

UNDERSTANDING BACKPACKER BEHAVIOR THROUGH MARKET BASKET ANALYSIS

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The backpacker market is important and diverse for many destinations. Understanding what backpackers do on their trip is important for tourism businesses so they can cater to their needs and wants. Market basket analysis uncovers associations between products by looking for combinations of products that frequently co-occur in transactions. We apply this technique to activities that backpackers do while on vacation in Fiji. This study demonstrates the utility of market basket analysis to better understand backpackers' experiences participating in different activities. Combined with factor analysis and cluster analysis, segmentation based on activities backpackers participate in is more significant than demographic segmentation. In the current study, backpackers can be segmented into active visitors seeking diverse experiences, cultural adventurers, and passive fly and flop tourists. Considering the “fly & flop” segment is the second most common segment, the results suggest backpackers are drifting further away from the original counterculture and towards mass tourism.

Key words: Backpackers; Fiji; Market basket analysis; Cluster analysis; A priori association; Segmentation

Introduction

Market basket analysis works by looking for relationships of items that are frequently bought together (Pyo et al., 2002). If you bought something on Amazon and were then informed “customers who bought [this item] also bought [several other items]” or had Netflix tell you “watch this movie if you like [the movie just watched],” then

the data mining technique of market basket analysis has been used to uncover associations between different products purchased.

The consumption of goods and services is rarely done in isolation. Goods and services are often consumed as a bundle. Economists refer to this as joint demand. This is encompassed in the idea of a holiday, where tourists purchase a range of goods and services that complement each other to create their

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overall vacation experience (Jafari, 1974). This is the “characteristics approach” to tourism demand, which is often referred to as the Gorman–Lancaster characteristics framework (Stabler et al., 2010, p. 36). This can also be applied to different activities that tourists do. Tourists undertake a range of activities at the destination as part of the overall experience.

This research examines the combination of activities that a segment of tourists—in this case backpackers—undertakes. Backpackers are typically described as younger travelers with extended and flexible itineraries that travel on restricted budgets, but are interested in authentic experiences and cross-cultural interactions (O’Regan, 2021; Reichenberger & Iaquinto, 2022). Through understanding what combination of activities are performed, tourism business managers and marketers can make informed decisions about what set of activities should be offered to a market segment whose past behavior was not known (Solnet et al., 2016). These decisions are based on the activities undertaken by previous backpackers to the destination. Understanding the set of activities that backpackers undertake enables accommodation and activity providers to collaborate to offer bundles of activities that backpackers want to engage in. It will help them understand which activities are commonly performed together and which activities are undertaken independently. Vavpotič et al. (2021) emphasized that market basket analysis’ implementation in tourism is expected to increase in the near future as it enables a better understanding of the behavioral patterns of tourists.

Academic research on backpackers has burgeoned in the last decade for several reasons. Despite having a relatively low per day expenditure, their longer length of stay means that their overall trip expenditure is substantial and often larger than other markets. There is also a realization that backpackers, as both a market segment and a social phenomenon, keep changing and evolving to the extent that Dayour et al. (2017) called for a reconceptualization of the term. This study contributes to the understanding of the increasingly heterogeneous nature of backpackers (Nok et al., 2017) and hence a more complex and multifaceted backpacker market. Fiji has attracted backpackers for decades. Backpackers have been especially

valuable for smaller island chains off the main island of Viti Levu, namely the Mamanucas and the Yasawas. Lower accessibility, limited capacity to accommodate tourists, smaller resorts, and lack of some modern conveniences are limiting factors for mass tourists. However, those features attract more intrepid backpackers seeking adventure and authentic experiences. As tourism development progressed in Fiji, backpacking diversified with the emergence of flashpackers that are less constrained by budgets, and prefer modern comforts and access to the internet (Connell, 2016).

Bringing together the increased interest in backpackers as a tourism segment and the use of market basket analysis as a means to better understand this segment, the objectives of the research are as follows: 1) to highlight how market basket analysis can be used to explore the set of activities backpackers undertake while on vacation, and 2) to demonstrate how market basket analysis could be used to augment other analysis methods used by tourism marketers. Fulfilling these objectives, this research contributes in several ways to the current body of knowledge. This research reveals behavior-based segmentation of backpackers, which differs from the more common demographic segmentation. This research uses an activity attribute-based theoretical framework to explain backpackers’ choice of activities. Further, this research contributes methodologically by demonstrating how market basket analysis can be used to reveal underlying activities that backpackers undertake as a bundle of goods and services. We also show how market basket analysis can be used in conjunction with Factor Analysis and Cluster Analysis (Prayag, 2010) to provide more knowledge about decision-making and behavior of contemporary backpackers.

Market Basket Analysis

Initially used in the retailing domain to summarize the choices consumers make from a large number of product categories on the same shopping trip (Russell & Petersen, 2000), market basket analysis identifies the interrelationship between choices of different products (Decker, 2005). Agrawal et al. (1993) introduced association analysis or association rule mining, which is now more commonly referred to as market basket analysis.

Market basket analysis is one data mining technique available to marketers to help them better understand tourist purchasing behavior to inform their decision-making (Pyo et al., 2002). Surprisingly, market basket analysis has rarely been implemented in tourism and hospitality research but is slowly becoming more popular. The following brief review shows the areas in tourism and hospitality where market basket analysis/association mining has been used: associations between country destinations; attractions within a region; different meal combinations; different hotel purchases; different tour package components; and different tourist characteristics are some of the applications in which market basket analysis has been used.

Wong et al. (2006) demonstrated how market basket analysis can be used to discover which countries a traveler is likely to visit, having already visited one country. For example, they find that if Taiwanese outbound travelers have recently visited Australia, China, Hong Kong, or the US, they are next most likely to travel to Southeast Asia. This may help regional DMOs, travel agents, and tour operators to predict and bundle destinations together to find cross-selling promotions for their clients. Al-Salim (2007) used association rules to mine past travel agent transactions to find popular travel package promotions to minimize operation and processing costs for the travel agent and potentially enhance customer satisfaction. Sharma et al. (2021) showed how market basket analysis is one of the data mining techniques used in their analysis of tourism in India. Likewise, Petrović et al. (2021) demonstrated how market basket analysis can be used to identify souvenirs that international tourists purchased in the Pirot region, Serbia, noting that they more frequently acquired the combination of the local specialties—cheese and ironed sausage.

