

CHAPTER 6: CONCLUSIONS, IMPLICATIONS & IMPERATIVES FOR FUTURE RESEARCH

6.1 INTRODUCTION

In Chapters 1 to 5 the main body of this thesis was presented. In Chapter 1 the purposed statement was formulated as well as the specific research objectives. A motivation was presented for the importance and benefits of the study. The chapter also noted in brief the research resources and methodology, and study delimitations and assumptions.

Chapters 2 and 3 drew from the literature to provide a discussion and critical reflection on the foundations and processes of market segmentation and index construction, and how index construction can be applied as a method of market segmentation. Three studies in particular provided pragmatic reference in this regard, namely that of African Response (2006), the South African Advertising Research Foundation (2009), and Jensen *et al.* (2002)

Chapter 4 depicted the research design and methods employed in this study. The availability of secondary data provided an incidental, but relevant and recent quantitative base to investigate and illustrate this process in a business context. The data were used to construct a commercial farming business index and applied it as a method of segmentation. The analysis and results pertaining to this process were presented in Chapter 5.

In this chapter, the conclusion is drawn, on the basis of the research findings, that the process of index construction provides an appropriate and useful means of segmenting a market. As part of the research findings to illustrate such a process, a commercial farming sophistication index was constructed and applied as a method of segmentation.

The implications that this process hold for researchers and marketing practitioners are discussed.

It is pointed out that the illustration of the process has wider application value in other business-to-business markets, locally and internationally, where index variables can be constructed from both primary and secondary sources and used as a method of segmentation.

The chapter also includes imperatives for future research.

6.2 CONCLUSION

It was noted in this study that market segmentation is regarded essential by marketing practitioners for various reasons, including targeting, proposition development, price formulation and developing of mass communication (Bailey *et al.* 2009:227). Though being conceptualised as simple in its rationale, the process of segmentation is not necessarily easy (McDonald & Dunbar, 2004:xv) and it requires various considerations that should be taken into account. From the literature it is evident that many marketers are expressing concern about implementation and the integration of segmentation into marketing strategy (Dibb & Simkin, 2009:219). To address this, priorities in the area of future segmentation research include the selection and incorporation of new variables into segmentation models, as well as developing new and innovative segmentation strategies (Dibb & Simkin, 2009:222).

A specific area of segmentation development that has been neglected in the academic literature but holds particular pragmatic relevance for marketing practitioners is the process of index construction as a method of market segmentation. The vast array of possible variables available for segmentation purposes often complicates the process, particularly in cases when these variables measure a single underlying construct.

The research objectives of this study called for investigating the process of index construction as a method of market segmentation. The process was illustrated by means of constructing a commercial farming sophistication index for South Africa and using it to form segments. These two objectives were to form the basis of assessing the use of index construction as a market segmentation method.

In the sections that follow, each objective is evaluated against the outcomes of the research findings.

6.2.1 Investigating the process of index construction as a method of market segmentation

Investigating the process involved a review of the literature on the principles of market segmentation, index construction, and lastly where index construction has been applied as a method of index construction. The conclusions drawn from the literature pertaining to each of the areas are discussed in the sections that follow.

6.2.1.1 *Market segmentation*

A number of key conclusions about the principles of market segmentation are drawn from the literature.

Market segmentation forms part of the strategic marketing process (Freathy & O'Connell, 2000:102); and is linked to improved business performance and achieving of a competitive advantage.

It provides a process of combining groups of buyers into larger buying units, which makes the marketing activities of companies both cost-effective and manageable (McDonald & Dunbar, 2004:xv).

Segmentation is a mediating process used by researchers, marketing practitioners and management to improve understanding of the market (Dibb, 1998:394); assist in designing more suitable marketing strategies and programmes (Canever *et al.*, 2007:513; Dibb *et al.*, 2002:113; Quinn *et al.*, 2007:440); help focus on those buyers that have the greatest chance of being satisfied; identify new marketing opportunities (Dibb, 2005:14; Quinn *et al.*, 2007:440); and inform more effective allocation of financial and other resources (McDonald & Dunbar, 2004:55; Quinn *et al.*, 2007:440).

