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Choosing the Optimal Segmentation Technique to Understand Tourist Behaviour

Abstract

This study compares and contrasts five different segmentation techniques to determine which one(s) best describe behaviour among independent tourists who visited Bali, Indonesia. The five techniques included geographic, demographic, behavioural and motivation segmentation, plus a hybrid technique that included geographic, demographic and behavioural variables. The study revealed geographic segmentation proved to be the most efficacious, with motivation segmentation least reliable. However, the authors caution that the preferred segmentation technique depends on the objectives of the study, with each method adopted serving a specific purpose.

Keywords: Bali, segmentation, method

Introduction

Which segmentation technique is best for destinations with limited resources, limited staff, limited ability to collect primary data and perhaps limited analytical expertise? This issue is a critical question many Destination Management Organisations (DMOs) face, especially small regional ones where staff turnover is high and market research funds are limited to non-existent (McKercher and Ritchie, 1997; Pike and Page, 2014). It is also equally important for many National Tourism Organisations (NTOs) whose resources are limited to the provision of macro level data to assist with strategic formulation, tourism marketing and to provide necessary data for the calculation of tourism satellite accounts (Meis, 2005). Many, as well, have significant resource constraints (Mazanec, Wöber and Zins, 2010) and must rely on data provided by other government agencies, rather than generating primary data themselves. Yet, as Tkaczynski et al. (2010) remind us, the assessment and usefulness of market segments must remain a central concern for DMOs as they must first identify whether segments can be distinguished and then determine if it is reasonable and practical to meet the needs of the different segments.

A wide array of options exist to segment markets (Mumuni and Mansour, 2014), with no single best or correct way recognised (Kotler, Bowen and Makens, 2003; Tkaczynski, Rundle-Thiele and Beaumont, 2009). Instead, as Frochot and Morrison (2000) mention, each basis has its merits and serves specific purposes. The key to the selection of the optimum approach then, lies in the objectives of the segmentation strategy. It is for this reason that Kotler et al. (2003) suggest marketers may try different segmentation variables alone or in combination hoping to find the best way to view the market structure. A wide array of segmentation studies has been published in the tourism literature promoting the merits of one method over others, criticizing other techniques as being deficient or simply critiquing different techniques without expressing an opinion about which options are preferred (Georgsdottir and Oskarsson, 2017; McCleary, Weaver and Hsu, 2006; Moscardo, Pearce and Morrison, 2001; Tkaczynski, Rundle-Thiele and Beaumont, 2009; and many others).

These observations lead to the questions of which segmentation method is most suited to understand the behavior of tourists in a destination and how can this information be used to optimize marketing activities for destinations that serve a variety of markets. Few comparative studies using the same data set have been undertaken to analyse which segmentation technique is most efficacious (Pesonen 2014). Instead, various studies cited above and in the literature review focus on single segmentation techniques, without considering alternatives from the same data set. Moreover, a review of more than 20 DMO marketing studies from regional Australian destinations show a preponderance of using the same segmentation techniques, without necessarily testing their effectiveness.. This study tests a number of commonly accepted segmentation bases to determine which one or ones best explain the behavior of fully independent tourists (FITs). This issue is important for DMOs and NTOs, for their reliance on certain approaches may not provide the best insights into the behaviour of their core markets. Moreover, the identification of the optimal technique may also help make most effective use of limited market research costs and resources, saving time and money and enabling destinations to allocate limited funds to other promotional activities.

The study locale is Bali, Indonesia's premier tourism destination, with an estimated six million foreign visitors a year (BHA, 2020). It is a well-developed destination with more than 50,000 rooms available (Yonasari, 2018). Despite, Bali's popularity, little is known about its destination image among various types of tourists. Indonesia' Ministry of Tourism (2021)

