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A conjoint analysis of Johannesburg office tenants' preferences, South Africa

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A CONJOINT ANALYSIS OF JOHANNESBURG OFFICE TENANTS' PREFERENCES, SOUTH AFRICA

A research report submitted to the Faculty of Engineering and the Built Environment, University of the Witwatersrand, Johannesburg, in partial fulfilment of the requirements for the degree of Master of Science in Property Management and Development.

Moono Arnold Siamuzyulu

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DECLARATION

I declare that this research report is my own unaided work. It is being submitted for the Degree of Master of Science in Property Development and Management to the University of the Witwatersrand, Johannesburg. It has not been submitted before, for any degree or examination in this or to any other University.

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11th Day of February, 2019.

ABSTRACT

Purpose – This study established the factors that influence office relocation decisions in the Johannesburg metropolitan area. The study aimed to obtain rank ordering (importance) of nine (9) selected factors that can be used to guide relocation and other investment decisions within the metropole.

Design/Methodology/Approach – Literature review of a plethora of studies was used as the basis for this study. A questionnaire used by (Weaver, 1985) in the USA to conduct a conjoint study in the real estate sector was adapted to suit the South African context. Additional variables and levels were added, to better reflect the context of the study. Data was collected from office users in P-grade, A-grade and B-grade properties whilst a conjoint methodology was used to analyse the data.

Findings – The results showed that the most important factor influencing tenants' preferences was parking followed by Landlord reputation; Size of the building was third in importance with Security as fourth and Green Rating fifth. Accessibility of the building was sixth; Location of the building, seventh with the rental cost (total cost of occupation) and the grade of the building being the bottom two factors in eighth and ninth places respectively. These results reinstate earlier findings in the South African market albeit the differences in the factor importance.

Research Limitations/Implications – The study looked at nine (9) variables each with three (3) levels. The increased number of variables and levels added to the complexity of the user profiles. In addition, the sample only included office tenants in P-grade, A-grade and B-grade office buildings in the greater Johannesburg metropolis. Current literature shows that newer "preference" procedures like stated preference elicitation reveal deeper and broader information on customer preferences than that obtained using choice-based conjoint analysis.

Originality/Value – The research makes scholarship and practice contributions to the fields of property management, tenant acquisition, and tenant management specifically illustrating the application of market research techniques to the office market in an emerging economy, which is not a common area of scientific interest mainly due to unavailability of data inter alia. The use of conjoint analysis in the determination of preferences for would-be tenants in the South African office market will go a long way in reducing financial losses attributable to low occupancy levels and high tenant churn.

DEDICATION

To the memory of my mother and brother.

AND

For Kapembwa, Makani, Qhayiya, Yibanathi, Zukhanye and Alunamda.

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This research report would not have been possible without the assistance from the following: My supervisor, Dr. Yewande Adewunmi, for providing tireless assistance, training and motivation. I acknowledge and appreciate her kind but firm guidance. I would also like to thank all the companies and individuals that provided their client and tenant information to me for the study.

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CONCEPTS, DEFINITIONS AND SPECIAL TERMS

In the context of this study, the terms stated below, extracted from (Hair et al., 2009), are defined to have the following meanings:

Additive Model: This model, also known as a main effects model, is the simplest conjoint model from a number of evaluations and estimation procedure required perspective. It is based on the additive composition rule and assumes that individuals "just add up" the individual part-worths to calculate an overall or total worth score indicating utility or preference.

Choice-Based Conjoint Approach: This is an alternative form of conjoint task for collecting responses and estimating the conjoint model. The primary difference to the additive model is that respondents select a single full profile from a set of profiles (known as a choice set) instead of rating or ranking each profile separately.

Choice Set: It describes a set of profiles constructed through experimental design principles and used in the choice-based conjoint approach.

Composition Rule: This rule is used to illustrate how respondents can combine attributes to produce a judgement of relative value, or utility, for a product or service. For Illustration purposes, let us suppose a person is asked to evaluate four objects. The person is assumed to evaluate the attributes of the four objects and to create some overall relative value for each. "The rule may be as simple as creating a mental weight for each perceived attribute and adding the weights for an overall score (additive model), or it may be a complex procedure involving interaction effects".

Conjoint task: The process of gathering judgments on each profile in the conjoint design using one of the three types of presentation method (full-profile, pair-wise comparison or trade off).

Conjoint variate: Represents a combination of variables (known as factors) specified by the researcher that constitute the total worth or utility of the profile.

Factor: is an independent variable representing a specific attribute that the researcher manipulates. In conjoint analysis, the factors are usually nonmetric. Factors must be represented by two or more values (known as levels) which are also specified by the researcher.

Factorial design: A method of designing profiles by generating all possible combinations of levels e.g. a three-factor conjoint analysis with three levels per factor which results in 27 combinations that would act as profiles in the conjoint task.

Fractional Factorial design: A method of designing profiles (an alternative to factorial design) that uses only a subset of the possible profiles needed to estimate the results based on the assumed composition rule.

Full-Profile Method: A method of gathering respondent evaluations by presenting profiles that are described in terms of all factors.

Ideal Preferences: Ideal preferences describe the choices of respondents making new office location decisions based on individual personal needs and desires in mind only.

Level: is a specific non-metric value describing a factor. Each factor must be represented by two or more levels, but the number of levels typically never exceeds four of five. If the factor is originally metric, it must be reduced to a small number of non-metric levels. If the factor is non metric, the original values can be used e.g. colour (red or blue).

Main Effects: denote the direct effect of each factor (independent variable) on the dependent variable and maybe complimented by interaction effects in specific situations.

Orthogonality: is a mathematical constraint that requires that the part-worth estimates are independent of each other. "In conjoint analysis, orthogonality refers to the ability to measure the effect of changing each attribute level and to separate it from the effects of changing other attribute levels and from experimental error".

Pairwise comparison method: method of presenting a pair of profiles to a respondent for evaluation, with the respondent selecting one preferred profile.

Part-worth: An estimate of the overall preference or utility associated with each level of each factor used to define the product or service derived by using conjoint analysis.

Profile: A specific "object' called a profile (also known as a treatment) that is evaluated by the respondents is created by taking one level from each factor. E.g. three factors with two levels each would create 8 profiles (2x2x2). However, when the number of combinations is too large for respondent evaluation, fractional factorial design is used to create a subset of profiles that can be easily evaluated by a respondent.

Self-Explicated Preferences: Self-explicated analysis involves the ranking of a 'score' with the 'score' in this study determined by simply summing up the number of respondents who chose a particular factor.

Trade-off Analysis: A method of presenting profiles to respondents in which factors (attributes) are depicted two at a time and respondents rank all combinations of the levels in terms of preference.

Traditional Conjoint Analysis: A methodology that employs an additive model of consumer preference and pairwise comparison or full profile methods of presentation in the conjoint task.

Utility: is an individual's subjective preference judgement representing the holistic value or words of a specific object. In an additive model, it is assumed to be formed by combining part-worth estimates for any specified set of levels.

Hold-out Profiles: Describes a set of profiles that are not used in the estimation of part-worths but are used to predict preferences for the validation profiles to assess the validity and reliability of the original estimates.

Chapter One

1 INTRODUCTION

1.1 Context

There has been an oversupply of office space in the Johannesburg market (Jones Lang & LaSalle Ltd, 2017a, 2017b, 2017c). This oversupply has manifested itself as increases in vacancy rates and absorption rates with national and regional vacancy rates now averaging 11 % for the year-to-year period ending December 2017 as stated in reports by Jones, Lang and LaSalle (Jones Lang & LaSalle Ltd, 2017a, 2017b, 2017c) and the South African Property Owners Association (South African Property Owners Association, 2017). SAPOA (2017) in its December 2017 report states that the "national vacancy rate was 11.2 %, unchanged from the quarter before but off the high of 11.8 % recorded in Quarter two". This soft[1] office market is putting downward pressures on existing office tenancies and rent concessions as well as affecting the bottom line of the landlords and other property leasing companies. In an effort to counter high vacancy rates, landlords and building managers, therefore, need to strike a balance between the needs of tenants and the leasing inducements being offered by competing rental houses. This means, being able to correctly identify the features of a particular office offering and matching them to the preferences of the would-be tenants.

