposed to be the government and

**Table 2** Social-economic profile of the respondents

		Reflective	Unconcerned	Pro-sustainable
		(%)		
Sex	Men	42.8	<b>68.2</b>	<b>54.5</b>
	Women	<b>57.2</b>	31.8	45.5
Average age		35.8 years	29.7 years	46.2 years
Place of Origin	Jabodetabek	<b>75.9</b>	<b>83.6</b>	<b>63.6</b>
	West Java	16.7	16.4	12.1
	Central and East Java	5.6	0	6.1
	Europe	1.8	0	18.2
Types of accommodation	Four-star hotel	16.2	<b>32.7</b>	<b>57.6</b>
	Three-star hotel	<b>63.9</b>	14.5	24.2
	Hostel/guesthouse	10.6	25.5	12.1
	Own apartment/house	9.3	27.3	6.1
Travel group	Alone	11.6	0	0
	Couple	23.6	23.6	54.5
	Family	<b>64.8</b>	<b>76.4</b>	<b>45.5</b>
Main motivation	Leisure/holidays	<b>87.0</b>	<b>69.0</b>	<b>90.1</b>
	Visiting friends and relatives	13.0	31.0	9.9
Frequency of travel	First-time visit and will come back	2.8	9.1	<b>42.4</b>
	During public holiday	<b>75.0</b>	40.0	36.4
	Almost every weekend	22.2	<b>50.9</b>	21.2
Level of education	High school degree	42.4	<b>54.5</b>	33.3
	Higher (university degree)	<b>57.6</b>	45.5	<b>66.7</b>
Employment status	Employed	<b>71.8</b>	<b>76.4</b>	<b>75.8</b>
	Retired	12.0	0	12.1
	Student	16.2	23.6	12.1
Professional status	Skilled worker	38.9	27.3	36.4
	Civil servant	3.7	7.3	6.1
	Freelance	10.2	7.3	<b>42.4</b>
	Others	<b>47.2</b>	<b>58.1</b>	15.0
Average monthly income	Less than Rp 3,000,000	1.0	3.6	0
	From Rp 3,000,001 to Rp 10,000,000	4.6	7.3	6.1
	From Rp 10,000,001 to Rp 20,000,000	5.6	<b>58.2</b>	9.1
	From Rp 20,000,001 to Rp 30,000,000	<b>47.2</b>	21.8	30.3
	More than Rp 30,000,000	41.6	9.1	<b>54.5</b>
Average length of stay	Two days one night	14.8	<b>72.5</b>	15.1
	Three days two nights	<b>78.7</b>	25.5	<b>60.6</b>
	Three and more nights	6.5	2	24.3
Average cost of travel expenses		Rp 1.32 m	Rp 0.94 m	Rp 2.89 m

other private tourism providers' responsibility in terms of economic aspect.

The socio-demographic of this type of tourists is shown in Table 2. This segment is dominated by tourists from Jabodetabek (Jakarta, Bogor, Depok, Tangerang, Bekasi) (75.9%); they prefer to travel with their family for leisure during public holidays for three days two nights at mostly three-star hotels (63.9%). 71.8% of them are employed

earning from 20 to 30 million rupiah or € 1,300 to €2,000 per month. They spend 1.32 million rupiah when they travel.

### Segment 2: unconcerned tourist

The second segment is formed by 17% of the total respondents classified as unconcerned tourists who are unaware of the knowledge of sustainability and its impacts towards the tourism destination. This segment of tourists is characterized by 33% of them as unaware tourists who are not knowledgeable of what sustainability means. Though the majority of the respondents have quite acceptable knowledge as shown by 27% having general understanding and 40% in-depth understanding, nearly 90% of the samples behave poorly or unsustainably towards sustainability and 90% value some or even none of the characteristics concerning the sustainability. To sum up, this tourist segment shows very poor behaviour in spite of having sufficient knowledge of sustainability of the destination. In addition, they oppose to pay for more sustainable destination (70%) and completely refuse to pay additional amount for the destination sustainable development (98%) and would choose other destinations instead. Furthermore, they also go against the policy of a tax to improve the sustainability (80%).

This segment is occupied by young people at the average age of 29.7 years and mostly from Jabodetabek (83.6%). They stay in four-star hotels (32.7%) or own apartment/house (27.3%) and travel with the family (76.4%) having the intention of leisure/holidays for two days one night. Most of them travel almost every weekend (50.9%) or during public holiday (40%) and are employed with 10 to 20 million rupiah or € 660 to €1,300 monthly income (58.2%) and spend 0.94 million rupiah or €63.