Despite being described as simple in its rationale, it is generally acknowledged that the process of segmentation is not necessarily easy (McDonald & Dunbar, 2004:xv).

The process of market segmentation is described as conceptual, analytical and consisting of inter-linking steps and processes (Canever *et al.* 2007:511; Cant *et al.* 2006:104; Noel, 2009:113; Quinn *et al.* 2007:445). These typically include in one or other form segmentation analysis, evaluation of segmentation, implementation of segmentation, and lastly, the control of segmentation. Segmentation analysis consists of all the activities involved in dividing a heterogeneous market into homogeneous sub-markets. The selection of segmentation bases, research methodologies, as well as data analysis plans constitutes important pillars of the segmentation analysis.

Planning and implementing a segmentation study involves various considerations. These are:

- *Defining the aim of performing market segmentation:* Addressing the specific information needs of management must guide the gathering of relevant data needed for the segmentation exercise.
- *Market definition:* One of the more crucial decisions that marketers face (Foedermayr & Diamantopoulus, 2008:248) and involve demarcation of the market.

- *The selection of segmentation variables (base and descriptors):* This is often complicated by the vast array of possible variables available for segmentation purposes (Tonks, 2009:341).
- *The selection of segmentation approach:* A-priori scheme and cluster-based segmentation approaches are two major strategies used in practice. A successful segmentation exercise lies with recognising when segment groups are a true reflection of the market and not merely imposed on the data by the method.
- *Determining the research design:* Research design should be informed by the management requirements of the segmentation, the market definition, and the selection of segmentation variables, as well as the adoption of a particular approach. However, evidence from the literature suggests that there is a general lack of validity and reliability assessments in empirical research on segmentation practices.
- *Identifying the units of analysis:* This should take into account accessibility and availability of information. It is also important that the units of analysis be chosen in accordance with the operational capabilities of a business's marketing, sales, and market research units.
- *Sampling:* The aim should be to not merely explain the differences amongst specific respondents or to segment the sample, but to project the results of the study to the relevant universe.
- *Selecting the data-collection method:* Both primary and secondary data could be used for segmentation. Secondary data need to be evaluated in terms of quality, content, usability, presentation and cost (Wiid & Diggines, 2009:77).
- *Segment identification:* Guidelines for formation propose that segments must consist of an economical minimum number of buyers, and the number of segments formed must be such that it is manageable (Foedermayr & Diamantopoulus, 2008:253). Each segment should be subjected to a "reality check" based on the size of each segment, the differentiation between the offers they require, the business's ability to

identify and reach the different buyers found in each segment, and the compatibility of these segments with the business (McDonald & Dunbar, 2004:57). Statistical tools can aid in segment formation, in particular the use of multivariate techniques. The segmentation team should be aware of the pitfalls associated with its inappropriate use in guiding the identification of segments. Replication of identifying segments remains a challenge when using multivariate statistical techniques. A study might utilise a single base variable to segment the market, or several variables can be combined. The use of index variables as a method of segmentation offers various advantages.

- *The selection of the target segment:* Following the identification of segments, the relative attraction of each segment must be determined (Dibb, 2005:13), together with the subsequent selection of segment(s) to target. This should be done with consideration of the available resources, skills and capabilities of the business (Freathy & O'Connell, 2000:103). The evaluation of the strengths and weaknesses is a crucial step in the process.
- *Positioning:* This step involves implementation. It is within the context of this step that concerns have been raised in the literature of a theory/practice divide in market segmentation. Two main arguments and reasons for this divide emerge from the literature. The first argument relates to the practical difficulties in implementing segmentation approaches; and secondly, the often limited explanatory value offered from traditional segmentation bases.

A segmentation solution can be evaluated against certain criteria in order to be regarded as successful (Canever *et al.*, 2007:514; Ferrell & Hartline, 2005:142; Freathy & O'Connell, 2000:102; Goller *et al.*, 2002:261; Lin, 2002:250). These criteria are: segmentability, measurability, accessibility, substantiality, sustainability, actionability, responsiveness and stability.

