Market Segmentation Approaches in Tourism

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Short bio

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THE ROLE OF MARKET SEGMENTATION IN MARKETING PLANNING

Marketing planning is widely acknowledged as critical to the success of organisations. Marketing planning is a process organisations go through which follows a logical sequence and leads to the formulation of objectives, strategies and tactics (McDonald 1982). Denison and McDonald (1995) showed that marketing planning in outstanding organisations occurs at three levels: the cultural level which reflects an organisation’s values and benefits, the strategic level which includes decisions about long-term directions and typically involves the use of tools such as market segmentation and product positioning and the tactical level at which the organisation plans how to best use the marketing toolbox (product, price, promotion and place) to achieve their strategic aims (McDonald 1996).

The marketing planning process is illustrated in Figure 1. It is critical to understand that culture sets the basis for any subsequent strategic marketing planning which, in turn, sets the basis for tactical marketing planning. In practise this is often forgotten and organisations busily prepare tactical marketing plans (where to advertise, what promotions to offer etc.) without knowing what exactly they are aiming for in the long term. This is highly inefficient because products and services are being developed, but it is unclear which tourists they should be customized to, advertisements are being aired, but it is unclear who they are targeted at, which image of the destination they should be conveying and how they should be differentiating the destination from other destinations, etc.

![Figure 1: Levels of Marketing Planning (based on McDonald 1996)](image)

Tactical marketing efforts are much more effective if based on strategy. If a destination, for example, chooses to target families as their key segment, and came to the conclusion during the strategic planning process that it is uniquely suited to serve this segment because of the many attractions available for children, most tactical marketing decisions follow logically (packages could be developed for families including entry to attractions of interest to children,
accommodation in child-friendly hotels, advertisements are likely to emphasize how much fun a family would have at the destination, pricing would reflect family package deals and media planning would ensure that families would be exposed to advertisements). Such targeted tactical marketing means that marketing activities “wasted” on tourists who are unlikely to visit the destination can be avoided, while at the same time communicating a perfectly customized product at the right price using the right communication channels with the right advertising message to the chosen target segment, thus increasing the probability of this segment visiting the destination.

Market segmentation “consists of viewing a heterogeneous market … as a number of smaller homogeneous markets” (Smith 1956: 6) and forms an integral part of the overall marketing planning process, specifically part of the strategic marketing planning process. It is critical to the successful implementation of tactical marketing and therefore it is of utmost importance that market segmentation analyses are conducted correctly by data analysts and understood well by managers. But are they?

MARKET SEGMENTATION IN PRACTICE

Market segmentation analysis is very commonly used in academic tourism research. Zins (2008) for example, notes that five per cent of articles published in seven key tourism journals between 1986 and 2005 were related to market segmentation (Zins 2008). However, a number of authors have noted that there is a substantial theory-practice divide in market segmentation (Dibb 2005; Greenberg and McDonald 1989): academic research on market segmentation and the practical use of market segmentation in industry have little in common. Academic research focuses mainly on the improvement of algorithms at a level of sophistication rarely used by industry, and often ignores key conceptual and practical challenges segmentation data analysts and users in industry face. Users of segmentation studies, on the other hand, appear to blindly trust consulting companies who conduct segmentation studies for them and then report very basic results without any warnings about how segmentation results should be interpreted, and perhaps more importantly, should not be interpreted. As a consequence, suboptimal segmentation studies are regularly used as the strategic basis for marketing.

Empirical evidence for the problems with the use of market segmentation in practice has been provided by Dolnicar and Lazarevski (2009), in an empirical study of 167 Australian marketing managers who stated that they deal with issues of market segmentation in their day to day business. The following key insights are derived from this snapshot of industry practice with respect to market segmentation:

- 40 per cent of participating marketing managers believe that market segmentation is a computation which follows clear, pre-specified rules. This is incorrect. Rather, market segmentation is exploratory by very nature, requiring the data analyst to make a number of crucial decisions in the process (e.g. how many variables are in the segmentation base, which algorithm is used, which distance measure is used, how many segments are created etc.), which have a major impact on the resulting segments.