A number of studies have stated the effects of location theories on office relocation decision-making (French, 2001; Mazzarol and Choo, 2003; Brouwer et al., 2004; Leishman and Watkins, 2004; Greenhalgh, 2008; Wardner, 2012). Other studies have also established the preferences and factors influencing office location and relocation, starting with studies conducted more than twenty years ago (Pittman and MacIntosh, 1992; Charusakulariyakul, 2003; Asser, 2004); and continuing to the present (Blatt, 2013; Didiza, 2014; Meiring, 2016). The last three studies mentioned above were conducted in South Africa and thus provide a local perspective of the studies.

Although previous local investigations highlighted above provide some insight into the tenants' preferences on factors affecting the Johannesburg office market, these studies have been produced using a wide range of quantitative statistical methods.

[1] Soft market is one which is characterised by increases in vacancy rates, absorption rates and a decline in revenues.

In addition, there are limited published accounts of office-tenants' preferences using the conjoint analysis approach in South Africa.

To minimise the impact on the bottom line due to effects of high and rising vacancies in the office sector, it is imperative that tenant preferences and determinants for new office locations and relocations be established using methods that closely and realistically mimic actual decision-making actions. One such method is conjoint analysis. Conjoint analysis utilises the trade-off of certain variables against other variables based on the importance of these factors as perceived by the decision makers in a particular scenario. It provides insight into consumer preferences and simultaneously maintains a high degree of realism (Orme, 2010; Raghavarao et al., 2010; Hwa and Chin, 2012; Iman et al., 2012; Berrio and Cladera, 2013).

Literature also shows the application of the conjoint methodology to the real estate domain (Weaver, 1985; Levy, 1995; Poot, 2011; Hwa and Chin, 2012; Iman *et al.*, 2012). Therefore, the intent of this study was to use the conjoint methodology as a means of establishing the important factors that can help alleviate the decreasing income/revenues, leasing commissions and other downward pressures on current occupancy levels in the Johannesburg office market. Identification of the most important variables will assist in the identification and creation of potential market segments that would most likely be attracted to a particular property.

1.2 Problem Statement

Based on the above discussion, it is possible to identify a problem that will serve as a point of departure from previous, related investigations. Increasing vacancy and absorption rates brought about by an over-supply of office space within the Johannesburg market have resulted in reduced revenue/income, leasing commissions. Meiring (2016) stated that gaining insights into factors affecting office relocation is an important aspect of establishing demand in the office market. Literature (Marmolejo-Duarte and Ruiz-Lineros, 2013; Didiza, 2014; Calixijan and Murcia, 2015; Roberts, 2015a; Meiring, 2016; Gawlik et al., 2017; Nsibande and Boshoff, 2017) is awash with several methods of determining these relocation influencing factors. As noted above and clarified later in the review of literature section, the need for this study is to establish the most important factors (variables) that potential office tenants in Johannesburg, realistically, look at from an ideal, self-explicated and a conjoint analysis (full-profile) perspective.

Establishing these factors in this way will assist in solving the more general problem (reducing office rental Income) experienced by landlords and building owners due to an oversupply of office space.

1.3 Consequences of the Problem

To minimise the impact on the bottom line due to effects of high and rising vacancies in the office sector, it is imperative that tenant preferences and determinants for new office locations and relocations be established using conjoint methods so that the actual needs and requirements of the users can be determined upfront and available office space matched to them or built for them. To be able to address this, leasing companies need to use sophisticated marketing research techniques to clearly understand the needs and preferences of their would-be office tenants. The use of conjoint analysis, utilising the trade-off of certain variables against other variables, based on the importance of these factors as perceived by the decision makers in a particular segment, aids in arriving at such a position.

1.4 Research Questions

The purpose of this study, then, is to establish the most important factors that affect new office location and relocation decision-making. Specifically, the study will focus on three primary questions:

1. What are the ideal preferences of Johannesburg office tenants?
2. What are the self-explicated preferences of Johannesburg office tenants?
3. What are the conjoint analysis full-profile preferences of Johannesburg office tenants?

1.5 Importance of the Study

This study has the potential to make scholarship and practice contributions to the fields of property management; tenant acquisition; retention, and management. Specifically, it illustrates the application of a proven market research technique to the office market in an emerging economy, which, typically, is not a common area of scientific interest mainly due to unavailability of data inter alia. Traditionally, most conjoint analyses in the real estate sector focus on mature markets in the west and empirical evidence from less developed markets, specifically in Africa is scarce.

From a practical standpoint, the results of this study will be directly relevant to the South African property market. The study provided information that (1) building owners and landlords could use as a mechanism in reducing the financial effects attributed to rising vacancies and other factors exerting downward pressures on occupancy levels and (2) would assist with the identification, creation and targeting of customer segments with the right products/features. This approach reduces tenant churn as a result of offering the right product to the right customers (segment) the first time.

1.6 Assumptions

The Study makes the following assumptions:

- That the demand and supply factors are considered constant for all offices within the Johannesburg metropolitan area and that choice is based mainly on quality and location of space.
- Does not distinguish between major space users (anchor tenants) and other tenants.
- That grading of the offices located within the Johannesburg metropolitan area is similar to all offices.

1.7 Delimitations

The limitations of the study are spelt out below:

- Lessees/Tenants - This study only looks at P-grade, A-grade and B-grade office tenants who have decided to rent rather than buy. The focus is on renting rather than ownership since preferences and requirements for people who want to rent a property are different from those wanting to own a property.
- Excludes other users of space specifically retail, residential and Industrial. Different sub-classes of the space market have their own unique individual characteristics and features. The need to delimit the study to focus on one of these segments ensures that the right attributes for a particular segment are identified and preferences chosen.
- Geographical Limitation – covers the Johannesburg Metropolitan area only.
- Looks only at tenants who have relocated within the last 6 months.

1.8 Chapter Layout of the Research Report

This section gives an overview of each of the chapters in the research report.

Chapter One gives an introduction of the research and contextualises the problem statement; defines the research questions and states the assumptions and limitations of the study. It also states the practical and scholarly contribution of the research. It also seeks to acquaint the reader with definitions and concepts most likely to be encountered when reading this report.

Chapter Two reviews the literature of the various factors that influence relocation decisions of office tenants and the literature on application of conjoint analysis, which is intrinsically a marketing technique, to alleviating real estate challenges.

Chapter Three, "Research Methodology", provides a detailed analysis of the conjoint methodology used in this study. It starts with a research design considerations and then discusses the methodology used to conduct the review of literature and the conjoint methodology. The "Research Design Considerations" section delves deeper into the three research questions to be answered; describing the research strategy, design and philosophy; data acquisition challenges associated with questionnaire design, compilation, pre-testing and distribution. Lastly, the chapter highlights ethical considerations of the questionnaire administration.

Chapter Four, titled "Data Results, Analysis and Discussion" presents the data analysis and results concluding with a discussion on the findings of the study.

Chapter Five, "Summary, Conclusion and Recommendations" states the conclusion based on results analysed, provides implications of the results and makes recommendations based on the findings and suggests topics for future research study.

1.9 Chapter Summary

The chapter provided the context of the study, defined the problem statement and consequently, the research questions. It also highlighted the consequences of the problem; importance of the study; assumptions and delimitations of the study concluding with a section which provides an overview of all the chapters in the report.