6.2.1.2 *Index construction*

A number of key conclusions about index construction are drawn from the literature.

An index is derived from multiple items and when combined forms the basis of underlying construct that is quantitative and on a measurement continuum.

Three steps in index construction can commonly distinguished, namely: (1) Item/variable selection; (2) examining the empirical relationships of variables and combining of these items into an index; and (3) validating the index.

An important criterion to consider during the first step is the face validity of items. The selection of items should be guided by a clear and precise definition of the construct itself (Spector, 1992:7).

During the second step, the relationships among items are considered, with the anticipation of combining items into a single and one-dimensional construct variable.

The last step involves examining index values across the item responses which comprise it, as well as other items that might explain variation.

As with market segmentation, constructing an index involves various considerations. These are:

- The aims envisaged for the construction of a specific index.
- Assumptions underlying the index construction process.
- Steps, processes and multivariate statistical methods that could be employed for the calculation of index scores. While being statistically

demanding, applying multivariate statistical techniques, such as principal component analysis and factor analysis, to derive index scores, offer a number of benefits over those methods that rely merely on a summation of items. Firstly, these techniques account for the underlying correlation that exists amongst items. The index variable therefore takes advantage of the strength of the underlying relationships that exist between items. Secondly, items that correlate strongest or load highest with a dimension or factor are grouped together, increasing the internal reliability of the index variable. In addition, the inter-correlation between items within a factor is typically high, which relates to convergent validity. In other words, measures that should be related are in reality related. However, correlation between factors or dimensions is typically not significant, which relates to discriminant validity. In other words, measures that should not be related are in reality not related. Convergent and discriminant validity are both considered subcategories of construct validity. Thirdly, when applying multiple regression analysis to identify those items that best predict index scores derived from the factor analysis, coefficients are calculated that provide a weighted contribution of each item to the index scoring.

The following aims are typically associated with index construction, namely:

- To construct an index that is a measure of a specific construct.
- To construct an index using a combination of variables that could measure the construct better than any single variable.
- To construct an index that is a direct measure of the construct, based on non-monetary descriptive indicators.
- To identify Items that, on face value, relate to the construct being measured.
- To construct an index that is reliable and valid.
- To construct an index that has broad application value across the full spectrum of the market.

- To present a measurement process that is useful in future surveys from which separate samples are drawn.
- To construct an index that is stable over time, but sensitive enough to register changes.

6.2.1.3 *Moving from index construction to market segmentation*

An important step in the process of moving from index construction to applying it as a method of index construction involves deriving of a general use form of the index that could be easily calculated by other researchers and survey practitioners. Multiple regression analysis provides a means of identifying those items that best predict the index scores. The results of the analysis also provide a set of coefficients in the form of an equation. This equation can then be used by other researchers in future studies.

A set of cut-points is derived on the index scores. The process of establishing cut-points for the intervals is informed by basic descriptive statistics, as well as adhering to criteria specified by the researchers. The forming of groups is therefore not based on an advanced statistical clustering method of index scores.

6.2.2 Constructing a commercial farming sophistication index as a method of segmenting the market

To illustrate the process of index construction as a method of market segmentation, secondary data were used to construct a commercial farming sophistication index.

The processes and methods identified during the literature review provided a framework for constructing of the index and market segmentation.

It is concluded that the success of the process was based on the following:

- Establishing of clear set of aims for constructing a sophistication index. For example, the aims were to construct a measure that is one-dimensional, can discriminate across the full spectrum of commercial farming businesses in South Africa, and is both valid and reliable.
- Establishing of a clear conceptual definition of the construct being measured. This informed and guided the researcher in identifying questions and items that, on face value, could contribute towards measuring of the construct.
- Gaining an understanding of the market being segmented in terms of units of analysis. The construct measured sophistication of commercial farming businesses, and not the farmer. In business segmentation studies it is crucial to distinguish between units of analysis and units of observation.
- Identifying of relevant, valid and sufficient data. It was found essential to evaluate the relevance and quality of the secondary data against both practical and methodological criteria. For example, the fit between the original data and the new research questions. It was furthermore beneficial to have been able to use the data and project it to population estimates. This will allow marketing practitioners to more accurately evaluate target segments with regard to buying power and profitability.
- Ensuring the standardisation of data for multivariate analysis purposes. For example, the use of principal component analysis requires that all variables be measured on the same scale. In this study, all variables were coded in binary form.