- 65 per cent of marketing managers surveyed believe that market segmentation only leads to segments if they are actually present in the data. This is also incorrect. The job of a segmentation algorithm is to split objects contained in a data set into groups. The segmentation algorithm will obediently do so, whether or not segments actually exist in the data.
• 70 per cent of managers state that market segmentation reveals naturally existing groupings of consumers. Whilst it is correct that segmentation algorithms will find naturally occurring market segments in the data, such cases are extremely rare in consumer data. More typically no segments exist. If no segments exist, the segmentation algorithm will create some.

• 30 per cent of marketing managers either believe that the number of segments chosen when the market segmentation task was performed does not affect the nature of the segments or are unsure about this. Although this is a minority belief among marketing managers, it is troubling: if the same data set is used to create either five or ten segments, it will clearly have a major impact on the results, making the decision on how many segments to create highly critical to the outcomes of the process.

• 30 per cent of managers either believe that the age of the data does not affect the nature of the segments or are unsure about this. In addition, 27 per cent believe that market segments stay the same over time. Both age and quality of data are critical to a good market segmentation solution. A market segmentation solution aims to provide a snapshot of the market at the time of analysis. Typically, given the time it takes to collect and analyse data, segmentation solutions are already outdated when first presented. Optimally, new data should be collected regularly to ensure no major structural changes have taken place with respect to the targeted segment or segments.

• About one third of marketing managers believe that if a segmentation analysis is repeated, it leads to the same solution. This is incorrect. All segmentation algorithms contain random components and will therefore very likely lead to different results if recalculated.

• Finally: 30 per cent of surveyed marketing managers state that segmentation is independent of positioning and competition, the other two key considerations of the strategic marketing planning phase. This is a matter for concern because optimal segments can only be selected when the positioning or intended positioning of the organisation or destination is known, and when it is clear what the competitive pressures are for the segments under consideration for targeting.

It is also interesting that 38 per cent of the surveyed marketing managers report that they use external consultants to run their segmentation studies, and only 32 per cent run their own segmentation analyses. This may well be due to the fact that 20 per cent admit that they do not actually feel that they understand the technical details of the market segmentation solution which was used to derive segments for targeting.

It has to be concluded that nothing much has changed since McDonald’s case study of organisations revealed “inadequate understanding and inappropriate use of SWOT analyses, the directional policy matrix, market segmentation, and objective and strategy setting” (1996: 22-3). There is indeed a substantial theory-practise divide in market segmentation. While the above findings are a result of surveying marketing managers more broadly, not specifically tourism marketing managers, there is no reason to believe that the situation would be any different among marketing managers given that that segmentation analyses are a commonly used strategic marketing tool in most industries.

APPROACHES TO MARKET SEGMENTATION
Market segmentation is the process of identifying or creating groups of similar consumers for the purpose of (1) developing the most suited product or service for them and (2) communicating and selling it to them in the most effective manner.

Consumers can be similar in many different ways, all of which can be used to conduct market segmentation. For example, if a tourist destination decides to target families and deliberately not to target retired people, the chosen criterion for the similarly (also referred to as a segmentation base) is socio-demographics. A large number of segmentation bases can and have been used to conduct market segmentation in tourism in the past; they can roughly be grouped into the following categories:

- tourists’ socio-demographic characteristics such as age (Reece 2004), gender (Hudson 2000), disabled versus non-disabled tourists (Israeli 2002), or international versus domestic student travellers (Field 1999);

- geographic characteristics such as tourists’ country of origin, which is the single most common segmentation undertaken by national tourism organisations because geographical segments are easy to target practically;

- tourists’ psychographic characteristics such as travel motivations (Bieger and Laesser 2002) or perceptions of tourist destinations (Dolnicar et al. 1999); and

- tourist behaviour. For example, many studies have investigated the differences between people who differ in their frequency of using products or visiting destinations (so called heavy versus light users, Goldsmith 1999). Others have investigated heterogeneity with respect to product choice (Arimond and Lethlean 1996), actual visitation to certain attractions, such as wineries (Dodd and Bigotte 1997), engagement in winter holiday activities (Dolnicar and Leisch 2003), visitation of rural areas (Kastenholz et al. 1999), patterns of expenditure of discretionary income derived from a choice task (Dolnicar et al. 2008), or movement patterns (Xia et al. 2010)).