Chapter Two

2 LITERATURE REVIEW

This chapter describes the literature relevant to the purposes of this research report. It describes literature on the factors that are often used in the selection of office space. It is organized into seven sections: Section one describes the importance of office space from a corporate real estate perspective, while section two gives an introduction and discussion of office tenant decision making. Sections three, four and five discuss the factors that affect office tenant satisfaction and loyalty, the push/pull/keep factors, and the factors and preferences that impact on office space selection respectively. Section six gives a theoretical background underpinning the factors and lastly, section seven gives a review of literature on the conjoint methodology and its application to real estate. At the end of the chapter is a summary highlighting the relevance of the literature to the study.

2.1 Office Space from a Corporate Real Estate Perspective

Organisations require real estate space in order to execute their business objectives. The demand for new and additional real estate space is driven by a number of organisational and market related factors. Wheaton (1988) (cited in Chegut et al., 2010) found that the most important factor determining demand for office space was employment in the legal and financial sectors. There were also differences with drivers for relocation in big firms versus those for small ones (Pittman and MacIntosh, 1992). Other factors were the presence of a real estate strategy which must be aligned with the organisational business strategy as stated by (Nourse, 1993) who found that for real estate space to add value to an organisation, the organisation should have a real estate strategy that is aligned to the corporate strategy albeit this is rarely so in practice. Pellenbarg *et al*. (2002) cited in Brouwer *et al.* (2004) state that "the main forces driving firm relocation are expansion and the need for more suitable premises". Other forces were cost saving (Brouwer *et al.*, 2004).

Recently, most office demand is driven by events in the macro-economy, Lottering (2017) for example found that business sentiment (measured as business confidence) and service-sector output were important factors that affected the demand for office space in South Africa. Lottering (2017) further stated the existence of a positive relationship between growth in service-sector output and growth in office demand. In addition, trends in the marketplace have historically, driven the demand for office space. Some of the trends affecting demand for office space are:

> Reduced aggregate demand from intensification of space usage; new and rapidly changing functional requirements; the need for less permanent, core space, but more transient space to accommodate the peripheral workforce; and a greater emphasis on flexibility both in physical configuration and in leasing or ownership (Gibson and Lizieri, 1999).

For instance, the demand for future office space as a result of Information and technological advances was a feature that was more pronounced in large organisations (Dent and White, 1998). However, Gibson (2001) found that the impact of new working activities on space needs was a gradual process and not one with an apocalyptic influence as asserted in earlier literature; having little bearing on the lease length or the location of the office space but more likely to have a reduction effect on the required office space or change in office layout. Miller (2014) examined the trends in space per office worker and the influence of a number of factors on the ability to reduce space per worker. He found that space per worker declined over time and that collaborative work initiatives countered work-at-home schemes resulting in delayed downsizing. As a result of changes in business operations and/or strategy, mainly due to growth in company operations, most organisations tended to seek larger space. In instances where smaller space was sought by the organisation, this was attributed to company rationalisation efforts, typically brought about by advances in technology and newer ways of working (Brouwer *et al.*, 2004; Rymarzak et al., 2012).

Location plays an important role in the choice of the organisations' new corporate address with some companies preferring to locate in certain specific areas like the Central Business District (CBD) or in the Decentralised Districts (DD). The main locational determinants were proximity to competitors, customers, motorway network, public transport, public car-parking, shops and restaurants, professional areas and finally locational prestige (Dent and White, 1998; Rymarzak *et al.*, 2012). Most literature, especially from the west and other developed countries identified the CBD as the most preferred location (Dent and White, 1998; Ho et al., 2005; Adnan and Daud, 2010). However, in South Africa, the CBD is not a favourable choice for most companies. This is attributed to locational obsolescence of the Johannesburg CBD which has resulted in most companies relocating to the decentralised districts, notably the suburbs in the northern part of the city. Another reason for this migration, by mostly large corporations, is the non-availability of large floorplates in the CBD and lack of car parking space.

2.2 Office Tenants' Decision Making

Literature (French, 1997; French, 2001) state that there is no such thing as real estate decision theory neither is there any for real estate sub-classes like office and Retail. In order for us to gain an understanding of real estate related decisions, we have to refer to general decision theories and adapt them to the real estate asset class and/or its sub-classes.

> Decision theory is the study of models of judgements involved in and leading to deliberate and usually rational choice. These may be probability based, loss functions models or other forms of statistical representations of judgements (French, 1997).

These authors further asserted that decision models can be used in descriptive, normative or prescriptive analysis. Descriptive Analysis – involves the use of models that describe how we do decide; Normative Analysis – involves the use of models that state how we should decide and Prescriptive Analysis – involves the use of normative models to guide the decision maker within other limiting cognitive parameters.

In addition, these decision models should have the following characteristics at the bare minimum to be useful (1) Axiomatic basis – The assumptions underpinning the model should be clear, explicit and acceptable to the users, (2) Lack of counter examples – it should be generally accepted that the model is not compromised by observable counter examples, (3) Feasibility – the techniques and methods must be feasible, (4) Robust – A sensitivity analysis of the inputs should be clearly identified and comprehensible, (5) Transparency – the analysis should provide meaning to the users and (6) be compatible with a wider philosophy – the models should be able to fit in with the decision maker's wider context and view (French, 1997).

2.3 Office Tenants' Satisfaction and Retention

Tenant satisfaction and retention are an important component of the relocation decision-making lifecycle. They assist with the reduction of turnover, maintain occupancy and help achieve investment goals through the implementation of a retention strategy. The real estate sector has definite cycles (with peaks and bottoms) which tend to lag the business cycle. Leasing activity has a correlation with a particular phase of the real estate cycle. There are more lease buyouts and tenant renewals during cycles of prosperity whilst periods of recession are dominated by more "blend and extend" transactions (Roberts, 2015b).

2.3.1 Retention

The retention of tenants involves much more relationship building efforts than merely competing on a price/quality ratio (Appel-Meulenbroek, 2008). It is important to retain existing tenants because it helps building owners and property managers avoid the expense and effort of tenant turnover which has a direct impact on net operating income and return on investment. Retention strategies could include deploying constant communication channels with the tenants and incorporating other retention factors like the office environment, technology, and automation, space planning, customer appreciation events, curb appeal, customer service and continuous staff training (Roberts, 2015b). Blatt (2013) stated the use of lease incentives like tenant Installation allowances and rent-free periods as a retention method to keep tenants satisfied.

2.3.2 Satisfaction

In order for the landlord or building owner to determine tenant satisfaction with the property, he or she must solicit feedback from the tenants. This can be done formally by asking the tenant to complete a questionnaire or informally by having a face-to-face conversation. There are several factors that determine the satisfaction of office tenants. Sanderson and Edwards (2016) in their study of UK office tenants found that the key factors in achieving occupier satisfaction, loyalty and advocacy were the physical aspects of the property being rented; the empathy of the landlord or property manager; the assurance that a property manager or building owner gave the lessee and the perception of obtaining value for money by the lessee during their lease tenure. Sanderson and Devaney (2017) investigated whether properties that had highly satisfied occupiers produced higher investment returns than those with poor customer satisfaction. They found a positive correlation between tenant satisfaction and the investment performance of the property, suggesting higher valuation for such properties.

> Different statistical methods were employed and the results indicate that there is a positive relationship between occupier satisfaction and investment performance, giving some support for the premise that treating tenants as valued customers results in superior returns for their owners. The findings also suggest that valuers might not have taken occupier satisfaction fully into account. Properties with more satisfied occupiers should be valued more highly if satisfaction translates into a greater likelihood of lease renewal or recommendation of the landlord, reducing void periods and improving cash flows (Sanderson and Devaney, 2017).