The newly created sophistication index offers significant advantages over traditional firmographic segmentation variables, as levels of sophistication are regarded as significant explanatory variables for the adoption of information and communications technology (ICT) product and service usage, such as a PC, a cell-phone, and the Internet as part of the farming business. As highlighted, the findings of this study also revealed that farming businesses along the

sophistication continuum tend to adopt the use of a PC, firstly, for financial management purposes, rather than using a PC in other functional management areas.

A second benefit that the segmenting of the commercial farming market in terms of sophistication offers to marketing practitioners is an improved understanding of buyers. This includes the building of a profile of each segment, improving insight into possibly required products and service offerings. It was, for example, found that more sophisticated farming businesses are more likely to be using certain financial products, such as short-term insurance, or being registered for VAT. Other characteristics that have a positive relationship with higher levels of sophistication include operating other farming-related businesses; being registered as a company; having a cash-flow budget; and making use of an independent financial advisor.

Segmentation would, therefore, allow marketers to tailor products and services to better suit market needs – leading to more suitable marketing programmes and enhanced marketing effectiveness.

Having homogenised the market and increased in understanding of the buyers, a third benefit offered by the segmentation method is that of identifying new opportunities. This is in line with Dibb *et al.* (2002:113), who postulated that market segmentation improves marketing practitioners' ability to identify marketing opportunities. In addition, future studies conducted by suppliers could be used to estimate the market share in each segment – leading to the acquisition of valuable insight in competitor behaviour and market position, which could be used in building and sustaining a differential advantage.

A fourth benefit emerging from this method is the guiding role it plays in strategic marketing planning and resource allocation. The principle of market segmentation is, therefore, one that because of limited resources and skills, companies cannot service all buyers in a diverse market. The method of

segmenting the commercial farming market on levels of sophistication could aid companies to match their limited resources and strategies to buyers' needs and wants.

By focusing their limited resources on the most attractive segments, segmentation encourages businesses to play to their strengths. All these benefits culminate in achieving greater overall market stability, improved performance and a competitive advantage.

In addition, the success of the process of applying index construction as a method of segmentation might also be assessed against the criteria identified in the literature (Canever *et al.*, 2007:514; Ferrell & Hartline, 2005:142; Freathy & O'Connell, 2000:102; Goller *et al.*, 2002:261; Lin, 2002:250). Four of these criteria apply in particular to this study, namely: segmentability, measurability, accessibility and substantiality. The other criteria, namely sustainability, actionability, responsiveness and stability are relevant to specific users of the segmentation model.

Segmentability: Successful segmentation can only take place if buyers can be grouped together, based on particular criteria, in other words contribute towards homogeneity within and heterogeneity between groups. The index constructed in this study groups farming businesses in South Africa, based on similar levels of commercial farming sophistication, discriminating across the full continuum of commercial farming businesses. Furthermore, the findings presented clear characteristics that define the various segments.

Measurability: This refers to the degree that the size, purchasing power and profits of a market segment could be identified (Canever *et al.*, 2007:514; Freathy & O'Connell, 2000:103). While the construction process called for an index that should be based on non-monetary descriptive indicators, positive correlation was identified between higher levels of sophistication and turnover.

Accessibility: Segments should be accessible in terms of communication and distributional efforts (Canever *et al.*, 2007:514; Ferrell & Hartline, 2005:142). The findings showed that levels of sophistication were positively associated with increasing incidents of ICT product and service usage, such as a PC, cell-phone, and the Internet as part of the farming business. The adoption of these mediums provides opportunities for cost-effective marketing communication.