The assumption underlying market segmentation is that – because consumers are different in many ways – it is difficult for a business, an organisation or a tourism destination to satisfy the needs of all consumers with the same product or service. If, however, a group of tourists (or market segment) can be identified which is particularly interested in the product or service a business or organisation of destination has to offer, it is easier and more cost-effective to develop a customized marketing mix which will appeal to tourists in that market segment.

The original conceptual assumption about market segmentation was that natural groups of tourists exist in the data (Frank et al. 1972; Myers and Tauber 1977). This is certainly the case with very distinct criteria, such as family status, because people can either be single, or partnered or a family with children; there is nothing “fuzzy” about such a classification. But in the case of most segmentation criteria, such clear natural groups rarely exist and this is increasingly acknowledged among segmentation experts (Mazanec et al. 1997; Wedel and Kamakura 1998). As a consequence of this new understanding of what market segmentation can and cannot achieve, Dolnicar and Leisch (2010) introduce the terms “natural”, “reproducible” and “constructive clustering / segmentation”.

- Natural segments are in line with the traditional conceptualisation of market segmentation, which is that groups of tourists exist and that the role of segmentation is to identify them.
- Reproducible segments result from a segmentation exercise which, if calculated multiple times, leads to similar (not identical) segments. This indicates that there is some structure in the data, but distinct natural segments do not exist.

- Finally, constructive clustering is the process which can be applied to data which neither contains density clusters, nor any other data structure which would allow arriving at the same result repeatedly. Instead, this approach implies that artificial segments are created in line with management needs. At first glance this appears like a sub-optimal outcome, but this is not the case. Imagine a situation as illustrated in Figure 2: tourists have been asked how important the natural beauty of a tourist destination is and how important man-made attractions are. As can be seen from the illustration, there are no distinct segments in this data. Following the classical paradigm of market segmentation this would be the end of the segmentation exercise (because no natural segments exist) and the logical consequence would be to try mass marketing. But would that be the best option? Clearly not. A natural heritage site which is of outstanding natural beauty but not permitted to develop any man-made attractions would be best off developing offers for and marketing them to people in the right bottom corner of Figure 2 (shaded area); those who want natural beauty but do not care about man-made attractions. The situation is the same at the other extreme: a theme park would be inclined to focus their attention on people who are located in the top left corner of Figure 2; those to whom man-made attractions matter, but for whom natural beauty of the tourist destination is not of importance.

Figure 2: Illustration of the usefulness of artificially constructed segments

In situations where only two pieces of information are used, as in Figure 2, no segmentation analysis is required, but when the number of pieces of information increases, the use of segmentation algorithms is unavoidable. However, the basic principle does not change: if no distinct segments exist, it still makes sense to divide the market into groups rather than mass market and data analysts and managers have to work together to identify the groups of tourists who best match what they as a provider are good at.

It should also be noted that the concept of market segmentation is independent of the size of segments or the avenues by which they are communicated to. The current level of
sophistication of online tools makes it possible to work with segments which contain only single individuals. Think of Amazon.com. The moment a user starts shopping, Amazon “learns” about the person’s preference and, treating them as a segment of one, offers other products which may also be of interest to this person. This offers great new opportunities for micro-marketing segmentation. Such micro-segmentation, however, are not applicable to all problems. For example, brand image campaigns cannot be individualized (How could you convince one potential tourist that a destination is perfect for motorcycle groups and another that it is a relaxing retreat for the retired?), so more conventional market segmentation approaches will continue to be required.

Market segments can be identified or created using a range of procedures and algorithms. In terms of procedures, the two extreme options are referred to as a priori (Mazanec 2000) or commonsense segmentation (Dolnicar 2003) and data-driven approaches (Dolnicar 2003), also known as a posteriori (Mazanec 2000) or post-hoc segmentation (Myers and Tauber 1977), both will be discussed in detail in the following sections.