Arreeras et al. (2019) used Wi-Fi sensors to track visitors moving among 31 destinations in Hokkaido, Japan. Using the data and performing market basket analysis, they could identify the most visited tourist attractions. Over 6 weeks, they uncovered the most popular routes and combinations of attractions that tourists visited. This enabled the local authorities to manage and plan for over-crowded areas, hence improving sustainability. A similar study, this time with Bluetooth technology, was used to trace tourists' movements between tourist

attractions in Ghent, Belgium (Versichele et al., 2014). Across a 15-day period, the authors found associations between 3 public (free) tourist attractions and 11 of the most visited private (paid) tourist attractions and related this to hotel type and hotel location. Also using web and automatically generated data, for example TripAdvisor posts, matched with GIS data, Vavpotič et al. (2021) were able to map the combination of attractions that tourists to Vienna, Austria visit on their trip. They were able to determine that the top 20 attractions account for over 60% of total network flow, while the top 5 attractions account for approximately 28% of tourist visits. Understanding tourist flows can help managers of attractions to devote resources to the busiest attractions, to ease congestion and better manage carrying capacities. Further, city maps can show convenient transportation options and walking guides.

Ting et al. (2010) explored an ideal menu item combination for a Taiwanese restaurant. They sought to determine the most popular pairs of main meals and side dishes by considering 3,727 transactions for meal combinations (24 main meals; 49 side dishes). Their analysis revealed 24 combinations where diners, having chosen the main meal, would most likely then select a particular side dish to accompany it. Solnet et al. (2016) used market basket analysis to investigate how hotels can enhance their revenue. They demonstrated how a hotel can grow revenues by using market basket analysis. Solnet et al. (2016) found that some combinations of hotel purchases occurred more frequently than expected. For example, they showed that, while it is expected that only 3% of hotel guests would stay in a standard room and not make any further purchases of food, beverages, or sundries, the data show that over 10% of hotel guests do this. This suggests an opportunity for hotel management to promote extras to these hotel guests.

Emel et al. (2007) used association rule mining to profile domestic tourists in Turkey. Combinations of trip motivations, sociodemographic variables, and accommodation characteristics are analyzed to determine the size of different market segments so that relevant and appropriate marketing strategies can be developed. Other variations of association rules can be found in the literature. Law et al. (2011) used contrast set mining to understand

the differences across a 4-year period in behavioral patterns of outbound travelers from Hong Kong. Different from a priori association, contrast set mining uses multiple datasets to identify patterns between the sets of variables that are significantly different, in this case destination, future trips, trip motivation, and demographic variables. Li et al. (2010) used self-organizing maps to profile international travelers to Hong Kong based on the characteristics of their demographic and trip information while Rong et al. (2012) profiled the demographic and travel characteristics of online experience sharers and travel website browsers.

This research contributes further by looking at the association of different activities that tourists do while on vacation. Pitchayadejanant and Nakpathom (2018) used this data mining approach to understand what combination of activities potential agrotourism visitors would like to do when visiting an orchard. While picking and tasting the fruit was seen as a necessary activity for the agrotourism farm, 41.7% and 41.2%, respectively, stated they would like to couple picking and tasting the fruit with learning how to transform the agricultural product (value-add) and shopping. In contrast to intended behavior as asked by Pitchayadejanant and Nakpathom (2018), the current study explores backpackers' actual behavior.

Backpackers

Travel has become an essential part of postmodern society. There were two broad traditions of travel that evolved into two distinct modes of modern leisure travel. One mode is mass leisure tourism, which took its roots from the Grand Tours of affluent European youth. The other mode is backpacking, which took its lineage from the tramping of working-class youth in search of work and the drifting by the young people of 1960s–1970s alienated from their place of origin, and interested in exploring the world and countercultures (Cohen, 2004).

Who exactly fits into the category of backpackers is not clearly defined (Dayour et al., 2017). Backpackers are typically identified as young leisure travelers motivated by exploring the world and learning about local cultures, who travel for extended periods of time, patronize budget

accommodation, carry backpacks, and congregate together with like-minded travelers in backpacker enclaves (Chen et al., 2014; Nok et al., 2017). However, the boundaries for each of these categories are not clear. At what age does one stop belonging to the backpacker category? Do backpackers always need to stay in hostels and budget accommodation? The assertion that backpackers interact a lot with local residents and patronize local businesses has been challenged as well (Cohen, 2018).

Traditionally, backpackers were predominantly from Western/European backgrounds (Noy, 2004; Westerhausen & Macbeth, 2003). However, studies have shown that backpackers from different nationalities and cultures have different characteristics (Enoch & Grossman, 2010). With the emergence of Israeli and Chinese backpackers with their own unique characteristics, the definition of what makes a backpacker is being questioned (Bui et al., 2014; Zhang et al., 2018). For example, Israeli backpackers have a collective orientation, travel in groups, and have a tendency to ignore locals and people of other nationalities (Maoz, 2007). The emergence of Chinese backpacking in the 1990s corresponded with the growth of the internet in China. Similar to the traditional conceptualization of backpackers, Chinese backpackers are detached from home centers and seek alternative lifestyles. However, this budget form of travel (e.g., staying in hostels) is less reliable as an identifier of Chinese backpacker characteristics as they have a tendency to spend more than traditional backpackers with connectedness and dependence on the internet a more important characteristic of this market (Ong & du Cros, 2012). Another feature of Chinese backpackers, as with Israelis, was their collective cultural values and preference for traveling in groups and searching for travel companions online. As with the backpacker market elsewhere, Chinese backpacking also suffered from institutionalization and integration into the traditional tourism industry (Zhang et al., 2017).

How backpackers self-identify is not straightforward, but open to continuous negotiation and reconstruction (Zhang et al., 2017, 2018). As backpacking had diversified, there is great variation in terms of budget, length of travel, and differentiation from the mass tourism market (Germann Molz & Paris, 2015; Sørensen, 2003). While previously

backpackers tended to physically locate within the same geographic area or enclave, with the advancement of the internet backpacker enclaves appear to have lost their relevance (Iaquinto, 2020). In Cairns, Australia, backpackers spend most of the time outside hostels in an activity enclave around the Esplanade (a promenade, artificial public swimming pool, and restaurant precinct), rather than in accommodation for backpackers. The need to congregate physically to share information and socially connect has been reduced due to the ubiquitous use of the internet and mobile phones (Visser, 2004). Today, most travel information can be found online, and the sense of connection provided through maintaining contact with parents, family, and friends can be achieved through online groups such as Facebook, Messenger, and Instagram (Germann Molz & Paris, 2015; Rosenberg, 2019).