Substantiality: This refers to the degree to which a segment is considered sufficiently large enough to warrant the cost of a targeted market program (Canever *et al.*, 2007:514; Freathy & O'Connell, 2000:103). The index allowed for the identification of five homogenous segments that were considered sufficiently large, given the market size of approximately 39 000 commercial farming businesses in South Africa.

Having segmented the commercial farming market, practitioners also have a better understanding of the pragmatic world. The results and findings could assist them in formulating marketing strategies and making predictions, as well as in the interpretation of the present when attempting to understand what is happening and why (Christensen & Raynor, 2003:68).

6.2.3 Assessing the use of index construction as a method of market segmenting

Following the investigation and illustration of the process of index construction as a method of market segmentation, the conclusion is drawn that this approach offers an appropriate and useful means of segmenting a market. Several factors contribute to the appeal of this approach.

From an academic perspective, it contributes towards addressing important priorities in the area of future segmentation research, namely that of investigating the application of new variables into segmentation models, as well as investigating new segmentation strategies. Incorporating innovative

segmentation approaches, processes and methods that can improve one's understanding of the market is valued by marketing practitioners. This contributes towards realising the advantages of market segmentation, which are promoted extensively in the literature (Dibb, Stern & Wensley, 2002:113; Ferrell & Hartline, 2005:134; Freathy & O'Connell, 2000:102; Goller *et al.*, 2002:263; McDonald & Dunbar, 2004:34). These include homogenising market heterogeneity, improving an understanding of buyers, the identification of new market opportunities, better allocation of business resources and skills, and improved performance and competitive advantage.

From a practical perspective, the approach applies a creative process of combining several base variables into a single measure, namely that of an index variable. This allows for reducing complexity in the often unstructured data that researcher and marketing practitioners have to deal with. This is beneficial as it offers a more simplified description of market behaviour across segment groups, in particular when researchers are faced with a multitude of single base variables that in essence measures a single underlying construct. By doing this, it contributes towards marketing practitioners improving their understanding of market segments, which would not have been possible through the use of single segmentation base variables.

It also contributes towards offering a segmentation variable that provides more discriminating power in explaining market behaviour, than the often very limited explanatory value offered by traditional external variables.

The process contributes towards homogenising the market heterogeneity in terms of a single construct. The segmenting of the market could also facilitate a more homogeneous response to marketing programmes. While segmentation might not be a direct contributor to improved performance and competitive advantage, the essence of market segmentation lies in the notion that it has a moderating effect on performance (Dibb *et al.*, 2002:114; Quinn *et al.*, 2007:444).

The multi-step process that was employed in this study for the construction of the index and subsequent market segmentation has broad pragmatic appeal for researcher, and provides a systematic and structured multivariate approach to segmentation. It also facilitates replication of the process when conducting future studies.

By using an index, it takes advantage of any intensity structure that may exist among attributes. This has the advantage that it places members of the market on a continuum that can lead to tracking members' development paths as they progress towards higher levels, for example farming sophistication. From a segmentation perspective, lower and upper segments can be distinguished based on differences in aspects such as buyer behaviour, product adoption, communication channels, decision-making processes, price sensitivity access, and the like.

Furthermore, illustration of the process has wider application value in other business-to-business markets, locally and internationally, where index variables can be constructed from both primary and secondary sources and used as a method of segmentation following a similar multi-step approach proposed in this study.

The outcome of this type of segmentation method offers researchers and marketing practitioners a procedure, in the form of an equation, to calculate index scores and provide rules to segment the market based on predefined intervals. This provides for consistency in the rules and criteria used to calculate index values and apply it as a method of market segmentation. Hence, the challenge to replicate segment formation across independent future studies is addressed. This process is considered an advantage over employing a technique such as cluster analysis, where the use of new data or changes to the clustering algorithm often leads to different segment solutions. By offering classification rules based on characteristics that can easily observe or elicit by

asking a few key questions, new or potential buyers can be classified by buying behaviour segment.

6.3 IMPLICATIONS

This study promotes the use of index construction as a means of market segmentation. Combining several base variables into a single index measure contributes towards marketing practitioners improving their understanding of market segments, which would not have been possible through the use of single segmentation base variables.