2.4 Push/Pull/Keep Factors

There are three categories of factors which influence the decision making behaviour of tenants. These are push, pull and keep factors. An extensive list of these factors was written by Pen (2002) (cited in Appel-Meulenbroek, 2008). Push factors are those factors that influence the tenant to relocate; Pull factors are those factors that attract the tenant to a particular location and lastly, Keep factors are those factors that influence a tenant to stay in a particular location. Appel-Meulenbroek (2008) in his study of tenants in the Netherlands found that the important push/pull factors were building factors influenced by the landlord whilst the keep factors were mostly linked to the building and its surroundings. In addition, he further found that there was a complex relationship between loyalty and satisfaction, concluding that loyalty was not a consequential action of satisfaction. Remøy et al. (2014) found other push and pull factors:

> Traditional push factors like car accessibility, extension need, and location and building image remain important. Nowadays sustainability issues like reducing energy consumption and better public transportation accessibility are highly prioritised pull factors as well. Regarding the creative industries, bike- and public transportation accessibility, multi-tenancy, and ICT and meeting facilities are most important (Remøy *et al.*, 2014).

2.5 Office Tenant Preferences/Factors

There are several reasons that necessitate the moving of an organisation from one place to another as stated above. Different studies reported in journal articles have identified different factors as being responsible for relocation decisions, starting with studies conducted more than 20 years ago (Pittman and McIntosh, 1992) and continuing to the present (Didiza, 2014; Meiring, 2016; Sanderson and Edwards, 2016). Historically, location was viewed as the single most important determinant (Pittman and MacIntosh, 1992; Rymarzak *et al.*, 2012). Pittman and MacIntosh (1992) investigated USA office tenant preferences and looked at the effect of organisation size on the relocation decision. They found out that the general ambience of the area, proximity to major transport nodes; proximity to customers and the proximity to residences of key personnel were the major factors that influenced the relocation decision. Additionally, smaller sized organisations traded-off location against access to major transport arteries whilst large ones needed to be close to the airport. In his study of office tenant preferences in Bangkok, Thailand, (Charusakulariyakul, 2003) established the rental rate as being the most important determinant for tenants in the area.

Other factors included the rental fee, length of the rental contract, amenities present, location, and the reputation of the leasing companies. However, this position, with the passage of time has changed with other factors taking precedence as shown in the literature, Jailani et al. (2015) for example, found sustainability as being a determinant factor in relocation decisions. Additionally, there is an increase in importance of non-monetary locational factors in the decision-making process with factors like availability of qualified staff, telecommunications, and quality of life for employees, freedom from pollution taking precedence. (Cushman and Wakefield, 2011 cited in (Rymarzak *et al.*, 2012). Rothe et al. (2012) studied the preferences of the office tenant but from a tenant perspective and not the property perspective and noted that demographic issues such as gender and age played a role in the relocation decision. They found that there were differences in work environment preferences between workers of different ages.

> The study shows that there are differences in the work environment preferences of users of different age. Significant differences were found concerning personal services, commuting, collaboration, restaurant services, and adjustability of indoor climate. The study also identifies areas in which preferences between younger and older employees did not differ remarkably, such as privacy and the virtual environment (Rothe *et al.*, 2012).

Using a Delphi approach to identify the preferences of office tenants in Kuala Lumpur, (Adnan and Daud, 2010) listed the most important factors as rental rate, security and access control, responsible management and maintenance team, car park provision/accessibility, and building image/identity. Adnan et al. (2013) further reinstated this position showing that sustainability features of a building were considered more important than location. Didiza (2014) collaborated this finding by noting that other factors and not location were paramount in the selection process. She found that the landlord and/or property manager was an important consideration than location, a reliable power supply, and competitive building levies. Meiring (2016) found that location was not an important factor as initially thought, effectively collaborating (Adnan and Daud, 2010)'s findings. Sanderson and Edwards (2016) noted that the key determinants of office choice were location, relationship with landlord, cost, size and layout, ambience and lighting and lastly the environment surrounding the office. Literature sources showing the factors and their importance to the office location decision - making process are shown in Table 2.5-1.

Table 2.5-1 – Factor relevance and literature sources

Factor	Relevance	Studies
Accessibility	Importance of Accessibility	(Weaver, 1985; Pittman and MacIntosh, 1992; Dent and White, 1998; Wai and Wei, 2010; van Bergen, 2011; van de Wetering and Wyatt, 2011; Leishman et al., 2012; Remøy *et al.*, 2014; Gawlik et al., 2017)
Price	Importance of Price	(Pittman and MacIntosh, 1992; Adnan and Daud, 2010; van Bergen, 2011; Iman *et al.*, 2012; Zortuk et al., 2014; Adnan et al., 2015; Calixijan and Murcia, 2015; Meiring, 2016; Gawlik *et al.*, 2017)
Location	Importance of Location	(Dent and White, 1998; van Bergen, 2011; Iman *et al.*, 2012; Rymarzak *et al.*, 2012; Didiza, 2014; Zortuk *et al.*, 2014; Adnan *et al.*, 2015; Calixijan and Murcia, 2015; Meiring, 2016; Gawlik *et al.*, 2017)
Landlord/Property Manager reputation	Importance of Landlord Reputation	(Adnan and Daud, 2010; Iman *et al.*, 2012; Didiza, 2014; Calixijan and Murcia, 2015; Meiring, 2016)
Security	Importance of the security	(Adnan and Daud, 2010; Wai and Wei, 2010; Leishman *et al.*, 2012; Calixijan and Murcia, 2015)
Parking	Importance of Parking	(Ho *et al.*, 2005; Adnan and Daud, 2010; van Bergen, 2011; Hwa and Chin, 2012; Meiring, 2016)
Green Rating	Importance of Green Rating	(Chegut *et al.*, 2010; van Bergen, 2011; van de Wetering and Wyatt, 2011; Jailani *et al.*, 2015; Meiring, 2016; Mohd Adnan et al., 2017)
Building Grade	Importance of Building Grade	(Adnan and Daud, 2010; van Bergen, 2011; Leishman *et al.*, 2012)
Building Size	Importance of Building Size	(Asser, 2004; Wai and Wei, 2010; van Bergen, 2011; Iman *et al.*, 2012; Leishman *et al.*, 2012; Zortuk *et al.*, 2014; Gawlik *et al.*, 2017)

Source: Author's review and analysis of relevant literature

The studies referenced in Table 2.5-1 have either been produced using a wide range of methodologies and in countries other than South Africa, for example, Iman *et al.* (2012) conducted a study in Malaysia. Although some of the previous studies highlighted above provide some local perspective and insight into the preferences of factors affecting the Johannesburg office market, these research reports have been produced using different types of statistical methods and analyses, for instance qualitative methods (Didiza, 2014) and mixed-methods involving factor analysis (Meiring, 2016).

This study, therefore, aims to bridge this methodological gap by conducting research into office tenant preferences using the conjoint methodology. Conjoint analysis is a marketing research method which is said to closely and realistically mimic actual decision-making actions by trading-off variables against other variables, based on the importance of these factors as perceived by the decision-makers in a particular scenario. Conjoint analysis can be of immense help to the property analyst by proffering a technique which evaluates the needs of the consumer and helps identify those factors or variables that a consumer perceives to be most important. In this study, we determined the most important tenant preferences that a particular office tenant would desire in an office location using conjoint analysis on 9 factors in a South African context.

2.6 Theoretical Background

Literature shows the linkage between the locational theories and the factors that influence relocation decisions (Brouwer *et al.*, 2004; Wardner, 2012). They discuss the three (3) theoretical frameworks namely (1) Neo-classical location theory, (2) Behavioural theory and (3) the Institutional theory. The factors identified in the previous section are part of the different theories. The Accessibility and Market size are factors which are mainly locational in nature and underpin the neo-classical model. The firm size and age of the firm are other factors being investigated and form part of the behavioural theory. Lastly, external factors to the firm like firm growth (described in the study as positive or negative movement in the number of employees and the firm's profit) underpin the institutional theory. These theories are described in detail below.

Neo-Classical Theory – this theory depicts the firm as a profit maximiser. The variables influencing location decisions, in this case, are locational. They include for example market size and factory location.

"The main drivers of firm location was [sic] therefore proximity to material sources, transport access and availability, and nearness to markets" Yang, 2004 cited in (Wardner, 2012). The theory also assumed that actors have perfect market knowledge and are rational bound in their decision-making.