Rosenberg's (2019) study of the high-budget backpackers discussed the choices backpackers make in the search for "off-the-beaten track" experiences by trying to reduce their use of cellular phones when on holiday. Their motivations for "escapism, independence, detachment, authenticity and the construction of a new identity" (Rosenberg, 2019, p. 125) are shaped by the degree of connectivity via their cell phone. Backpackers have the option to choose their level of contact or detachment and consequently can "decompress, contemplate, experience, and redefine element of their personal, familial, social and cultural identities" (Rosenberg, 2019, p. 126).

Flashpackers are a subset of the traditional backpacker market, who are a little older, generally professionals taking a break from their careers, with higher budgets, who demand higher levels of comfort and quality, and choose active holidays of up to 6 months in length, which include experiencing indigenous local cultures (Germann Molz & Paris, 2015; Jarvis & Hobman, 2006). They are "digital nomads" who backpacked by choice, mediating their travel experience with communication technologies, in the form of mobile devices (Hannam & Diekmann, 2010; Paris, 2012). Their use of mobile technology allowed them to maintain an independent lifestyle while working from anywhere they can access the internet (Paris, 2012; Rosenberg, 2019). Flashpackers are an important potential niche market for Fiji and the local industry should

seriously consider their motivations and demands (Jarvis, 2011).

As a result of the heterogeneity of backpackers, their expenditure also varies. Sociodemographic characteristics, travel characteristics, and trip motivation all play a role in describing backpackers (Dayour et al., 2016). The extent to which backpackers' travel behavior and expenditure differ from mainstream tourism may vary by destination. For example, backpackers' behavioral and spending patterns are very different from the mass tourists of Hong Kong (Nok et al., 2017)—that is, they are budget travelers (Riley, 1988) that to a higher extent patronize the local businesses and rural attractions of Hong Kong.

Tourism in Fiji

Tourism was the main driver of economic activity and direct foreign investment in Fiji (Kumar et al., 2019) and represented about 40% of foreign exchange and an estimated 26% of gross domestic product (GDP) in 2019 (SPTO, 2021). Prior to the COVID-19 pandemic and the closing of Fiji's borders in March 2020, Fiji had a global tourism brand, and a well-developed tourism sector that employed over 118,000 Fijians who comprised 36.5% of Fiji's total labor force (Ministry of Industry Trade and Tourism Fiji, 2019) with international tourist arrivals reaching 894,389 in 2019 (SPTO, 2021).

Although the service-driven economy was heavily impacted by the lockdowns and border closures as a result of COVID-19, with the recent border opening on December 1, 2021, Fiji is considered well-positioned to resume its place as a leading regional tourist destination as long as the borders remain open and COVID-19 is kept under control (The Pacific Private Sector Development Initiative [PSDI], 2021). At least 80% of accommodation in Fiji is on Viti Levu, the main island, with an additional 11% of accommodation being found on the nearby Yasawa and Mamanuca island groups. Annual occupancy was strongest in the tourist hubs of Nadi and the Coral Coast, which exceeded 60% per year. In comparison, outer islands and niche destinations had a 23% occupancy rate in 2019. Fiji's occupancy rates are seasonal with the peak season being during July–September (62% in

2019) and low peak during the months of January–March (47% in 2019) (PSDI, 2021). With regard to the backpacker/budget market, anecdotal evidence states that many smaller budget resorts in the Mamanuca and Yasawa groups are still closed and unlikely to open until late 2022 or early 2023. The Mamanucas and Yasawas are island groups off the coast of Nadi, and receive the largest numbers of backpackers, with the Yasawas having the longest length of stay (Jarvis & Hobman, 2006).

The size of the backpacker market in Fiji was estimated at 60,000 visitors, who spent about F\$100.2 million, staying over 736,500 nights and spending on average FJ\$105 a night (Jarvis, 2011). Jarvis (2019) also identified the existence of the higher yielding flashpacker market, which spent an average of F\$130 a day, and were likely to be professionals traveling on a “career break” or holiday. Unlike Fiji’s main tourism markets of Australia and New Zealand, the backpacker/independent traveler segment is dominated by visitors from Europe (UK, 30.3%; Germany, 14.0%; and Nordic countries, 6.4%), then followed by North Americans (US, 9.2% and Canada, 4.8%) and Australia/New Zealand (14.0%) (Fig. 1). The backpackers/independent travelers surveyed by Jarvis and Hobman

(2006) were on a multideestination, extended trip of about 164 days. Their stay in Fiji represented about 7.5% of their total nights away from home. The majority of these travelers were on “Round the World” tickets (53%) on either Air Pacific (now Fiji Airways) or Air New Zealand, visiting Fiji as part of a trip that also included Australia and/or New Zealand. They were predominantly under 40 years of age (96%), more likely to be female, and highly educated (66% having some sort of tertiary qualification). Thirty percent of backpackers were on return flights from Australia or New Zealand. About one in five (21%) were on a working holidaymaker visa for these countries, and 14% were on student visas. This confirms that Fiji, along with Australia and New Zealand, had been integrated into the “South Pacific circuit.” Sixteen percent decided to visit Fiji as a side trip, while they were “on the road” from Australia or New Zealand. Only 47% of travelers interviewed considered themselves “backpackers,” with 24% describing themselves as “independent travelers” (Jarvis & Hobman, 2006). The term “backpacker” seemed to be losing credibility among travelers with many admitting to “backpacking” but did not refer to themselves as “backpackers.” The main information source was

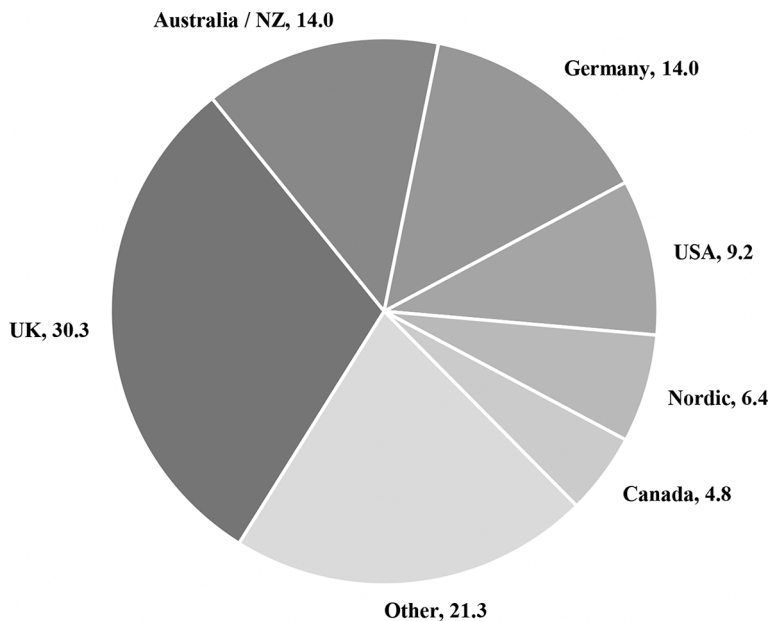


Figure 1. The backpacker market in Fiji by source country. Source: Reproduced with permission from Jarvis (2019).

word of mouth both pre- and postarrival in Fiji. Many travelers found it difficult to gather information on travel in Fiji and thought the product expensive while 91% of the sample thought the Fijian people friendly and welcoming, and would recommend Fiji to friends (82%).