promotes its natural assets, cultural richness and beachside resorts. Utama (2017) identified three factors that make Bali an attractive destination amongst European travellers: immigration and security, services and attractions, and Bali's nature and culture. Utama (2015) emphasises that senior western tourist segment are attracted by Balinese culture and generally good ambience of Bali. identified its destination image among westerners as containing a number of features, with its dominant image being a good destination for vacations and recreation, especially for the short haul Asia-Pacific market. The long haul market sees Bali as predominantly a vacation and recreation destination that also has a rich cultural, historical and artistic identity. Secondary images relate to its natural attractions and some adventure sports. Adinegara (2018) added its image also includes availability of a wide range of activities and events for tourists. Berger (2013) writes about the contrast between the imagined Bali and the real Bali that often confronts many long haul tourists. Often tourists are enticed by the fantasy of visiting a tropical paradise with wonderful beaches, rich cultural traditions and many ceremonies, only to be confronted by litter strewn beaches, overcrowding, mass tourism development, overpriced boutiques and restaurants that serve tapas and imported wine from South America and drunken tourists partying at all hours (Drillinger, 2020). This disconnect leads to some disillusionment and post-visit dissonance. Very little is known about the perceptions of Bali amongst the domestic visitors and short-haul Asia-Pacific markets. This observation demonstrates that Bali is well-suited for a study of marketing segmentation methods. The results also contribute to existing knowledge about Bali's destination image.

Literature Review

Essentially, market segmentation seeks to identify homogeneous groups of people from among the heterogeneous population of tourists (Andereck and Caldwell 1994), in recognition that tourists differ in their tastes, needs and attitudes. In doing so, researchers look for shared characteristics, common goals, interests, similar lifestyles, demographic profiles or other features that link groups of people (Camilleri 2018). Different segments are assumed to require different marketing programmes, respond to different calls to action and behave differently. Segmentation, therefore, can make marketers understand the characteristics of each market subset, predict potential behavior, and focus on specific marketing programs for each cluster by catering to the specific needs of certain types of tourists As such, using segmentation (Otoo, Kim and Park 2020).

It must be appreciated, though, that there are no natural market segments, and instead they are the product of some form of arbitrary selection process that depends on the reliability of the data, the sample size and the variables selected. As Mumuni and Mansour (2014) note, at the heart of any segmentation effort is the segmentation basis or variable set to be used in classifying consumers. And here, the choices are almost limitless. However, even given this codicil, segmentation is managerially preferable for it will help enterprises group their fragmented service offerings into common themes and easily marketable entities, and in doing so prove to be useful in designing different service offerings and product packages for discrete groups of tourists (Pesonen and Tuohino, 2017). Marketers can then customize product and service offerings rather than accepting a mass marketing strategy on the belief that consumers are undifferentiated (Dolnicar and Leisch, 2010).

Segmentation strategies can be created using two alternative approaches: *a priori* or common-sense segmentation where tourists are placed into groups by known characteristics, such as age or gender; or *a posteriori* or post hoc, data driven segmentation where the data are analysed and then segments are identified based on similarities and differences (Hajibaba, Grun and Dolnicar, 2019). In *a priori* segmentation, the grouping criteria are defined by the researcher in advance, while in *a posteriori* segmentation statistical approaches are applied on attitudinal and/or behavioral data to derive segments (Mumuni and Mansour, 2014: 241). Each has its merits and each has its weaknesses. *A priori* segmentation is easy to use, requires little sophisticated statistical knowledge and data are often readily available. But, they may not reflect the needs of the consumers. Popular *a priori* segmentation criteria in tourism marketing are the country of origin, purpose of trip, length of stay, daily expenditure and spending patterns, frequency of visitation or destination loyalty, and tourist experience. *A posteriori* segmentation requires more technical skill, but enables the researcher to dig more deeply into data and seek insights that are not readily obvious. *A posteriori* segments are frequently construed from symptomatic bundles of benefits sought, travel motives, activities and perceived destination attributes or combinations of preferences. (Mazanec 2016: 836)

Regardless of the approach chosen, segments must satisfy a number of conditions (Dolnicar 2008; Fyall, Legohérel, Frochot and Wang 2019; Moscardo, Pearce and Morrison 2001). They must be identifiable, measureable and substantial enough to make a difference and warrant separate attention. Substantiality relates to the comment by Fyall et al (2019) that

they should be internally homogeneous and yet as different from other segments as possible. Importantly, they must be able to be reached or accessed by the various marketing platforms adopted by the organisation. They should also be stable in that they will not change dramatically over a short period of time.