Commonsense segmentation refers to the case where management thinks about which characteristics of tourists may be relevant for a segmentation to be useful to them. For example, for a natural heritage site at least one segmentation criterion is obvious: people’s interest in the natural beauty of the destination. It may even be that this is the only criterion of interest, in which case the segmentation study design is very simple and consists of three steps only.

**COMMONSENSE SEGMENTATION STEP #1: Data collection**
The key information required from respondents is whether or not natural beauty of a destination matters to them. In addition, other personal characteristic as well as behavioural and psychographic information could be collected. Such additional information should only be collected if it is important to be able to describe and thus better understand the resulting market segments. It should be noted that it is not advisable to use “any old guest survey data”. It is critical that the data is recent – because market segments are dynamic, they change all the time, just as the market itself does. It is also important that the key questions required for the segmentation exercise are asked in a valid way. It is unlikely that a “second hand data set” which has been collected for a different purpose will contain the exact measure that is required.

**COMMONSENSE SEGMENTATION STEP #2: Forming of segments**
Respondents are split into groups based on their response to the key question of interest, in our example their interest in the natural beauty of the destination. Note that, as also visible in Figure 2, the splitting task may require the data analysts to make a decision about which level of interest is deemed as high or low. If, for example, respondents are offered ten options with higher numbers indicating higher levels of interest, then a decision needs to be made whether only people above, say, seven are included in the high interest group or if anyone above five is included or if the median response is chosen as the splitting point. The only way to avoid this decision is to offer respondents two options to answer the question: Yes and No.

**COMMONSENSE SEGMENTATION STEP #3: Description of segments**
Once the segments have been constructed, they need to be described in detail to enable management to best develop a customized marketing mix. Information that might be useful at this stage of the analysis ranges from socio-demographic information (for example, are those interested in nature younger?), over psychographic information (for example, is their key motivation to relax or is their key motivation to learn about fauna and flora with the help of experts) to behavioural information (for example, do those interested in nature like to go out to
eat or do they prefer self-catering arrangements; do they like to take their vacations during school holidays or off-season; which sources of information do they use to choose their next travel destination). It is important that the description of segments is made relative to other segments. If only one segment is picked and described it is not clear if the other characteristics are actually typical for that segment or not.

![Figure 3: Comparison of the steps required in commonsense and data-driven segmentation](image)

Data-driven segmentation is required when a set of information (multiple variables) is used to identify or create segments. Examples include behavioural segmentation where respondents are grouped based on their participation in each one of, say, ten vacation activities or benefit segmentation, where respondents have stated the importance of, say, seven key benefits people may seek when going on a vacation and resulting segments include people who have similar sets of benefits sought. The data-driven segmentation process requires a number of additional steps as well as a number of additional methodological decisions to be made. As a consequence it is often perceived as being “more sophisticated”. The problem is that the greater number of steps and methodological decisions can also lead to an increasing number of mistakes in the
process. Below is an outline of the key steps in this process including key methodological understanding that is required and the type of decisions that are necessary.

DATA-DRIVEN SEGMENTATION STEP #1: Choice of segmentation base
Just as management needs to decide which single criterion may be relevant to determine useful segments, a decision about the set of questions to be used as a segmentation base in the data-driven segmentation process is required before data is collected. This is critical to ensure that the questions asked in the survey capture exactly what management believes are the key dimensions by which tourists should be grouped.

DATA-DRIVEN SEGMENTATION STEP #2: Data collection
This first stage does not differ much from the commonsense approach. However, two key decisions need to be made at this stage of the process which has implications later in the data analysis step.

The first is the number of questions (or items or variables) included which are intended to be used as the segmentation base. So, for example, in case of a behavioural segmentation: how many behaviours will be included? This is a critical decision because the number of variables that can be used later in data analysis is not unlimited. A rule of thumb provided by Formann (1984) in the context of latent class analysis, is that sample size needs to be $2^k$, where $k$ indicates the number of variables used in the segmentation base. So, according to Formann’s rule, if the number of behaviours included in the questionnaire is 15, the sample size required would be higher than 32,768. At first glance this appears to be a significant restriction imposed on the data analyst, but usually it only requires careful choice of survey questions, so rather than randomly inserting a list of 30 behaviours in the questionnaire, managers should make considered decisions as to which behaviours are actually relevant for the segmentation task at hand. If, indeed, it is impossible to restrict the number of questions so as to be suitably low given the sample size, an alternative is to select a subset of those questions (the most different ones) for the segmentation analysis and then use the other questions when segments are described.