Sroyetch's (2016) study of the mutual gaze of backpackers and host perceptions of the impact of tourism in the Yasawa Island Group in Fiji revealed backpackers seemed unaware of their impacts on communities in the Yasawas whereas the hosts agreed that backpackers brought both positive and negative impacts to the community (Sroyetch, 2016). Perceived positive impacts included employment, foreign exchange, and resurrection of culture while negative impacts included changes in diet, dress codes, increased consumption of alcohol and smoking, and a deterioration in family and religious values and traditional relationships. These results corroborated the findings of Gibson's (2012) study of the cultural challenges faced by indigenous backpacker resorts on Wayalilai Island in the Yasawa Island Group.

Findings from the Fiji studies confirmed an interest in indigenous Fijian culture, and traveling to "off-the-beaten track" remote rural destinations, such as the Mamanuca and Yasawa Island Groups, as long as suitable information, accommodation, and transport links existed (Jarvis, 2019). Considering all the above, this study aimed to contribute to the understanding of contemporary backpacker/flashpacker travel behavior in what can be considered an established backpacker/flashpacker location—Beachcomber Resort, Fiji.

Case Study: Beachcomber Resort in Fiji

Beachcomber Island Resort on Tai Island in the Mamanuca Group in Fiji was originally built by Dan and Jessie Costello in the 1960s and sold in 2008 to Brendan and Anu Hannon who also own Funky Fish and Anchorage Beach Resorts in Fiji. The island is 6 acres with traditional landowners being the Nakelo Clan of Vuda. It has about 70 staff (47 in low season) and sleeps about 500 guests in dorms, lodges, and beachfront bures. There is no natural water source, and all water is provided by a desalination plant. The island is surrounded by a marine protected area and is a nesting place for turtles and *bici* (flightless

birds). The island resort is a key attraction for guests in search of a "sun, sea, and sand" party experience. Beachcomber positions itself as an ecofriendly island backpacker resort catering for the international backpacker/youth/career GAP/budget and cruise tourism "day tripper" market in Fiji and promoted to the "young at heart" as a "party island" (Beachcomber Resort Manager, Personal communication, 2019). All meals are buffet style and served on communal tables with staff and local entertainers providing cultural entertainment at the weekend. The island is 40 min from Port Denarau, Nadi, and is accessible daily on trips by South Seas Cruises, their own boats, and other sea transport companies.

Beachcomber Island resort was selected as the case study as it is a well-known "party island" and popular destination for backpackers and flashpackers visiting Fiji (Bergin, 2020). Beachcomber was one of the first islands in Fiji that was established as a backpacker-oriented resort (Connell, 2016). The resort is emblematic of the development of backpacking in Fiji over the past 40 years.

Conceptual Framework

The choices an individual backpacker makes about the bundle of activities they participate in while on holiday can be conceptualized using the Gorman–Lancaster characteristics framework (Lancaster, 1966; Stabler et al., 2010, p. 36). Within this rational consumer framework, tourists are assumed to maximize their utility subject to their budget constraint (Papatheodorou, 2001). The backpacker's trip represents their demand to participate in specific activity characteristics rather than all activities available (Wang et al., 2017). Those specific activity characteristics might be scuba diving, shopping, village tours, etc.

In the simplified model shown in Figure 2, suppose we consider two categories of activities: active cultural activities on the x -axis and adventure sports on the y -axis. D_1 , D_2 , and D_3 represent three different combination of bundled activities that backpackers can undertake on their trip. r_1 , r_2 , and r_3 represent the different ratios of adventure sports and active cultural activities that a backpacker can choose. A backpacker choosing the ratio r_1 prefers to do more adventure sports than active cultural activities compared to the ratio presented

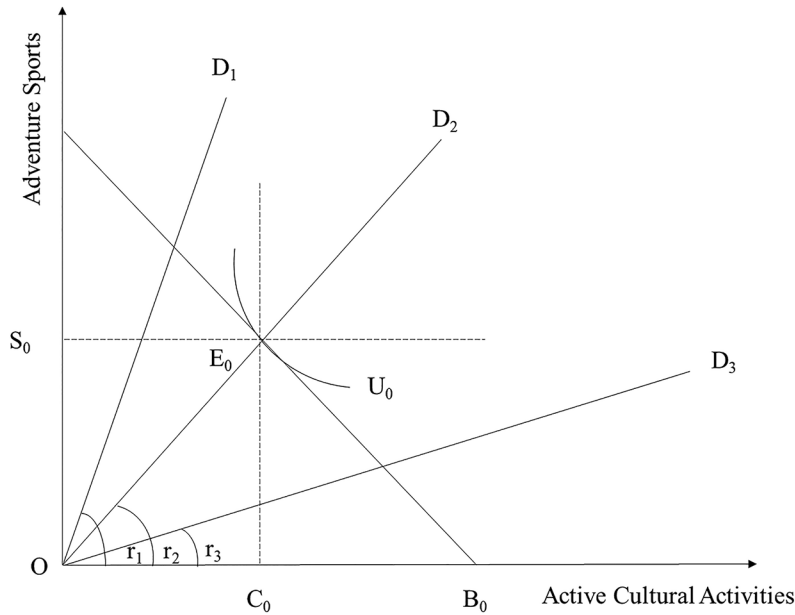


Figure 2. Backpacker's preference toward bundles activities.

in r_2 and r_3 where more active cultural activities are chosen. The expected utility level is represented by U_0 in Figure 2. The backpacker's budget constraint is represented by B_0 and may include both financial and time constraints. Given their budget constraint, the backpacker chooses the combination of adventure sports and active cultural activities (e.g., D_2 , to maximize their utility). At the equilibrium, E_0 , where the utility curve, U_0 , is tangential to the budget constraint, the amount of adventure sports participated in is S_0 and the amount of active cultural activities is C_0 .