Traditionally, markets have been segmented in one of five ways. Geographic segmentation uses country, region, state or city of origin. Demographic segmentation categorises markets by age, income, gender, etc. Behavioural segmentation considers vacation habits, length of stay, first or repeat visitation and other metrics. Psychographic segmentation includes motives, values and personality characteristics. A hybrid approach can be adopted by considering two or more of the above techniques (Dolnicar 2005; Moscardo et al 2001; Pulido-Fernández and Sánchez-Rivero 2010; Singh, Krentler and Ahuja 2017). Each has its strengths and limitations as discussed briefly below. The purpose of this review is to summarize briefly each of the techniques, but not to engage in a deep critique of each. For a deep analysis of market segmentation, the reader is advised to consult the open access book *Market Segmentation Analysis: Understanding It, Doing It and Making It Useful*, authored by Dolnicar, Grün, and Leisch, (2018).

Geographic segmentation is the most common method used (Morrison 2013) and is recognized as the original segmentation technique (Dolnicar et al 2018). It is quick, easy and inexpensive to operationalise (Rück and Mende 2008), and has the added advantage that segments tend to be stable over time (Dolnicar and Leisch 2010). Moreover, it works well when the geographic reach of the market is limited. Importantly, most destinations clearly specify their core and secondary geographic markets (Morrison 2013). It is based on the notion that the needs and preferences of tourists vary depending on where they live (Obenour, Lengfelder and Goves 2005), with their home culture being a critical factor that influences behavior (Camilleri 2018). Importantly, as well, the media landscape tends to be country or language specific enabling strong targeting of desirable markets (Dolnicar and Leisch 2010).

Geographic segmentation is vital when one considers the impact of distance on demand, profile of visitor and subsequent behaviour. The distance decay concept builds on Tobler's (1970: 236) *First Law of Geography*, that states "everything is related to everything else, but near things are more related than distant things." It demonstrates that demand for a good or service declines exponentially as distance increases, meaning that proportionately a greater

share of tourists from nearby markets will visit destinations than those from distant markets. Its universality has been demonstrated in international tourism flows (McKercher and Mak 2019). Importantly, distance and hence geographic location, effectively acts as a filter. Anyone who can travel, can travel short distances, but not everyone can or wants to travel longer distances due to a range of factors. McKercher (2009) revealed that distance has a more significant effect than simply on tourist volumes. Instead it also reflects the type of person who can travel (by demographic and psychographic profile), their motives (escapism vs a deeper cultural or learning experiences) and their subsequent behaviour within the destination.

Geographic segmentation is not without its critics, though. It can be atheoretical (Nyaupane and Graefe 2008) and not a particularly valuable predictive tool (Tkaczynski, Rundle-Thiele and Beaumont 2010). Importantly, it treats geographic markets as being homogenous, when different individuals may share quite different characteristics, even within the same culture (Dolnicar and Leisch 2004). The other concern is that it cannot account for the inherent diversity within cultures. It is for this reason that it is often used in conjunction with other forms of segmentation (Dolnicar et al 2018).

Demographic segmentation shares many of the same strengths and weaknesses as geographic segmentation (Iversen, Hem and Mehmetoglu 2016; Morrison 2013). It is the second most common technique used (Singh, Krentler and Ahuja 2017), either alone or in conjunction with geographic segmentation. Typical socio-demographic criteria include age, gender, income and education (Dolnicar et al 2018) Data are relatively easy and inexpensive to acquire. Moreover, as Tkaczynski et al (2009) argue, because demographic factors are accessible and measurable, they are likely to remain useful as a framework to guide management thinking.

It can be especially useful in some applications, for example if one wishes to target the luxury market, retirees, women adventure tourists, etc. Kotler et al (2016) further remind us that consumers' tastes change with age and life cycle stage. They use the example of cruise ships, where Disney cruises targets families with children, while Viking cruises does not offer services or facilities for children aboard its river cruise ships, as it caters to an older demographic. Others indicate how many businesses have successfully targeted the seniors' market (Fyall et al 2019; Otoo, Kim and Park, 2020; Ward 2014). Gender- and sexual-

orientation based segmentation is also common as businesses strive to understand better, for example, the needs of businesswomen (Fyall et al 2019), or the burgeoning LGBTQ+ market.