The second critical decision in the data collection stage is the choice of answer formats. The vast majority of academic survey studies in tourism use so-called five or seven point Likert scales that ask respondents to indicate their level of agreement with a statement in the questionnaire. This answer format is particular tricky in the context of data-driven market segmentation for two reasons: (1) it is prone to capturing response styles, such as respondents’ tendencies to use the middle (“neither agree / nor disagree”) or extreme options (“strongly agree”, “strongly disagree”). Such tendencies contaminate the data set and can lead to artificial segments which are meaningless in content; they actually just capture the response style. One such example is a segment which has extremely high agreement with all statements. (2) Likert scales are ordinally scaled. The distance between answer options is not defined, as is the case with metric data. Most segmentation algorithms are based on distance computations, but distance cannot easily be measured at ordinal level. One way of avoiding both problems above is to use full binary answer formats (where respondents are asked to answer with a Yes or a No). The full binary answer format does not capture response styles and distance can easily be computed. This approach has been recommended a long time ago by Cronbach (1950) because the use of binary or dichotomous scales addresses the problem of response styles at its very source and does not give respondents the opportunity to display them. Cronbach’s suggestion has not been taken up, instead multi-category answer formats, mostly the five and seven point Likert scale, still dominate survey research in tourism.
DATA-DRIVEN SEGMENTATION STEP #3: Forming of segments
After the data is collected a segmentation algorithm is used to identify or create market segments based on the segmentation base. A number of critical decisions are made during this step.

First, it has to be assessed whether the exercise of forming segments is likely to reveal natural, reproducible or constructed segments. The implication is that where natural segments exist, the aim of the analysis is to identify the true segmentation solution. If however, and this is the trickiest case, clusters cannot be reproduced when the analysis is repeated and thus constructed segments will be formed, the responsibility of the data analysts shifts to presenting a range of interesting solutions to management and letting management choose which is most strategically useful to them.

Second, and related to the first point: a decision about the number of clusters needs to be made (this is also true for the case of hierarchical clustering although the dendrogram may offer some guidance). Obviously, the number of clusters will hugely influence the final segmentation result. If, for example, two segments are chosen, it is likely that one will simply contain respondents who tended to say Yes to questions and another will contain respondents who tend to say No. Typically, this is not very informative for management. If, however, the same respondents are grouped into a larger number of clusters, more distinct patterns will start to emerge.

One way that can help resolve both issues discussed above is to simply repeat the segmentation analysis multiple times for a range of numbers of clusters (for example, ten calculations with four segments, ten calculations with five segments ...... and ten calculations with ten segments) and compare the resulting segments. This procedure has been proposed and illustrated by Dolnicar and Leisch (2010) using R code which runs the repeat analysis automatically, but can be reproduced with other statistical packages. If the exact same segments emerge from repeated computations it can be assumed that natural segments exist, if similar segments emerged the segments are likely to be reproducible and if segments are different every single time, then segments need to be constructed artificially. In terms of decisions on the number of clusters chosen, the number of clusters which leads to most stable results (meaning that similar segments results from repeated computations) is preferable.

Other, less critical decisions at this stage include the choice of algorithm. Some algorithms have known tendencies of creating clusters of certain shapes, but our research has shown over the years that the algorithm is only critical in the case of constructive clustering (Buchta et al. 1997). If there is sufficient structure in the data, most algorithms will lead to similar solutions. Another decision is the choice of distance measure which needs to be suitable for the scale of the data.