Each backpacker has different preferences in terms of what activities to participate in. Some backpackers may prefer to do more adventure sports. Some may prefer to do more cultural activities. Some may prefer to do an equal amount. The features for each backpacker's preference toward different combinations of activity characteristics will determine joint activity demand.

Methodology

To achieve the research objectives of this article, it was necessary to undertake a quantitative methods study using a survey instrument (Creswell, 2009).

However, we believe that while empirical observation is important, the reality can only be observed imperfectly. Thus, we approach the topic from a postpositivist stance. A pragmatic mixed method research that combines qualitative interviews with quantitative surveys could have been another option for investigation of backpacker behavior. However, that would deviate from one of the objectives of this study, which is to explore the efficacy of a market basket analysis in understanding consumer behavior. In other words, we aim to demonstrate that market basket analysis provides valuable insights into (in our case) backpacker behavior with a relatively simple research instrument: a single questionnaire.

Survey Instrument

A six-page questionnaire was developed to capture the information needed to address the research objectives. The questionnaire was segmented into four main pages. The first section captured data on the backpacker's demographics and travelgraphics. Demographic questions included age, gender, occupation, country of origin as well as the country of residence, education level, annual income, and frequency of taking a holiday. The travelgraphic

questions captured details about the backpacker's current trip to Fiji. Data were obtained on the purpose of the trip, length of stay, travel party, booking methods, and sources of travel information. The second section of the questionnaire captured activities that the backpacker undertook while in Fiji. A list of 22 different activities was provided to backpackers. These activities included a range of cultural, natural, and human-made activities, both paid and free. The third section of the survey instrument captured information on the importance and performance of a range of experiences at the backpackers' island, Beachcomber Resort. Importance responses were captured on a 7-point Likert scale where 7 denoted *extremely important* and 1 denoted *not important at all*. Performance was also captured on a 7-point Likert scale where 7 was *extremely satisfied* and 1 stood for *extremely dissatisfied*. Respondents were asked about different components of accommodation, such as the physical design/environment and service. They were also asked about different elements of the restaurant, such as the environment, the atmosphere, the service and food, and beverages. The last section asked about backpackers' overall experience; what they liked the best, what they disliked, and areas for improvement. Backpackers were asked if they would recommend the resort and if they would return to Fiji for a future visit. These last two sections were not analyzed for this research but were used to provide feedback to the resort management to help them improve their services to guests. The questionnaire was pretested with university students and backpackers who had previously visited the backpacker resort. Several small changes in phrasing and terminology were done for improved comprehension.

Sampling and Sample

Researchers from the local university have had a long-standing relationship with Beachcomber Island Resort as they have been taking university students on field trips to the island for many years. With this trust, resort management gave approval to conduct the research. The researchers gained permission from Resort management to carry out the research. As a courtesy, at the conclusion of the research, results were shared with Resort

Management to enable them to improve their service and offerings to their guests. Face-to-face intercept interviews using the survey instrument described above was the method of data collection. Student helpers who were on the island for field trip as part of their university course were requested to politely intercept backpackers staying on Beachcomber Island Resort. Interviews were conducted predominantly at the tables in the restaurant. Respondents took an average of 8 min to complete. The interviewers approached the potential respondents and explained to them the purpose of the research, informing them they were under no compulsion to complete the survey and could terminate the survey at any time. The researchers verified the questionnaire for completeness in situ. The researchers aimed to obtain over 200 completed questionnaires, to ensure robust results. At the end of 2019, there were 223 completed questionnaires. This gives a maximum sampling error, at a 95% level of confidence, of $\pm 6.6\%$.

Table 1 shows the demographic profile of the sampled backpackers. While some characteristics of backpackers have changed, other characteristics have remained constant since the time of Jarvis and Hobman (2006). As with Jarvis and Hobman (2006) and Sroyetch (2016), there were more females than males. Almost three quarters (72.4%) of those who were sampled were in their 20s with 17.2% being 30 years or older. As such, over a third (34.0%) have an annual income of US\$20,000 or less. Over one in five backpackers (22.6%) have an annual income of US\$60,000 and above, suggesting a segment of these backpackers have characteristics of flashpackers. Almost half (45.8%) have or are currently studying for a Bachelor's degree and almost another quarter (22.2%) have or were studying for a postgraduate degree, in line with Jarvis and Hobman (2006). Two in five (40.2%) backpackers took an annual trip with a similar proportion (39.3%) taking two trips a year. Whereas Jarvis (2019) noted the largest source market was UK (30.3%), in this study, the highest proportion of backpackers were from Fiji's largest source markets of Australia (16.6%) and New Zealand (13.5%), with backpackers from the UK also well represented (15.7%). Often European and Asian backpackers visited the Pacific after completing a working holiday in

Table 1
Profile of Backpacker Respondents

Characteristic	Total
Gender	
Female	69.9%
Male	30.1%
Age (years)	
18–20	10.4%
21–24	41.6%
25–29	30.8%
30 or older	17.2%
Income (\$US)	
Under \$20,000	34.0%
\$20,000–\$39,999	21.1%
\$30,000–\$59,999	22.2%
\$60,000–\$79,999	11.3%
\$80,000 or above	11.3%
Education level	
High school or less	12.0%
Two-year college (diploma)	15.3%
Four-year college (degree)	45.8%
Postgraduate degree	22.2%
Other	4.6%
Frequency of holidays	
Once a year	40.2%
Twice a year	39.3%
Three times a year	11.4%
Four or more times a year	9.1%
Country of origin	
Australia	16.6%
UK	15.7%
New Zealand	13.5%
Canada	8.5%
US	8.1%
Fiji	6.7%
Germany	5.8%
Japan	5.4%
Other	19.7%
Country of residence	
Australia	200.2%
New Zealand	17.0%
UK	13.0%
Fiji	9.9%
Canada	8.5%
US	8.5%
Germany	5.4%
Japan	4.9%
Other	12.6%

Australia and New Zealand. This was the reason why the country of residence selection was higher for Australia and New Zealand, compared to backpackers' country of origin.