But, it too can have its limitations, for demographic segmentation can be descriptive and atheoretical with limited predictive power (Tkaczynski, Rundle-Thiele and Beaumont 2010) as age, gender, and wealth are only indirectly related to buying intentions. Dolnicar et al (2018) illustrate that the causal link between socio-demographic profile and behaviour is tenuous. Citing historic literature they illustrate it may explain as little as 5% of variance in consumer behaviour, while differences in values, tastes and preferences may be more influential. Kotler et al (2016) argue income does not always predict which consumers will buy a given product or service. Otto et al (2020), also add that specific markets, such as the senior market are highly heterogeneous, while Ward (2014), citing the literature argues age, for example, it is, at best a crude variable for segmentation as it indicates very little about a person's lifestyle, health, preferences, motivations and experience. Instead, he illustrates that research into the senior's market is now targeting motivations.

Behavioral segmentation relates primarily to the actions of tourists either during their trip or within a destination. It involves dividing tourists into groups based on their past purchase or travel behaviour or trying to assess their future behavioural intentions (Morrison 2013). Dolnicar et al (2018) note a wide range of possible behaviours can be used including prior experience, frequency of purchase, amount spent and information search behaviour. Certainly, a substantial body of literature exists comparing first time and repeat visitors beginning with Gitelson and Crompton's (1984) early work and progressing through studies using GIS/GPS analysis to track tourist movements (McKercher et al 2012). These studies reveal substantial differences in behaviour between the two groups, as first timers tend to explore the destination widely, while repeaters limit their range of activities but pursue them more deeply. Fyall et al (2019) highlight similar studies segmenting tourists via their consumption patterns, indicating the benefits of being able to identify high yield tourists, while Oppermann (1999) highlighted the need to differentiate between loyal tourists and habitual users who may not be particularly loyal to the destination.

Again, though, this technique has its limitations. It too can be relatively inexpensive to gather data, but like the preceding two segmentation techniques, it can only document what people did and not why they did things. A key criticism is that behavioural data only relates to

people who have already purchased the product, making it difficult to identify future consumers (Dolnicar et al 2018).

Psychographic segmentation may provide deep insights into the motives behind observed behavior (Frochot and Morrison 2000; Moscardo et al 2001). This technique can use a variety of measures ranging from the tourists' motives (Dolnicar 2005; Iverson et al 2016) through to their attitudes, activities, values and interests (Hsu, Killion, Brown, Gross and Huang 2008). It has been found to be a valuable tool to understand push motives (Pesonen, Laukekanen and Komppula 2011). It has the advantage of being more reflective and can undo deeper reasons to participate in certain activities, such as cultural or nature based experiences (Dolnicar et al 2018). Moreover, it can discriminate effectively between people who possess similar socio-demographic profiles (Kotler et al 2016).

By its nature, though, psychographic criteria are more complex, making it much more difficult to gather reliable data (Dolnicar et al 2018). Data collection and analysis is often quite expensive and often requires in-depth qualitative analysis to be able to identify psychographic groups. A further risk is that qualitative research without follow-up quantitative studies may produce spurious results. Mumuni and Mansour (2014) highlight a further issue of using motives as a discriminating factor, for motives are not stable. People may be motivated to take one type of trip for some reasons and another type for completely different reasons. It is for this reason that Pearce's (2005) Travel Career Pattern model identified core, middle and outer tier motives as driving tourist behaviour. He argued that the balance of these motives changes depending on the nature of the trip. Finally, psychographic segments may not be as easy to reach as geographic or demographic segments.

Increasingly researchers are using different techniques in combination (Tkaczynski et al 2010), with the validity of using many variables depending on the sample size (Dolnicar, Kaiser, Lazarevski and Leisch 2012). A two-step approach is often adopted, especially when geographic segmentation is involved. The potential tourist's home community, region, state or country provides the first measure to divide the market into meaningful units. From here, demographic, behavioural and/or psychographic segmentation techniques can be adopted to refine the geographic market into more meaningful sub groups who are likely to consume the product.