The process proposed serves as guideline for planning and implementing such a segmentation approach. Firstly, it allows researchers and marketing practitioners to place new or potential buyers on the index continuum using an existing equation. Secondly, this is made possible based on characteristics that can easily observe or elicit by asking a few key questions. A new segmentation base is therefore offered that provide more discriminating power than the single variables would have.

Lastly, despite commercial farming businesses being an incidental market focussed upon in this study to illustrate the process under consideration, the construction of a commercial farming sophistication index and presenting of rules for segment formation holds significant immediate and practical value for marketing practitioners and input suppliers that plan to conduct market segmentation studies in future where commercial farming businesses are targeted.

6.4 LIMITATIONS

This thesis is the result of an investigation into the process of index construction as a method of market segmentation. Specific limitations were formulated in the literature review and during the empirical part of this study, which focussed on illustrating the process by constructing a commercial farming sophistication index as a method of segmentation.

Based on the literature review the following limitations have been formulated:

- There is limited academic literature on the application of index construction as a method of market segmentation. It is possible that some important empirical research has been conducted on this process, but the findings reside either in repositories outside the academic sector or has not been documented formally in academic literature. As a result this has been excluded.
- Limited published statistics are available to the public on the size and profile of the commercial farming business market. Assessing the external validity of the weighted sample was therefore not possible.

The following limitations can be cited following the completion of the research and reporting of results:

- The illustration of the process was limited to the commercial farming business market.
- Due to the fact that secondary data was used as incidental source for index construction and segmentation, the researcher was restricted to a limited set of pre-developed questions (variables) that could be used as potential measure of commercial farming sophistication and profiling of segments.
- The combination of variables to derive index scores was limited to the use of one specific multivariate statistical technique, namely principal component analysis.

6.5 IMPERATIVES FOR FUTURE RESEARCH

The following imperatives for future research are put forward based on the general multi-step process proposed for index construction and market segmentation:

- To continue with empirical research where the process of index construction as a method of segmentation can be investigated across different markets and contexts.
- That research is conducted to compare the use of different multivariate techniques as part of index score calculation.
- That some investigation is conducted on multivariate statistical techniques that can guide segment forming when using a single continuous variable. This would also entail a comparison of the effectiveness of this approach to one where segment forming takes place subjectively.
- To investigate the impediments of moving from segmentation planning to segmentation implementation. This remains an important agenda for future segmentation research.

With regard to the specific construction of the commercial farming sophistication index the following recommendations for future research are made:

- That primary research be conducted in order to expand the potential list of questions and variables that can contribute towards constructing a commercial farming index, as well be used to profile the segments.
- To conduct further analysis in order to explore the relevance of expanding the current number of segments and the value that this expansion holds for marketing practitioners.
- That research is conducted to establish validity of the construct of commercial farming sophistication.

- That an index of farming sophistication be constructed in the context of emerging and subsistence farming markets. This will require redefining the construct of sophistication for these market, and identification of different sets of variables that could measure the constructs. Understanding the behaviour of these markets on the basis of sophistication and how they progress towards higher levels is of value for an entity such as government given the agenda of business development.
- The findings from this study revealed that levels of sophistication are positively associated with increasing incidents of ICT product and service usage, such as a PC, a cell-phone, and the Internet, as part of the farming business. However, the focus only fell on incidents of ICT usage, and not on aspects relating to early product or service adoption. Future research studies could explore and confirm this relationship.
- Given the rapid change and introduction of new products, services and technologies to the market, as well as the evolving farming production practices, a periodic review of the items used to measure sophistication should be conducted. This might also result in either the merging or the splitting of segments.

6.6 CHAPTER SUMMARY

In this chapter, consideration was given to the conclusions of the study with regard to the investigation of the process of index construction as a method of index construction, followed by conclusions pertaining to a practical illustration of the process. Conclusions were then drawn based on the assessment of the process. Thereafter, limitations of the study were pointed out. Next the implications were noted and lastly imperatives for future research stated.