> The neo-classical model is predicated on the notion that the market comprises rational actors operating with perfect information in an environment of costless transactions. It is assumed that property can be treated as a homogenous commodity and that consumers of space are also homogenous (Leishman and Watkins, 2004).

However, there is a strong body of evidence which suggests that these rational models are not usually followed in practice, with people behaving differently from what the models suggests. Psychologists and other behavioural scientists attribute this variation to either the original model being erroneous or the failure of the model to incorporate the whole thought process which influences the final decision. Tversky (1969) (cited in French, 1997) stated that contrary to normative theory which assumes that a transitive thought process is followed in almost all decision-making instances, decision–making is actually an intransitive process, usually as a result of external influences.

The observation of theoretical models not being followed in practice is also emphasized by (Leishman and Watkins, 2004; Greenhalgh, 2008; Wardner, 2012) who stated that the neo-classical depiction of urban office markets as coherent, unitary entities and individual firms as rational profit maximisers whose choice of office property is a trade-off between accessibility and space is applicable to the "old economy where industrialisation and manufacturing dominated the production of goods and services" (Wardner, 2012). The reality, however, as stated by Tversky, is that the decision-making process for new office space involves much more than simply being a location choice (Pittman and MacIntosh, 1992; Adnan and Daud, 2010; van Bergen, 2011; Iman *et al.*, 2012; Zortuk et al., 2014; Adnan et al., 2015; Calixijan and Murcia, 2015; Meiring, 2016; Gawlik *et al.*, 2017). In line with the neo-classical approach, this study will utilise the 'location' factors of accessibility and location.

Behavioural theory - depicts the firm as a decision maker. The variables influencing location decisions, in this case, are factors internal to the firm like firm size and firm age (Brouwer *et al.*, 2004; Greenhalgh, 2008). The firms are also involved in the whole relocation decision-making lifecycle commencing at strategic intent to relocate right through to occupation of new space.

Contrary to neo-classic analyses, literature finds that the firms are not profit maximisers.

> These studies acknowledge that in reality firms are not profit maximisers but instead, 'satisficers', meaning that firms have a set of criteria for their office location requirements and would continue to seek out options until that set of criteria is met. Elgar and Miller 2009 cited in (Wardner, 2012)

The influence of firm size and firm age on relocation decisions varies too. Mazzarol and Choo (2003) found differences in the way small firms and large firms viewed purchase decisions of an industrial site. They found that owners of small firms were motivated by personal interests in arriving at the purchase decision. Brouwer et al. (2004) found that the propensity to relocate decreased with both the age and size of the firm and was attributable to the fact that "larger firms have to incur higher sunk costs whereas older firms are more embedded in their spatial environment". Greenhalgh (2008) investigated the influences of firm size on office relocation/selection decisions and concluded that small organisations were more likely to make decisions based on constrained information whilst large organisations took a more complex, satisficing approach in their decision-making process. However, in both small and large firms, the behaviour, personal preferences, priorities, and perceptions of key personnel in the firm largely influenced the final outcome of the decision-making process (Greenhalgh, 2008). Nunnington and Haynes (2011) studied the effect of firm size and age on determining the office location and found that smaller firms, typically faced with resource constraints were more likely to make the relocation decision based on "gut feeling" rather than [on] detailed evaluation.

Institutional theory - depicts the firm as an interacting agency. The variables influencing location decisions, in this case, are factors external to the firm "such as supplier contracts, government incentives, assistance or contracts, labour unions, specialised infrastructure and other key factors in the production process of the firm"(Brouwer *et al.*, 2004). In addition, the relocation decision is acknowledged to be a result of the firm's investment strategies (Wardner, 2012).

Brouwer *et al.* (2004) stated that institutional theory is good at explaining the relocation decisions of large firms and found that relocation decision were affected by both internal and external growth factors. Firms that experience external factors e.g. positive or negative changes in number of employees or recent involvement in a merger or acquisition are more likely to relocate.

In conclusion, (Roberts and Henneberry, 2007) found that the decision-making process, as perceived by institutional investors did not deviate significantly from normative models albeit short-cuts were often taken in the decision-making process in the hope of achieving predetermined outcomes, thus exposing the process to bias, judgement and sentiment influences. French (1997) proffered that a prescriptive model should be developed and utilised in most real estate decision making processes that will assist in the exploration of judgements, beliefs, and preferences of the decision-makers in analysing the issues on hand as well as providing the understanding and insight needed to arrive at well-informed decisions. Parker(2014) (cited in Nsibande and Boshoff, 2017) proposed the creation of a prescriptive model underpinned by a four-stage, 20-step normative model to aid in real estate investment decision-making.

2.7 Conjoint Analysis Literature Review

This section presents a review of pertinent literature on the conjoint methodology. Conjoint analysis is originally a marketing research technique introduced to the world by psychological mathematicians Luce and Tukey in 1964. The purpose of the method is to elicit preferences over attributes that make up a particular product or service. The product/service could be real or hypothetical. This process of making trade-offs between the various attributes that make up a particular service or product closely mimics the actual real-life behaviour of most consumers who typically make trade-offs between factors or features of a product that are of interest to them and those that are not of interest to them (Johnson, 1974). Levy (1995) found that using conjoint analysis, respondents chose what product/services they wanted by making trade-offs in their decisions and assessing the weight that was attached to the various factors that underpinned those decisions.

Conjoint analysis is premised on several assumptions (Green and Srinivasan, 1978; Steenkamp, 1987; Gil and Sánchez, 1997; Hair *et al.*, 2009). First, Hair et al. (2009) state that the "Utility, a subjective judgment of preference unique to each individual, is the most fundamental concept in conjoint analysis and the conceptual basis for measuring value". They go on to state that utility encompasses a whole product or service and can be either tangible or intangible. Any product or service comprises attributes that describe it. These attributes are also known as part-worths (Green and Srinivasan, 1978). The levels associated with an attribute define its particular uniqueness (Steenkamp, 1987).

In our study context, office space consists of several factors which are jointly evaluated by a would-be tenant to arrive at a decision. Second, the utility is assumed to be placed on the value of the levels linked to each attribute (Hair *et al.*, 2009). A consumers' overall opinion of a product or service is essentially a trade-off of the these levels (Johnson, 1974) and follows Samuelson's utility maximisation rule which assumes that consumer will always choose the product or service with the highest utility:

> The rule assumes that every user will select a product with the highest utility or part-worth between alternative products offered in the market as users are known to be wealth maximisers. Samuelson, 1938 cited in (Calixijan and Murcia, 2015).

The total worth (value) of a particular product is then determined by the summation of the different part-worths of each attribute level (Green and Srinivasan, 1978; Hair *et al.*, 2009). "The value given to a product by buyers will help a marketer identify the product quality that buyers desire" Green and Wind, 1975 (cited in Iman *et al.*, 2012). Orme (1996) (cited in Iman *et al.*, 2012) further stated that "The process of making a selection among different attributes of a product would reveal their real value".

2.7.1 Definitions

Definitions of conjoint analysis abound in the literature. (Kotler, 2000 cited in North and De Vos, 2002) defines conjoint analysis as"…a method for deriving the utility values that consumers attach to varying levels of a product's attributes". "Conjoint analysis is a multivariate technique used specifically to understand how respondents develop preferences for products or services. It is based on the simple premise that consumers evaluate the value of a product or service by combining the separate amounts of value provided by each attribute" (Hair *et al.*, 2009). Zieba et al. (2013) define Conjoint analysis as a "… technique to elicit preferences over attributes of a complex good or service (in real-estate context is it apartment, detached house or office space)…" The technique consists of making a respondent choose one of a few available options, which differ by a few attributes. By running the operation a few or even dozen times for various sets of profiles, the researcher is able to assess partial utility inherent in particular attributes."