Method

The purpose of this study is to compare and contrast empirically different segmentation techniques to determine which one(s) best describe the behaviour of FIT tourists. Bali is the locus of the study. A tourist survey was undertaken in September and October 2019. The survey was administered by students from the Sekolah Tinggi Pariwisata Bali (hereinafter called the STP Bali) at a variety of popular locales in order to gain as broad a cross section of visitors as possible. Interviewers were trained by staff from STP Bali who also supervised the data collection activities. A total 549 valid questionnaires were received. Data were entered onto an SPSS spreadsheet for analysis.

The survey instrument was divided into four parts. The first part documented basic trip information enabling behavioural segments to be defined. The second section measured motives using a modified version of Pearce's Travel Career Model (Oktadiana et al 2017) that had previously been validated in Indonesia. Respondents were then asked to identify the three most influential motives that determined their trip, which were then used as the basis for two-step cluster analysis to divide the sample into motive-based segments. The last section gathered respondents' demographic information, including country of residence that facilitated geographic and demographic segmentation. The third section provided a list of the 36 of the most popular attractions and activities available in Bali and asked respondents to select those they visited or participated in during their visit. This list allowed analysis of in-destination behaviour

Defining the segments

The following section provides a brief overview of the variables used to define each of the segment sets used in subsequent analysis. It also gives a brief description of each of the segments that emerged from the cluster analysis.

Geographic segmentation

Eight geographic segments were identified using respondents' home country. Those from the same continent were compared and contrasted on their demographic, trip and behavior profiles to define like clusters, resulting in the creation of single Oceania and North American segments. It was a more challenging task to group Asian and European tourists for they came from a more diverse set of countries. In the end two Asian segments were identified, including the short and medium haul markets, while four European segments emerged, including a discrete UK segment, a segment comprised of French, German and Austrian tourists, an 'Other Western European' segment, and a segment comprised of members of former Soviet Republics.

Motivation based segments

Eight different motive categories were identified, including: Novelty; Escape / Relaxation (resting and relaxing or being away from routine); Strengthening relationships (doing things with family and friends); Nature and scenery; Host site involvement (experiencing different cultures or meeting new and different people); Stimulation (feeling excitement or having daring/adventuresome experiences); Self-development, and; Isolation (experiencing peace and calm or being away from crowds of people). In addition, 158 people did not identify any core motive, and they represented the eighth segment.

Demographic segments

Four demographic segments were identified based on the age, income and educational attainment of participants. The first segment comprised university educated people between the age of 26 to 35 whose household income was less than US\$100,000 per annum. The second segment was composed of somewhat older (73% aged 26 – 45), university educated, high income earners (over US\$100,000 per annum). The third group was the oldest, with 96% aged 46 or older. Their incomes and education levels varied. The dominant feature of the last group was that members had the lowest educational qualifications of all segments, with none having attained a university qualification. They too were younger and earned modest incomes.

Behavior segments

First versus repeat visitation, whether Bali was the main destination, the total trip duration and the length of stay in Bali were used to define five behavior based segments. The first segment comprised of repeat visitors who identified Bali as their main destination. Cluster two was dominated by long stay repeat visitors who visited for at least one month. The third group consisted of first time visitors on one week trips, while the fourth segment identified Bali as a secondary destination. The last segment consisted of people who identified Bali as their main destination and who were staying about two weeks on the island.

Hybrid segments

The hybrid segmentation model used geographic, demographic and behavioural characteristics to identify seven segments, including European first time visitors of all ages; European repeat visitors of all ages; young first time visitors from Oceania; repeat visitors from Oceania who were comprised of all age groups; North American first time visitors who were generally young; Asian first time visitors who were mostly young, and; a combined group of Asian and North America repeat visitors who also tended to be young.

Findings

Profile of Respondents

European and Australian visitors generated more than three-quarters of survey respondents, with Asian and North American visitors constituting the rest. By country of origin, Australians accounted for more than one-quarter of all respondents, with residents of France, representing the second largest market at just under one in ten arrivals. The UK, America and Germany rounded out the top five source markets. A slight gender imbalance was noted with women representing more than half of survey respondents. The median travel party size was 2.0 people. Respondents were largely young with 70% being under that age of 35. The median household income under US\$80,000 and most respondents had a university education. Six out of ten visitors were in Bali for the first time. Two-thirds said it was their

only destination and almost 90% said it was their main destination. Tourists typically spent a week on the island. They were active, participating in more than 12 discrete activities or attractions.