Table 2 shows the travel characteristics of the sampled backpackers. The main purpose of the trip was for rest and relaxation, although a smaller cohort sought adventure (8.6%) and a similar proportion

Table 2
Travel Characteristics of Backpackers

Characteristic	Total
Purpose of trip	
Rest & relaxation	68.8%
Seeking adventure	8.6%
Education	8.1%
VFR	5.9%
Weddings & honeymoon	1.8%
Business	0.9%
Other	5.9%
Length of stay	
1–7 days	45.8%
8–14 days	28.8%
15–21 days	10.8%
More than 21 days	14.6%
Mean: 19.75; median: 10	
Travel reservations to Fiji	
Travel agent	51.4%
Internet	36.8%
Third Party	4.5%
Telephone	0.5%
Other	6.8%
Travel party	
Independent	27.4%
With partner	25.6%
Packaged tour/group	22.4%
Family	6.8%
South Sea cruise package	4.6%
Other	13.2%
Source of travel information	
Internet	58.1%
Word of mouth	28.6%
TripAdvisor	18.9%
Travel guides	18.0%
Lonely Planet	16.1%
Friends & relatives who have been to Fiji	13.8%
Facebook	13.8%
Tourism Fiji website	12.4%
Friends & relatives in Fiji	10.1%
Visitor information desk	7.4%
Magazines, news, TV	2.3%
Other	4.6%
Method of hotel accommodation reservation	
Travel agent	43.6%
OTA	17.7%
Direct on the resort website	8.6%
Telephone	6.4%
Via tourism Fiji website	4.1%
Walk-in	4.1%
Information desk (e.g., Rosies)	2.3%
Tourism Fiji office at the airport	0.5%
Visit Tourism Fiji information office	0.5%
Other	2.3%

was in Fiji for educational tourism (8.1%). The median length of stay was 10 days, longer than the average tourist to Fiji. Just under half (45.8%) of backpackers stayed a week or less but almost one

in seven (14.6%) stayed more than 21 days. Backpackers took this trip with a range of travel parties. Over a quarter (27.4%) took the trip by themselves and another quarter took the trip with their partner (25.0%). Just under a quarter (22.4%) came on a packaged tour. The main source of travel information was obtained online. While over half of all backpackers cited the internet in general (58.1%), some backpackers specifically highlighted websites such as TripAdvisor (18.9%), Facebook (13.8%), or the Tourism Fiji website (12.4%). Backpackers also sourced information about Fiji via word of mouth more generally (28.6%) or from friends and relatives who had either been to Fiji (13.8%) or were living in Fiji (10.1%). Both travel reservations and accommodation reservations at Beachcomber Resort were relatively evenly split between travel agents and online methods.

Data Analysis

At the completion of data collection, data from the paper questionnaires were manually entered into SPSS for further analysis. To demonstrate how market basket analysis can complement other marketing research techniques, we undertook exploratory factor analysis to uncover the underlying dimensions of the different activities that backpackers do while in Fiji. Taking those factors, we then ran a market basket analysis to examine which groups of activities were done together. The statistical software package, RapidMiner, was used to run the market basket analysis. This software is one of the more common programs to run this type of analysis (Petrović et al., 2021). Lastly, we conducted a cluster analysis and profiled the types of backpackers that undertook these groups of activities. This provided tourism marketers with a more complete picture of the types of activities backpackers undertook. This more complete picture shows what activities backpackers like to do jointly on their trip. Tourism operators can then bundle the most attractive offerings for different subsegments of the backpacker market.

Market Basket Analysis

The most popular algorithm for conducting market basket analysis is the a priori algorithm method, which provides a set of association rules (Agrawal et al.,

1993). Association rules have three reliability measures: support, confidence, and lift. Support indicates how frequently the group of items appear together (Arreeras et al., 2019). Support can be represented in set notation as $P(A \cap B)$, or $\frac{\text{Frequency}(A, B)}{N}$ that

is, the interaction of product A and product B . A high level of support means that product A and product B occur frequently together. Confidence indicates the conditional probability of a product being purchased, given another product is purchased. This relationship can be represented as $P(B|A)$ or denoted as the probability of B given A . Confidence measures how strong an association rule is. Lift is the ratio of confidence to expected confidence. Lift (termed “improvement” by Wong et al. (2006)) signifies the improvement or how much better the rule is at predicting the association than the initial assumption. The larger the lift ratio, the stronger the relationship between products A and B (Arreeras et al., 2019). When the lift is greater than 1, product A and product B have a positive purchasing relationship. When the lift is less than 1, product A and product B have no significant relationship. The mathematical formula is:

$$\text{Lift}(A, B) = \frac{\text{Confidence}(A, B)}{\text{Expected Confidence}(A, B)} = \frac{P(A \cap B)}{P(A) \cdot P(B)}$$

Findings

Backpackers who visited Beachcomber Resort are extremely satisfied with their visit overall. In terms of willingness to recommend Beachcomber Resort to colleagues, friends, and relatives, 99.0% are willing to do that. Further, 87.7% of backpackers state they have revisit intentions to Fiji. Overall backpackers to Beachcomber Resort report a great experience.

Factor Analysis

Backpackers were asked, out of a list of 22 activities, which activities they participated in and their satisfaction with these activities. To assess different groups of activities, a principal components analysis with varimax rotation was implemented to determine the underlying structure of these groups of activities. Using a cut-off of eigenvalues greater than 1, a six-factor solution was produced. The six

factors cumulatively accounted for 60.57% of the total variance. The Kaiser–Meyer–Olkin (KMO) statistic was 0.82 and Bartlett’s test of sphericity was statistically significant (<0.001), meeting the appropriate criteria (Hair et al., 2010).

Table 3 shows the individual activities that backpackers participated in and were satisfied with, as well as what factors each activity loads under. Six factors have been uncovered, which we termed: Adventure Sports; Shopping & Restaurants; Passive Cultural Activities; Active Cultural Activities; Land-Based Nature Activities; and Water Activities. Cronbach alphas are calculated as a measure of internal reliability. A Cronbach alpha of 0.6–0.7 is generally recognized as an acceptable level of reliability, with a Cronbach alpha of 0.8 or greater being very good (Hulin et al., 2001). The Cronbach alphas for this factor analysis ranged between 0.636 for Water Activities and 0.842 for the Passive Cultural Activities factor. The factor loadings, which show the strength of the relationship

between the factor and the items, are generally above 0.5. Several factor loadings were between 0.4 and 0.5, which is deemed acceptable (Guadagnoli & Velicer, 1988). Furthermore, these items make intuitive sense to load onto these factors.