### Segment 3: pro-sustainable tourist

The third segment comprises 11% of the respondents and is the smallest one. This segment has wider knowledge than the other two previous segments as shown by 48% of them have in-depth understanding and 39% have general knowledge

of the sustainability of the destination. In addition, all the characteristics concerning sustainability are valued by 58% of the respondents. However, these pro-sustainable tourists (61%) are not willing to pay for a more sustainable tourism destination or additional amount for the sustainable development although 76% of the respondents behaved in the manner of supporting the tourism sustainability. However, they perform positive attitude towards the tax policy for the

**Table 3** Characteristics of three-latent segments with six variables

	Reflective tourist	Unconcerned tourist	Pro-sustainable tourist
Size of the group	0.72	0.17	0.11
Variable 1: knowledge of sustainable tourism destination			
Unaware of meaning	0.24	0.33	0.13
General understanding	0.42	0.27	0.39
In-depth understanding	0.34	0.40	0.48
Variable 3: sustainable behaviour during stay			
Sustainable behaviour	0.10	0.00	0.12
Behaviour moving towards sustainability	<b>0.68</b>	0.14	<b>0.64</b>
Poorly sustainable behaviour	0.22	<b>0.74</b>	0.21
Unsustainable behaviour	0.00	0.12	0.03
Variable 4: appraisal of characteristics of destination sustainability			
All characteristics are valued	<b>0.69</b>	0.00	<b>0.58</b>
Many characteristics are valued	0.16	0.10	0.27
Some characteristics are valued	0.13	0.46	0.09
Not value any characteristics	0.02	0.44	0.06
Variable 5: willingness to pay for a more sustainable tourism destination			
Willing to pay	0.08	0.08	0.30
Not willing to pay, but with attitude towards sustainability	0.10	0.22	<b>0.61</b>
Not willing to pay	<b>0.82</b>	<b>0.70</b>	0.09
Variable 7: willingness to pay additional amount (to the total cost of the trip) for the destination sustainable development			
Yes	0.02	0.02	0.39
No	<b>0.98</b>	<b>0.98</b>	<b>0.61</b>
Variable 8: attitude towards the policy of a tax to improve the destination sustainability			
Negative attitude	<b>0.64</b>	<b>0.80</b>	0.03
Positive attitude, but selfishness	0.16	0.10	0.27
Positive attitude, but with conviction	0.08	0.08	<b>0.52</b>
Neutral attitude	0.12	0.02	0.18

improvement of destination sustainability. These tourists have high awareness of the drawbacks that tourism can create in the destination where they spend their holidays.

Like the two earlier segments, this segment is mainly tourists from Jabodetabek (63.6%) with the average age of 46.2 years, staying at four-star hotels (57.6%), traveling with their couples (54.5%) or family (45.5%) for leisure/holidays (90.1%) for longer period of stay – three days two nights (60.6%). Most of them are employed as freelance (42.4%) or skilled workers (36.4%), earning the highest monthly income of more than 30 million rupiah or €2,000 and spending the highest average travel expenditure (2.89 million rupiah or €193).

This study analyse the tourist sustainable intelligence in multi-facet aspects including sustainable knowledge, attitudes, behaviours, values and economic aspects, in which the policymakers and destination managers could use it as the premise to enhance the competitive advantage of the destination through sustainability. The findings show that in general the reflective and pro-sustainable tourists have general and in-depth understanding towards sustainability and behave accordingly towards sustainability, yet they refuse the economic aspects. The government and the industry are claimed to handle this aspect. A sustainable destination has to be more efficient when using its resources. It is imperative that the related parties should attempt to attract these two segments who appreciate and commit to the implementation of destination sustainability and change the unconcerned tourists to behave towards sustainability by improving their knowledge and awareness towards the environment. In this case, Bandung government and the other tourism providers should provide the tourists with more information to build their empathy with the destination.

## VI. CONCLUSION

Bandung is one of the most favourite urban destinations in Indonesia in terms of its tourism diversity. This results in the growing number of tourists to this city which creates numerous impacts to the community and the environment. For that reason it is imperative that the government as the policymakers together with the destination managers ensure the sustainable practices occur in the destinations and develop an integral approach of strategic plan to protect it from devastation and inappropriate use of the tourism destination. Despite the numerous efforts, the implementation of sustainable practices is still far below it should be. Thus, it is essential to involve all the stakeholders to participate both from the supply and particularly the demand sides.

This study focuses on the importance of tourist sustainable intelligence as the tourists' ability to response and commit towards sustainability as shown in their attitudes and behaviours when they travel. This intelligence is then measured to generate three latent classes used as a premise of segmentation.

In the case of Bandung city, the empirical application of this study uses a latent class analysis which acknowledge the existence of three segments of demand with different level of sustainable intelligence. The three segments are known as reflective, unconcerned, and pro-sustainable tourists.

The importance of segmentation in tourism is very clear and would help the concerned parties plan and manage the sustainable destination and develop demand-oriented policies. Therefore, using tourist sustainable intelligence as a premise of segmentation could be a pivotal tool to improve sustainable development of tourism and promote solutions that balance the community, conservation and sustainable travel.

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