Table 1 compares the ability of each of the five segmentation techniques to discriminate respondents on the basis of their demographic profile. Geographic segmentation revealed significant differences across its eight segments by age, income and education. The behavioural segmentation technique was able to discriminate its five segments by age and country of origin, while the motive based technique found differences on the two variables of income and origin. It must be recognized that three of the segmenting variables (age income and education) were used in the demographic group. Likewise, two variables (age and origin) were used to define the seven hybrid segments.

Insert Table 1 about here

In a similar manner, geographic and the hybrid segmentation techniques seemed to be most reliable in defining different segments based on their trip motives and characteristics as shown in Table 2. Significant differences emerged in all but one of the variables tested (5 of 6 geographic and four of five using the hybrid method). Demographic segmentation also proved to be able to discriminate among cohorts. However, it is interesting to note that motive based segmentation seems least reliable as a predictor of trip patterns.

Insert Table 2 about here

Each of the techniques could identify different characteristics among the demographic and trip based various segments identified depending on the variables tested. It appears that the geographic and hybrid techniques were most effective, while behavioural and motive based segmentation were least effective. The question arises, though, that while statistically significant differences were noted across the various segmentation tools used, were they meaningful? Could they inform the study to shed light on in-destination behaviours?

Table 3 compares and contrasts which segmentation technique is best suited to be able to identify discrete segments of users of different activities or visitors to different attractions. A total of 36 of Bali's most popular attractions and activities were tested. A number of features are readily evident. Differences were noted in the profile of visitors to 20 or more activities/attractions when geographic, behavioural, demographic and the hybrid method were used, whereas the use of motivation based segmentation tools revealed differences in profile of visitors in only 14 attractions or activities. On the surface, then, one could conclude that geographic or hybrid segmentation is most efficacious in identifying discrete user groups.

However, caution must be adopted when making such a conclusion, for there was relatively little consistency in the findings across the entire spectrum of activities and attractions. Indeed, when participation propensity is considered collectively, statistically significant differences were noted in 32 of the 36 items measured, a substantially higher figure than the maximum of 24 under any one technique. While each technique was able to segment the market in three of the top five activities pursued (beach activities, visiting temples and shopping), the market for general sightseeing and eating different food than one would normally find at home is rather undifferentiated. The market interest in cultural activities seemed to be the most diverse, while visitors to build attractions and wellness experiences seem to be the most homogenous.

Insert Table 3 about here

Discussion and Conclusions

The study compared and contrasted different segmentation techniques to determine which one(s) best differentiate tourist behaviour in Bali, Indonesia. Five different segmentation techniques were tested, including two *a priori* methods, geographic and demographic, two *a posteriori* methods, behavioural and motivation, and the fifth technique involving a hybrid approach applying geographic, demographic and behavioural variables. They varied in level of detail required from the tourist and also level of sophistication of the technique.

On the surface, the simplest technique proved to be the most efficacious. The use of a geographic segmentation tool enabled the sample to be divided into eight discrete segments that differed by demographic and trip profile and also showed the most diverse in-destination consumption patterns. This method proved to be as effective as the hybrid technique that required more detailed data from the visitor, and only slightly more effective than using demographic or trip profile variables alone. Interestingly, while the motive based segments involved the most complex data collection technique using a modified version of Pearce's Travel Career Model, it proved to be the least effective tool.

Destination Management Organisations and National Tourism Organisations are always challenged with how to gather the most reliable data to inform their strategic plans and marketing activities. A vast array of techniques have been used in the past, alone or in combination that range from socio-demographic factors, indicators, analyzing actual or intended behaviour, geographic factors, motives and a variety of other measures including activities-based segmentation (Mumuni & Mansour 2014; Pesonen and Tuohino 2017).. As research in the field has matured more and more measures are being tested using more sophisticated analytical techniques, with factor-cluster techniques now emerging as a preferred method (Mumuni and Mansour 2014; Otoo et al 2018).