As can be seen, some of the activities are free and other activities need to be paid for. A high proportion of backpackers participated in the free activities such as seeing the natural attractions (81.6%) and sunbathing (80.3%), as well as experiencing activities that were included as part of the basic accommodation package [tasting local food (90.6%), snorkeling (87.0%), experiencing the Cultural Fijian (75.3%) and Polynesian (61.0%) performances]. Overall satisfaction across all activities was generally high, as shown as a mean score out of 5 on a Likert scale. Backpackers are most highly satisfied with activities related to water-based activities and cultural performances and land-based nature activities. They are least satisfied with horse riding, visiting museums, and shopping

Table 3
Participation, Satisfaction and Factors of Activities

	Participation	Satisfaction	Cronbach’s Alpha	Factor Loading
Adventure sports			0.813	
Game fishing	52.0%	3.80		0.678
Horse riding	44.4%	3.29		0.659
Parasailing/jet skiing	54.3%	3.92		0.656
Scuba diving	58.7%	4.09		0.591
Sailing	55.6%	3.90		0.555
Shopping & restaurants			0.822	
Shopping for T-shirts/sarongs	68.6%	3.76		0.807
Shopping for souvenirs & handicrafts	68.2%	3.78		0.769
Shopping for local books	56.1%	3.68		0.703
Restaurants	80.3%	4.28		0.500
Tasting local food	90.6%	4.29		0.499
Passive cultural activities			0.842	
Visit cultural centre	45.7%	3.82		0.836
Visit handicraft markets	60.5%	3.94		0.740
Visit museums	41.3%	3.66		0.677
Active cultural activities			0.727	
Cultural Polynesian performance	72.2%	4.39		0.747
Cultural Fijian performance	81.2%	4.48		0.593
Village tours	62.8%	3.74		0.541
Kava Ceremony	70.0%	4.05		0.423
Land-based nature activities			0.720	
Wildlife, nature, bird watching	62.3%	4.02		0.827
Treks & walks	65.0%	4.12		0.692
Water activities			0.636	
Sunbathing	80.3%	4.50		0.726
Snorkeling	87.0%	4.49		0.647
Natural attractions	81.6%	4.51		0.578

for local books with such experiences leaving room for improvement.

Market Basket Analysis

Market basket analysis reveals which combinations of activities are popular. This can help backpacker resort management to bundle activities appropriately. Given that some of the activities are free and backpackers engage in a wide range of activities, we identify the item sets with a relatively high threshold level of support. We then specify the rules that meet the threshold of confidence and lift that determine the most popular item sets. The minimum confidence threshold is set at 0.75 while the minimum lift threshold is set at 1.00. Table 4 shows some of the item sets that meet these minimum thresholds.

Backpackers want to do a range of activities while they are on vacation. This includes both free and paid attractions. Several popular bundles are similar (Table 4). Backpackers undertake water-based activities, such as snorkeling and swimming, and land-based activities, such as experiencing cultural performances and tasting local food. This bundling suggests that backpackers seek a variety of activities. They desire a local experience, such as trying a *lovo* (an underground oven used to cook food in the traditional Fijian way) and to see cultural performances such as *meke*. A *meke* is the traditional style of dancing in Fiji and is often performed during celebrations and festivals. These activities ignite the visual and gustatory senses, so when coupled with the physical activities of swimming and snorkeling, backpackers can have a holistic holiday experience.

In terms of interpretation, support shows the percentage of activities that contain all of the items in

an item set. The higher the support the more frequently the item set occurs. For example, 53.8% of the sample participate in water activities, land-based nature activities, and active cultural activities. Confidence shows the probability that the bundle of activities that contains the premise items also contains the item in the conclusion items. The higher the confidence, the greater the likelihood that the item on the right-hand side (Conclusion) will be purchased or, in other words, the greater the return rate you can expect for a given rule. As noted above, a Lift greater than one suggests that the presence of activity or set of activities increases the probability that another activity or set of activities will also occur on the trip. The larger the lift the greater the link between the two (sets of) activities.

Given that the Adventure Sports (game fishing, parasailing/jet skiing, scuba diving, etc.) and Shopping & Restaurants are paid activities that can be offered to backpackers, tourism operators can then see which set of activities backpackers are also doing and bundle the activities together or provide offers to this market. In Table 4, row 2, backpackers who undertake Land-Based Nature Activities and Passive Cultural Activities (which tend to be of lower value or free) also are interested in doing Adventure Sports, which operators can offer at a significant price. The bundle of activities shown in Table 4, row 6 has a lift of 1.343, meaning there is an association with all these activities. As we will see, this set of activities aligns with Cluster 1 below. This is how tourism marketers can use the market basket analysis.

Cluster Analysis

Having grouped similar activities via factor analysis and using market basket analysis to examine

Table 4
Selection of Activity Associations

Premise	Conclusions	Support	Confidence	Lift
Water activities, Land-based nature activities	Active cultural activities	0.538	0.938	1.106
Land-based nature activities, Passive cultural activities	Adventure sports	0.274	0.884	1.314
Water activities, Passive cultural activities	Adventure sports	0.350	0.857	1.274
Land-based nature activities, Passive cultural activities	Shopping & restaurants, Adventure sports	0.260	0.841	1.399
Active cultural activities, Passive cultural activities	Shopping & restaurants, Adventure sports	0.318	0.780	1.298
Water activities, Active cultural activities, Land-based nature activities, Passive cultural activities	Adventure sports	0.251	0.903	1.343

Table 5
Backpacker Activity Clusters (Means)

	Factotum (<i>N</i> = 152)	Cultural Adventurers (<i>N</i> = 18)	Fly & Flop (<i>N</i> = 53)	<i>F</i> Statistic	<i>p</i> Value
Share of respondents	68.2%	8.1%	23.8%		
Adventure sports	0.84	0.89	0.13	77.929	<0.000
Shopping & restaurants	1.00	0.00	0.77	197.664	<0.000
Passive cultural activities	0.53	0.44	0.15	12.855	<0.000
Active cultural activities	0.97	0.94	0.45	66.38	<0.000
Land based nature activities	0.78	0.67	0.09	57.8	<0.000
Water activities	0.95	0.89	0.94	0.669	0.513

the groups of activities that are undertaken jointly, we are then able to segment and profile the types of backpackers who did different activities. We do this via cluster analysis. A two-step cluster analysis involves first performing a hierarchical cluster analysis based on the squared Euclidean distance (Del Chiappa et al., 2018; Pratt, 2022). The squared Euclidean distance measure gives more weight to items that are farther apart. The agglomeration schedule and the dendrogram plot (not shown) were examined. A dendrogram is a diagram that shows relationships between similar sets of data. The large steps in the diagram indicate distinct cluster solutions. The dendrogram suggested three clusters. The second step in the cluster analysis is performing k-means cluster analysis with a three-cluster solution. K-means clustering extracts a set number

of clusters with the aim to maximize variability between clusters and minimize variability within clusters (Hair et al., 2010).