2.7.2 Conjoint Analysis and Real Estate

Traditionally, the real estate sector has typically focused on selling and advertising as opposed to marketing its services. The sector has since began to take note of advances in marketing research and acknowledge the advantages of using marketing research techniques in solving real estate challenges like location preferences, for example(Levy, 1995; North and De Vos, 2002). There are several marketing research techniques in use today, among them Conjoint Analysis; Hierarchical Analysis and other forms of multivariate analysis. This document discusses conjoint analysis which will be used to determine the importance of the office tenants' preferences.

There is a plethora of papers which show the application of the Conjoint methodology to real estate use-cases (Weaver, 1985; Darmon and Rouziès, 1999; Melles et al., 2000; North and De Vos, 2002; Bravi and Giaccaria, 2005; Orme, 2010; Raghavarao *et al.*, 2010; Bond, 2011; Poot, 2011; van Bergen, 2011; Hwa and Chin, 2012; Iman *et al.*, 2012; Berrio and Cladera, 2013; Cho et al., 2013; Gregory, 2013; Maciej et al., 2013; Zieba *et al.*, 2013; Bauer et al., 2015; Ben-Akiva et al., 2015; Calixijan and Murcia, 2015; Mansour and Radford, 2016; Shtudiner et al., 2017; Voleti et al., 2017). The earliest indication of use was in a 1972 study by Fiedler, 1972 cited in (Hamid Mar Iman et al., 2012) where it was used in residential design and Pricing. Iman *et al.* (2012) conducted a conjoint study of residential properties in Malaysia. They found the Conjoint method to be an effective marketing tool in deciding which typical residential features were of prime importance to the would-be buyers.

Heinzle et al. (2013) showed how green features of condominiums in Singapore influenced the purchasing decisions of the would-be owners and concluded that green-rated buildings commanded a higher premium than conventional buildings. A similar study conducted in China by (Hu et al., 2014) employed the conjoint method to examine the willingness of buyers to pay for green features in buildings and found that the socio-economic status of the buyer largely influenced the purchasing decision. Calixijan and Murcia (2015) in their Philippines study showed the application of conjoint analysis to the real estate market and determined the potential home buyer's preferences for condominium properties and the order of relative importance of each attribute. Shtudiner *et al.* (2017) illustrated the use of conjoint analysis in assisting families wishing to change cities. They measured the consumer perception of the importance of various attributes such as quality of education, distance from work, average price of the property, and proximity to family.

Table 2.7.2-1 – Comparison of methodologies in research related to office relocations

Research	Year	Methodology	Scope	Results
Rothe, et al.	2011	Principal Component Analysis	Holland	Identified 3 User factors
Zieba, et al	2013	Conjoint Analysis	Poland	Analysed 5 location factors
Marmolejo-Duarte and Ruiz-Lineros	2013	Conjoint Analysis	Spain	Application of Conjoint Analysis to Real Estate
Adnan, et al	2013	Analytical Hierarchical Process	Malaysia	
Adnan	2013	Analytical Hierarchical Process	Malaysia	Identified factor Ranking
Didiza	2013	Electronic Survey	RSA	Identified 4 relocation factors
Sanderson and Edwards	2016	Structural Equation Modelling and Regression	UK	Identified 5 relocation factors
Meiring	2016	Factor Analysis and Regression	RSA	Identified 7 relocation factors
This Study	2017	Conjoint Analysis	RSA	Analyses 9 relocation factors

Source: Author's review and analysis of relevant literature

Table 2.7.2-1 above highlights the fact that whilst a lot of studies have been conducted on identifying the factors that office tenants consider when looking for new space, little has been done which actually illustrates the decision-making process by showing trade-offs of particular factors. Performing trade-offs of factors during the decision-making process can be determined by the use of other statistical methods like Conjoint analysis. Didiza (2014) suggested that, from a South African context, the need for more research to be conducted in identifying the preferences of office tenants using more robust techniques.

2.7.3 Limitations of Conjoint Analysis

Recent literature suggests that conjoint analysis could be limiting in its analyses and suggest new models and approaches for overcoming this limitation (Berrio and Cladera, 2013; Adnan *et al.*, 2015). Berrio and Cladera (2013) stated that conjoint analysis as a technique for determining consumer preferences was limiting in the sense that the attributes to be used in the experiments needed to be pre-defined and limited in quantity too. Adnan *et al.* (2015) collaborated these findings by using the Analytic Hierarchy Process (AHP) method to analyse the importance of the main factors chosen by the tenants at top grade office buildings in Kuala Lumpur city centre.

They further showed the advantages of AHP over conjoint analysis by citing the findings of other authors:

> In terms of the technique for gauging preferences, although conjoint analysis (CA) has emerged as most commonly employed in earlier studies particularly in marketing studies, more recent works by Koo and Koo (2010) and Helm et al. (2008) have found that other tools are also useful, including the Analytic Hierarchy Process (AHP) technique. In fact, Koo H. y. and Koo L. C. (2010) and Helm et al. (2008) have shown **the advantages of AHP over CA, with the most significant advantage being that while CA is a better choice in relatively simple decision problems, AHP is a better method in more complex problems** [emphasis added] (Helm et al. 2004, 2008). (Adnan *et al.*, 2015)

Another way of overcoming these methodological limitations is through the use of newer methodologies and better preference elicitation approaches like choice-based conjoint analysis (CBC) and stated preference elicitation respectively (Bauer *et al.*, 2015; Ben-Akiva *et al.*, 2015). Bauer *et al.* (2015) compared the two variants of Choice based Conjoint analysis namely Adaptive choice-based conjoint analysis (ACBC) and hybrid individualized two-level choice-based conjoint analysis (HIT-CBC) and found that ACBC had some advantages over HIT-CBC. While stated preference elicitation methods collect data on consumers by "just asking" about tastes, perceptions, choices, valuations, attitudes, motivations, life satisfactions, and/or intentions, Choice-Based Conjoint Analysis (CBC) asks respondents to make choices from pre-defined attributes. Ben-Akiva *et al.* (2015) compared stated preference elicitation with choice-based conjoint analysis and found that preference elicitation provided a much deeper and wider perspective of consumer preferences than conjoint analysis. Marmolejo-Duarte and Bravi (2017) illustrated the application of state preference elicitation by looking at the preferences of resident's preferences of Energy rating labels. They found that the marginal willingness to pay for an "A" label instead of an E label was higher than the stated savings in energy costs. Voleti *et al.* (2017) introduced the concept of Dirichlet Process Mixture (DPM) model as an innovative approach to improving the predictive power of choice-based conjoint analysis.

2.8 Conclusion

The dearth of studies of, and literature on the factors affecting office relocation decision-making processes of firms in South Africa, particularly Johannesburg, necessitates the need for more research to be done using techniques that closely mimic the actual behaviour of the would-be tenants.

Performing such research using sophisticated research techniques will give better insights into the following three research questions:

What are the ideal preferences of Johannesburg office tenants?

What are the self-explicated preferences of Johannesburg office tenants?

What are the conjoint analysis full-profile preferences of Johannesburg office tenants?

2.9 Chapter Summary

The chapter reviewed the literature relevant to the study, describing the factors that are often used in the selection of office space. It highlighted the importance of office space from a corporate real estate perspective. Office tenant decision-making process involved three decision models namely descriptive, normative and prescriptive analysis. Office tenant satisfaction and loyalty showed a positive correlation between highly satisfied office tenants and company financial performance. The review also showed that there are several factors which collectively influence the office relocation decision-making process. Lastly, there were three location theories that underpin the relocation decision-making of firms. These were the neo-classical, behavioural and the institutional theories.

Chapter Three

3 RESEARCH METHODOLOGY

3.1 Introduction

This chapter describes the methodology that was used in this research. It is organized into eight sections: Section one introduces the topic and gives meaning to the method employed in carrying out the research, while section two looks at research design considerations, specifically touching on research design, philosophy, strategy and the study setting. Section three reinstates the aim and objectives of the research while section four describes what population was studied and the selection of the sampling procedure. Section five outlines the conjoint methodology while section six discusses the data collection instrument, detailing the design, compilation, pre-test, distribution, and ethical considerations of the questionnaire. Section seven outlines the data collection procedure as well as the types of data collected. Lastly, section eight describes and details other analytic methods that were employed in the research.