The question arises, though, whether staff in DMOs and smaller NTOs have access to the array of data needed, the technical skills to analyse such data and the ability to interpret them in a meaningful manner? The result may be to rely on others to provide this level of analysis, such as state or national tourism organisations for regional DMOs, or international organisations in the case of NTOs. A further question arises as to whether the use of some methods produces meaningful results, for Tkaczynski et al (2018) suggest that items continually applied in segmentation studies, such as age or gender, may be largely irrelevant when analysed with other segmentation variables.

The key issue then rests on the balance between financial resources available to gather data, skill of staff, needs of the destination and data availability. The study tested a number of different methods commonly used that varied in complexity and data requirements. In the end, the most parsimonious method provided to be the most efficacious. Geographic segmentation works well for a destination like Bali that attracts visitors from diverse regions,

ranging from short to very long haul markets. Indeed, the distance decay has proven to be affect arrivals.

The study findings advance the field of destination marketing by suggesting less may be more when it comes to segmentation of international markets. Geographic segmentation may be all DMOs and NTOs require to target tourists. As McKercher (2009) illustrated, distance plays a key role in filtering in or out certain groups of tourists, relates to motives and subsequent behaviour. Nearby markets are rather undifferentiated and often visit for convenience based reasons, while the greater the distance involved, the more differentiated the market becomes. As such, physical distance acts as a proxy for a range of other factors that influences both who is willing to come and what their subsequent behaviour may be (Crouch 1994; Hooper 2015; McKercher 2008). Distance, for example, is associated with greater variety seeking behavior (Pearce & Lee 2005). Yeoman and Lederer (2005) add long haul tourists are often one-off visitors who were interested in learning about the destination's culture, while the short haul visitor is more interested in recreational-oriented, hedonistic activities: hence the relationship with cultural tourism participation. To a large extent, then, the filtering effect of distance influences the demographic, behavioural and motivations of tourists, effectively relegating them to less relevant concerns when defining segments. In addition, the aforementioned benefits of geographic segments (similar culture, language, media, etc.), coupled with this filtering effect resolve many of the limitations associated with this technique.

The reader is reminded of Dolnicar et al's (2018) note of caution that segmentation is an artificial construct. The study also highlights the need to be selective in the variables chosen. Caution is recommended about adopting a 'kitchen sink' approach to variable selection by including as many variables as possible to make the model seem more robust. The use of a hybrid model proved no more effective than using geographic or behavioural variables alone. Moreover, the authors tested a wide variety of variable combinations during the preliminary analysis phase before settling on the three variables that were ultimately used in the hybrid model. None produced better clusters than the variables listed under each of the segmentation models adopted.

The study further raises some interesting research opportunities. Bali may be a unique destination in that its image varies depending on the market attracted to it. For Australians

and New Zealanders, it is a short haul, short break destination, noted for its mass tourism, surfing and partying atmosphere. For long haul visitors from Western countries, the myth of Bali as an unspoiled cultural paradise holds much appeal. This image, no doubt plays a key role in who is attracted. The situation may differ for other international destinations that have a more undifferentiated image. Different factors may come into play to identify ideal segments. The same holds true for local destination areas where the dominant domestic market may have a more homogeneous view of the place. Replicating this study in different locales is suggested to validate the findings of this study, or otherwise.

The title of this paper is *Choosing the Optimal Segmentation Technique to Understand Tourist Behaviour*. Implicit in this title is the question of which technique is better, with the presumed answer that one will emerge as a clearly favoured segmentation basis. This study, based on a single destination trialed a number of different techniques and concluded that the simplest was also the most effective tool available to identify different segments.

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Table 1
Profile of Visitors

	Geographic	Behavioural	Demographic	Motive	Hybrid
Number of segments	8	5	4	8	7
Age	$\chi^2 = 36.584, p = .019 *$	$\chi^2 = 45.772, p = .001 **$	Segmenting variable	$\chi^2 = 34.640, p = .485$	Segmenting variable
Household Income	$\chi^2 = 49.094, p < .001 **$	$\chi^2 = 14.250, p = .075$	Segmenting variable	$\chi^2 = 30.524, p = .006 **$	$\chi^2 = 58.030, p < .001 **$
Education	$\chi^2 = 35.483, p = .001 **$	$\chi^2 = 13.684, p = .622$	Segmenting variable	$\chi^2 = 23.590, p = .703$	$\chi^2 = 24.219, p = .019 *$
Mean Travel party size	F = 1.018, p = .418	F = .657, p = .622	F = 1.503, p = .293	F = .969, p = .453	F = .849, p = .533
Region of origin	Segmenting variable	$\chi^2 = 93.926, p < .001 **$	$\chi^2 = 41.717, p = .005 **$	$\chi^2 = 79.684, p < .001 **$	Segmenting variable