Table 5 reports on the three clusters. The first cluster, comprising over two thirds (68.2%) of the sample, could be termed “factotum.” A factotum is a person having many diverse activities or responsibilities. These backpackers participate in many different activities. There is high participation in shopping and restaurants, adventure sports, and active cultural activities. The second cluster, termed Cultural Adventurers, also has a high incidence of participating in adventure sports and active cultural activities but they are not likely to go shopping or seek out local foods. This cluster makes up 8.1% of the total sample. The last segment, Fly & Flop, is more passive. They comprise

Table 6
Profile of Backpacker Activity Clusters

	Factotum	Cultural Adventurers	Fly & Flop	<i>F</i> Statistic	<i>p</i> Value
Gender				1.296	0.276
Females	72.8%	55.6%	66.7%		
Males	27.2%	44.4%	33.3%		
Age (years)				1.466	0.233
18–24	48.7%	50.0%	62.3%		
25 or older	51.3%	50.0%	37.7%		
Income				0.443	0.643
Up to \$39,999	57.0%	56.3%	48.8%		
\$40,000 or more	43.0%	43.8%	51.2%		
Education				0.274	0.761
High school or diploma	30.7%	38.9%	33.3%		
Degree or above	69.3%	61.1%	66.7%		
Country of origin				0.460	0.632
Australia	16.4%	11.1%	18.9%		
UK	13.8%	22.2%	18.9%		
New Zealand	12.5%	27.8%	11.3%		
Other	57.2%	38.9%	50.9%		

almost a quarter (23.8%) of the backpacker market in the study. They have a low incidence of participating in adventure sports and land-based nature activities and a relatively low incidence of participating in cultural activities, either passive or active. Common across all segments is the high incidence of participating in water activities, such as, sunbathing, snorkeling, and natural attractions.

Having segmented backpackers by activities, we then examine the demographic characteristic of these clusters. Interestingly, there are no statistically significant differences in the demographics for the three groups (Table 6). This finding adds weight to the argument that demographics may not be the most appropriate way to segment the backpacker market. Behavioral segmentation—that is, analyzing what backpackers do rather than their demographics—may be a better way to categorize them. This finding contributes to ongoing debates on market segmentation in tourism. While Dolnicar et al. (2018) advocated a posteriori data-driven segmentation, McKercher et al. (2023) found that a priori geographic segmentation was the most efficacious technique in the case of Bali. Both Dolnicar et al. (2018) and McKercher et al. (2023) noted that there is no “one size fits all” when it comes to market segmentation and different contexts are likely to result in different market segmentation techniques yielding more useful outcomes.

Discussion and Conclusions

This study demonstrates the use of market basket analysis and how it can be used to investigate the current travel behavior and preferences of backpackers in Fiji.

Contributions to Knowledge

In terms of contribution to knowledge, as noted in the literature, the use of market basket analysis has been underutilized in tourism and hospitality research (Solnet et al., 2016). By using the Gorman–Lancaster characteristics conceptual framework, this research shows how this type of analysis can be used to uncover the types of activities backpackers jointly undertake while on their trips. The activities and attractions that tourists

participate in are often examined in isolation. Market basket analysis can shed light on activities that tourists participated in throughout their trip. Previous research using market basket analysis focused on attractions that tourists visit (Arreeras et al., 2019; Vavpotič et al., 2021). In contrast, tourists’ activities are the focus of this research. Activities have received little attention in the market basket analysis literature to date. This behavior-based segmentation is an approach that is distinctive from the more common demographic-based segmentation.

Methodologically, this research contributes to the literature by demonstrating how market basket analysis can be used to determine joint demand. Market basket analysis has previously been used to examine combinations of products consumed jointly. It can also be applied to activities tourists participate in on their trip. By examining joint demand of different activities, market basket analysis can be used in conjunction with the more frequently used factor analysis and cluster analysis. Together, these techniques can be used to assess the combination of activities backpackers do on the same trip and backpackers can be segmented based on these activities so that tourism operators can bundle activities together to target different types of backpackers. In the future, other researchers can build on this work by examining other markets or other contexts.

The research also contributes to a better understanding of backpackers. We segmented backpackers on the basis of different groups of activities they participated in. This contrasts with how backpackers are often segmented by their travel behavior—that is, length of stay, accommodation choices, social behavior, and use of ICTs (Dayour et al., 2017; Germann Molz & Paris, 2015; Rosenberg, 2019). Backpackers are primarily hedonic, in that they are seeking rest and relaxation on their trip to Fiji. The largest segment is the factotums, who want to participate in a wide range of activities. Tourism operators would be advised to offer products that cater to these needs. It would be inaccurate to say they are cultural tourists or nature-based tourists, as they aim to have a holistic experience by combining various activities. Furthermore, this research has shown that segmentation by demographics may not be very suitable for this tourism market and behavioral segmentation might be more

appropriate. Segmentation by demographics may be too blunt a tool for effective marketing.

Contributions to Practice

Overall, the present study does not suggest backpackers who come to Beachcomber Resort are coming to Fiji for niche tourism activities. They are interested in local culture, but the depth of cultural experience is not explored extensively in this study. This conforms with the suggestion by Cohen (2018) that while backpackers' origins are in the drifting of alienated working-class youth, backpackers are much closer in their current behavior to the mass tourist market. Beachcomber Resort continues to have an image of a "must see," "party" place for backpackers visiting Fiji (Bergin, 2020). Thus, this case does not demonstrate any change in the prominence of backpacker enclaves, and there is no separation of meaning between various backpacker places as in research by Iaquinto (2020). The activities identified through the analysis are also complementary and thus can be emphasized on social media and TripAdvisor, the most commonly used promotional materials (Taecharungroj & Mathayomchan, 2019). Tourism resorts and operators offering activities can bundle activities that are included in the basic package with those that are offered at an additional cost. Those activities offered at an additional cost are often adventure activities that backpackers like to participate in. This demonstrates the applicability of market basket analysis to management decisions.

Limitations and Areas for Future Research

This research has several limitations that provide stimuli for future research. The study is limited to one resort. Future research could investigate backpacker behavior throughout the Pacific Islands region to determine how generalizable the results of this research are. Different Pacific Islands have some commonalities as well as some differences (Pratt, 2013). It would be of interest to the respective destination marketing organizations to understand to what extent their destination is a substitute or complement for backpackers to other Pacific Islands. The data were collected before the COVID-19 pandemic. As such, there may be a

shift in attitudes and preferences among backpackers, given some evidence that certain tourists have an increasing need for more remote vacations and there may be a heavier emphasis on health and sanitation. Further, our insights and recommendations may be treated with some cautions given the uncertainties surrounding the postpandemic era and the extent to which the backpacker market will change. Future research to understand how these tourists have changed postpandemic could be an area for further study.

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