3.2 Student Setting/Research Design

This section discusses research design considerations specifically looking at the research design, philosophy and strategy, and the study setting.

3.2.1 Research Design

This study adopted a quantitative research strategy. The approach of collecting data, predominantly using structured interviews and questionnaires at a single point in time is known as a cross-sectional design (Bryman, 2006 cited in Saunders, et al., 2009). Consequently, data in this study was collected at a single point in time.

3.2.2 Research Philosophy

This study adopted a positivist philosophy. This is a consequence of positivism assumptions holding true from a quantitative research basis and not a qualitative research basis. It is also referred to as the scientific method of doing science research, empirical science and post positivism (Creswell, 2009).

3.2.3 Research Strategy

Based on a positivism philosophy, a quantitative research strategy was utilised in this study. Creswell (2009) described a quantitative approach as the testing of a theory by specifying narrow hypotheses and the collection of data to support or refute the hypotheses.

3.2.3.1 Research Strategy Limitations and Mitigation

The limitations of the quantitative research strategy are shown in Table 3.2.2-1.

Table 3.2.3.1-1 - Research Strategy Limitations and Mitigation

Limitation (Risk)	Mitigation
• **Difficulty in developing accurate survey instrument.**	Re-use already developed instrument
• **Difficulty in determining if respondents are responding truthfully.**	Schedule interviews with respondents to assist with understanding the instrument.
• **Structural Bias**	

Source: Author's review and analysis of relevant literature

3.2.4 Study Setting

In its broadest conceptualization, this study addressed the population of office tenants in the Johannesburg metropolitan area. However, the vast diversity of this population in terms of location and other related variables makes for a monumental undertaking. Therefore, it became necessary to delineate the setting from which a sample for the study was drawn. The setting for the proposed study, thus, consists of all decision-makers in office tenants within three office sub-classes; A-grade offices, B-grade offices and P-grade office tenants in Johannesburg. Choosing this setting provided for a sample of office tenants within a confined geographic area thereby facilitating the collection of data, while at the same time ensuring that the sample was large enough to be representative of the overall office population. Moreover, the demand and supply factors were considered constant for all offices within the Johannesburg metropolitan area and that choice is based only on quality and location of space. This assertion is supported by (Zieba et al., 2013) which stated that:

> When a study is based on single metropolitan market, the supply and demand factors can be easily omitted as constant for all office properties within market. One can presume that tenant choice is based on quality and location of office space (Zieba *et al.*, 2013).

3.3 Reinstatement of Research Aim and Objectives

In the previous chapter, a review of relevant literature related to the factors established a background of support for the study. All of these factors have been studied extensively, and a lot of insight provided albeit with other statistical methods. This study is an effort to examine the order of importance between these factors in a manner that has not been done to date.

The main area of this research report concerns office tenants and selected factors that were used by them during the relocation decision-making process. The objective of this report is determining the order of importance of selected factors that influence the office relocation decision. This order of importance of the factors will be determined by examining the ideal preferences of the office tenants. The self-explicated preferences of the tenants will be examined and compared to preferences derived from a conjoint analysis full-profile model. The data will be collected and analysed and results obtained from this study can be used in making future investment decisions pertaining to office relocations by a wide range of stakeholders.

3.3.1 Research Questions

What are the ideal preferences of Johannesburg office tenants?

What are the self-explicated preferences of Johannesburg office tenants?

What are the conjoint analysis full-profile preferences of Johannesburg office tenants?

3.3.2 Experimental Design

This study was essentially a factorial experiment. “Factorial experiments are those that combine several levels of more than one factor or variable” (Weaver, 1985). In this report, nine (9) office–location factors, each with three (3) levels were examined. The nine factors and levels were selected by picking out the most important factors affecting office relocation as stated in previous literature. When all the factors under consideration have the same number of levels, then the design is called a balanced design (Hair *et al.*, 2009). The presentation of the full factorial design to the respondent using a full-profile approach entails the ranking of each profile. In our case, nine factors each with three levels were defined implying that, theoretically, there were 3^9 profiles or 19548 profiles for evaluation by the respondent. However, evaluating such a large number of profiles is impossible for any respondent.

Literature shows that respondents can only complete up to 30 profiles without compromising quality of the data (Hair *et al.*, 2009). Consequently, to minimise respondent fatigue, the study used fractional factorial design to reduce these profiles to a number (31) that could be managed by the respondents and ranked whilst preserving the orthogonality and balanced aspect design.

> **Fractional Factorial design:** Method of designing profiles (i.e. an alternative to factorial design) that uses only a subset of the possible profiles needed to estimate the results based on the assumed composition rule (Hair *et al.*, 2009).

Fractional factorial design has other advantages in addition to reducing the number of profiles. Green and Srinivasan (1978) found that a fractional factorial design had better predictive power, especially when establishing the relative importance of the factors under investigation. An orthogonal balanced fractional factorial design was chosen for this report. The design is balanced in the sense that each factor has the same number of levels; fractional factorial (reduced number of profiles) and is orthogonal, meaning that the part-worth estimates are independent of each other.

Using the conjoint module of IBM SPSS 25 statistical package, an orthogonal array of 31 profiles were generated (from the possible 19548 profiles) and were evaluated by the respondents. The 31 profiles were a subset of the 19548 profiles and consisted of 4 hold-out profiles. Hold-out profiles were not evaluated by the respondents but were used for validation purposes.

3.4 Population and Sampling

3.4.1 Population and Sampling Frame

The population of the study are office tenants within the Johannesburg metropolitan area who have relocated or made relocation decisions within the last 6 months – period between November 2017 and April 2018. The sampling frame is all A-grade, B-grade and P-grade office tenants in the Johannesburg metropolitan area. There is no restriction on location of the tenants and as such, included tenants located in the central business district (CBD), decentralised districts and/or any other office nodal precincts. Lists of these potential office tenants for the study were obtained from three sources:

1. The South African Property Owners Association (SAPOA)
   Paddock View, Hunt's End Office Park,
   36 Wierda Road West, Wierda Valley,
   Sandton, 2196
2. The South African Institute of Black Property Practitioners (SAIBPP)
   Vusa House, 5th Floor, Suite 2, Gandhi Square,
   Johannesburg
3. The researcher's network of colleagues and other contacts in the property industry in South Africa.

These institutions (SAPOA and SAIBPP) were approached and declined to provide actual information on the members (SAPOA, however, assisted with the property register consisting of 300 companies which was used as a starting point) citing confidentiality issues and the Protection of Personal Information (POPI) Act. The Protection of Personal Information (POPI) Act was enacted in 2013 and seeks to promote the protection of personal information processed by public and private bodies inter alia. To alleviate this issue and to mitigate non-response risk owing to confidentiality concerns, the study decided to have a single point of contact in each of the offices who coordinated the distribution and collection of the questionnaires. The fact that the population was incomplete due to the challenges above and the fact that a non-probability sampling method (see below) was used, insinuates that a frame error possibly exists.

3.4.2 Sampling

The study did not use a probability sampling method. A non-probabilistic method of sampling, for instance, convenience sampling was used for this study. This choice of sampling method was premised on the following reasons. First, the study was not meant to extrapolate the findings to a larger population. Second, landlords and other building owners were not keen on divulging the contact information of their tenants (essentially the population of the study) citing provisions of the POPI Act of 2013 meant to protect the processing of personal information by public and private bodies inter alia. Based on the above two reasons, the study was not able to use a probabilistic method e.g. random sampling as a population list could not be obtained and consequently, a random sample of potential respondents drawn from it.