* Significant at $p \leq .050$

** Significant at $p \leq .01$

Table 2
Trip Profile

	Geographic	Behavioural	Demographic	Motive	Hybrid
Motive (based on Pearce's Travel Career Pattern)	$\chi^2 = 48.267, p = .096$	$\chi^2 = 41.688, p = .046$ *	$\chi^2 = 24.889, p = .252$	Segmenting variable	$\chi^2 = 80.066, p < .001$ **
First time vs. repeat visitors	$\chi^2 = 38.383, p < .001$ **	Segmenting variable	$\chi^2 = 20.717, p < .001$ **	$\chi^2 = 18.045, p = .012$ *	Segmenting variable
Bali as main destination	$\chi^2 = 27.044, p < .001$ **	Segmenting variable	$\chi^2 = 1.545, p = .672$	$\chi^2 = 15.163, p = .034$ *	$\chi^2 = 12.335, p = .055$
Total trip duration (nights)	F = 4.805, p < .001 **	Segmenting variable	F = 26.414, p < .001 **	F = 1.304, p = .403	F = 6.771, p < .001 **
Length of stay in Bali (nights)	F = 5.301, p < .001 **	Segmenting variable	F = 98.864, p < .001 **	F = .537, p = .807	F = 7.376, p < .001 **
Mean number of activities pursued	F = 3.336, p = .002 **	F = 4.248, p = .002 **	F = 10.556, p < .001 **	F = 1.534, p = .154	F = 7.856, p < .001 **

* Significant at $p \leq .050$

** Significant at $p \leq .01$

	Geographic	Behavioural	Demographic	Motive	Hybrid
Activities where statistically significant differences were noted by the technique used	Agung River and volcanoes Attend a cooking class Attend a dance performance Attend a festival Bali coffee plantation Bali Cultural Park Beach activities Elephant Park Garuda Wisnu Kancana Cultural Park Get tattoo or henna Mt Batur sunrise view Photo tours Rice Terraces Scuba or snorkeling Shopping Shopping Stay in resort and use facilities Surfing Turtle Island Visit palaces Visit temples Waterfalls Yoga	Agung River and volcanoes Attend a cooking class Attend a dance performance Attend a festival Bali coffee plantation Bali Cultural Park Bars and nightclubs Beach activities Mt Batur sunrise view Rice Terraces Sacred Monkey Forest Sanctuary Scuba or snorkeling Shopping Stay in resort and use facilities Surfing Turtle Island Visit temples Visiting hot springs Waterfalls Yoga	Attend a cooking class Bali Cultural Park Bar and nightclubs Beach activities Garuda Wisnu Kancana Cultural Park General sightseeing Get tattoo or henna Hiking or cycling Mt Batur sunrise view Rice Terraces Sacred Monkey Forest Sanctuary Scuba or snorkeling Surfing Visit temples Visiting hot springs Waterfalls Yoga	Bali coffee plantation Beach activities Eating different food than found at home Garuda Wisnu Kancana Cultural Park General sightseeing Rice Terraces Sacred Monkey Forest Sanctuary Scuba or snorkeling Shopping Spa or massage Visit temples Waterfalls	Attend a cooking class Attend a festival ATV or quad bike Bali coffee plantation Bali zoo Beach activities Garuda Wisnu Kancana Cultural Park General sightseeing Mt Batur sunrise view Photo tours Rice Terraces Sacred Monkey Forest Sanctuary Scuba or snorkeling Shopping Stay in resort and use facilities Surfing Turtle Island Visit palaces Visit temples Waterfalls Yoga
Number of activities with a statistically significant difference in participation	24	21	20	14	24