DATA-DRIVEN SEGMENTATION STEP #4: Description of segments
The description stage is identical to that in the commonsense approach: segments are compared to each other with respect to other relevant personal characteristics, which enables management to get a full picture of the segments which they then select one or more target segments from. A common mistake made in tourism segmentation research, is to conduct an analysis of variance using the segmentation base and then arguing that significant differences between segments in the segmentation base provide evidence of the fact that the segments are distinctly different. This approach is acceptable for any variables except the segmentation base for the following reason: any algorithm that is used to group respondents using the segmentation base, does this in a way which maximizes the differences between segments. A significance test
determines whether relationships observed between variables are random. Clearly, after running an algorithm, the aim of which is to achieve maximum difference between segments, the relationship of variables between segments is no longer random and cannot be tested. Rather, it is the default expectation that resulting segments differ significantly in the segmentation base. Tests of differences are, however, critical for other variables, those not included in the segmentation base, like other travel behaviours beliefs or socio-demographics.

CONCLUSION

Market segmentation is a central part of marketing strategy for businesses, organisations and tourism destinations. Market segmentation studies are not only popular in academic publications where they are conducted for the purpose of knowledge development, they are also very popular and commonly used in tourism industry with the aim of gaining market intelligence to ensure future organisational success.

A comparison of current state of the art methods in both the conceptualisation of market segmentation as well as the methods used to conduct segmentation analysis indicates that there indeed is a significant gap in both the understanding of what market segmentation can and cannot achieve, as well as the methods used to actually conduct segmentation studies.

To close this gap it is important for both data analysts and managers involved in segmentation analyses to understand that, conceptually, market segmentation is an exploratory exercise and that one single computation is nothing more than one random grouping of many possible alternatives, and most likely not the best one of them. Once the notion of the exploratory nature of segmentation is accepted, it is clear that an assessment is needed of the nature of the segmentation study: is the aim to reveal true segments; identify reproducible segments, or; construct artificial segments. This can be achieved by repeating computations a number of times with different numbers of clusters and determine the level of stability of results across replications. The lower the level of stability the more pressure that is applied to engage management decision-makers directly in the segmentation process in terms of selecting a useful set of created segments.

A second key success factor in market segmentation studies goes beyond what is traditionally understood as segmentation analysis and includes critical steps before and after the actual analysis. These steps include: a thorough assessment of the constructs which will form the segmentation base; careful questionnaire design in order to capture the construct under study validly and avoid data analysis problems further down the marketing decision process, and; use of recent data (collected from a sample that is suitable to the research question at hand, rather than a convenience sample).

Reports describing segmentation studies should disclose the full details of how the study was conducted and how all critical conceptual and methodological decisions have been made. This is the case for both academic and industry studies and would greatly contribute to increasing the general understanding of market segmentation and enable users to assess its quality and managerial usefulness.

Many areas of market segmentation which are highly relevant to its correct use by both academics and industry require further research, for example: sample size requirements for market segmentation studies need to be determined, recommendations for data collection
should be developed, which ensure that data of the most suitable nature for subsequent market segmentation analysis is collected. In addition, approaches are required which will enable data analysts to segment respondents based on typical ordinal survey data (data resulting from the popular Likert scale) while avoiding bias through response styles, and ways of assessing which of the resulting segments or which combination of resulting segments should be selected as a target segment.

In terms of the practical application of market segmentation in tourism industry: it is still surprisingly simple. Most national tourism organisations still use basic commonsense approaches, such as using country of origin of tourists as the splitting criterion. There is nothing wrong with this approach. More complicated approaches are not necessarily the best. On the other hand, having used a simple commonsense segmentation for decades does not necessarily mean that it is the most promising segmentation strategy today. Tourism managers should continuously monitor possibilities for interesting segmentation analysis, after all they are exploratory. And, maybe most importantly: tourism managers should never let a data analyst produce a segmentation solution, just like data analysts should never run a segmentation analysis if the user refused to be involved in every step of the process. The best segmentation solutions results from a team approach where tourism manager and data analyst work together from day one. Day one is not the day the data analysis starts, rather it is the day the tourism organisation decides to undertake a segmentation study, well before the collection of data. An integrated team approach starting before data collection and ending with the joint interpretation of segment is not currently most common approach to market segmentation in tourism, but it is the most promising approach which prevents any theory-practise divide from occurring, trains the data analyst to understand the key aims of the user and trains the tourism manager to understand what actually happens when data is segmented, thus allowing managers to have a more realistic assessment of what implications can be drawn from segmentation solutions for marketing strategy and, equally importantly, what implications cannot be drawn.

REFERENCES