Owing to the fact that non-probability sampling techniques were used, the study was more prone to sampling errors. These were minimised for purposes of this study due to the fact that a sample and not the entire population was being surveyed. Advantages of this approach are timeliness and speed (Bickman and Rog, 2009). Other benefits include minimisation of total error:

> The use of a sample may also be better than a census in minimizing the total error that arises in a survey because greater attention can be given to non-sampling error (Weaver, 1985).

Non-sampling error was minimised through the proper design of the questionnaire and handling of the results.

3.4.3 Sample Size

In conjoint analysis, the number of respondents (sample-size) is a function of several factors (Orme, 1998, Sambandam, 2017). Orme (1998) listed these factors that influence the sample size as: the confidence-level required; the type of conjoint methodology; the homogeneity of the market; the size of the 'population'; the method used in selection of the sample and the part of the conjoint experiment that needs the specific "statistically significant result". The level of certainty required is usually the key criterion on which the sample size is determined (Orme, 1998; Sambandam, 2017). Sambandam (2017) further states that the standard error of the utilities is usually checked, especially in traditional conjoint designs.

> Traditionally conjoint designs (once finalized) are tested to estimate the standard errors that are likely to occur with the utility scores (which are the primary output metric). A standard convention is to ensure that all utility scores have standard errors of .05 or less (which translates to about +/- 10 percent error bound around utility scores) (Sambandam, 2017).

Hair *et al.* (2009) stated the minimum sample size as 50 and that sample-sizes of about 200 provided for an acceptable margin of error. Both (Siddiqui, 2013) and (Calixijan and Murcia, 2015) cited Orme (2010) who stated that "the sample sizes of conjoint studies generally range from 150 to 1,200 respondents". Siddiqui (2013) further goes on to cite Orme (2010) adding that investigational work about a market needs between thirty and sixty respondents:

> For robust quantitative research where subgroup comparison is not the purposes, at least 300 respondents are required to make a meaningful insight. **For investigational work and developing hypotheses about a market, between thirty and sixty respondents may do** [emphasis added].

> If the purpose of research is to compare groups of respondents and detect significant differences, sample size to accommodate a minimum of about 200 per group would be required. Therefore, for a study planning to divide respondents into as many as four groups (i.e., through cluster analysis) it would be wise to include, at a minimum, 4 × 200 = 800 respondents (Orme, 1998).

As stated above, the level of confidence required influences the sample size. However, most of these margins of error and consequently, sample size, are determined by assuming large populations. Orme (1998) introduced the term *Finite Population Correction (FPC)* to help determine the sample size in a conjoint study when the population is not large (as is the case in this study).

[1] $FPC = (N - n)(N - 1)$; N = population size and n = sample size

the equation above simplifies to:

[2] $FPC = 1 - f$; $f = \frac{n}{N}$ For all populations except the smallest ones. He further states that the margin of error (95 % confidence interval) for a finite sample is determined from the equation below:

[3] $Margin\ of\ Error = \pm 1.96 \sqrt{(1 - f)\frac{PQ}{(n-1)}}$

Where $1.96 = z - stat\ for\ 95\ per\ cent\ confidence\ interval\ and\ P$ is standardised at 0.5 and $Q = 1 - P$

Using the equation [3] above, and assuming a standard margin of error of ± 10 % typical of most conjoint studies (Sambandam, 2017), a 'finite population' of 200, calculates the sample size, $n = 66$. This means that if 200 questionnaires are distributed, at least 66 responses are needed for the results to have a 10 % margin of error at 95 % confidence interval. Owing to the homogeneity of the respondents (office tenants usually have little differences in preferences); 200 questionnaires were produced and sent out in this study.

3.5 Conjoint Methodology

An experiment involving conjoint analysis comprises several stages that lead to the creation and use of the conjoint model. The following steps adapted and condensed from (Green and Srinivasan, 1978; Weaver, 1985) were used to derive the conjoint model:

1. Identification of Factors.
2. Selection of a Preference Model.
3. Data Collection.
4. Selecting an estimation technique.
5. Evaluating model's goodness of fit.
6. Model validation method.

3.5.1 Identification of Factors

Literature discusses a number of ways in which factors to be used in a survey are obtained. "A preliminary data collection effort, questioning consumers regarding attributes important to them, usually helps in identifying those attributes that are most frequently regarded as relevant" Braun and Srinivasan, 1975 cited in (Green and Srinivasan, 1978). "Kelly's (1955) repertory grid, focus group interviews, or judgments of product managers, retailers, and others knowledgeable about the product/service can be used for this too" (Green and Srinivasan, 1978). Koo et al. (1999) used focus group interviews to obtain information on which attributes to use in their survey.

This study used two sources to help identify the factors to be used. First, an extensive literature survey (see chapter two) was conducted and research evaluated to come up with a list of factors affecting office relocations. Second, discussions with my research supervisor supplemented the information obtained from the literature search as regards factors. However, owing to time constraints, neither key Informant interviews were conducted to help reduce the number of factors by choosing the most important factors as done in other surveys (Calixijan and Murcia, 2015) nor was the use of mean rank (Iman *et al.*, 2012) utilised in reducing the number of factors. This study simply used the most frequently occurring factors as described in the literature.

In total, nine factors, each with three levels were selected for the study:

1. **Accessibility:** is the accessibility of the office location to other important places like public transportation, major malls, hotels and airports and major highways.
2. **Price:** is the total cost associated with the space they tenants intend to lease (offer price). For purposes of this study, we will look at three (3) price points, R150/m², R170/m² and R200/m².

3. **Location**: denotes the actual physical area where the building is located. The levels associated with this factor are Central Business District, Decentralised Business District, and Office Precincts.
4. **Landlord/Property Manager reputation**: the reputation of the landlord/Property Manager is an important factor in the office selection process. The levels associated with this factor are Excellent, Bad and Poor.
5. **Security:** Security is described using the following levels: Level 1 Security defines buildings with CCTV, Biometric Access Control and perimeter electric fence; Level 2 Security is for buildings with only CCTV and Perimeter electric fencing. Level 3 Security is for buildings with only Building Access Control.
6. **Parking:** is another factor and is a key requirement for most building tenants. The levels associated with Parking are Basement Parking; On-grade (open-air parking) and covered open-air parking.
7. **Green Rating:** is a factor that is considered for new office relocations with that green space commands a premium rental rate compared to conventional buildings with users willing to pay more for green space. The levels that are associated with this factor are No Rating (Conventional Building); GBCSA 5-star and 4-star GBCSA rated Building.
8. **Building Grade:** is also one of the factors. The levels associated with this are P-grade, A-grade and B-grade.
9. **Building Size:** The building size is the last of the factors used in the office selection process. There are three levels associated with this factor. These are small (for building size ranging from 50 – 500m²); medium (for sizes ranging from 600 – 3000m²) and large buildings (ranging in size from 3000 – 10000m²).

Table 3.5.1-1 – The Nine factors and their associated levels

Factors	Levels
Accessibility	Public Transportation Major Malls, Hotels, and Airports Major Highways
Price	Low - R150/m² Medium - R170/m² High – R200/m²
Location	Central Business District Decentralised Node Office Nodal Precincts
Landlord/Property Manager reputation	Excellent Bad Poor
Security	Level 1: CCTV, Biometric and Electric Fence Level 2: CCTV, Electric Fence and Security Guard Level 3: Building Access Control and Security Guard
Parking	Basement parking (Covered parking) On-grade parking (open-air parking) Structured parking (Covered parking)
Green Rating	No Rating GBCSA 4-star GBCSA 5-star
Building Grading	P-grade A-grade B-grade
Building Size	50m² – 500m² 500m² – 3000m² 3000m² – 10000m²

Source: Author's review and analysis of relevant literature

3.5.2 Selection of a Preference Model

The second stage involved specifying the composition rule to be used and selecting the type of relationships between the part-worth estimates. The composition rule describes how the respondent combines the part-worth of the factors to obtain overall worth or utility of the product or service and could either be an additive model or an interactive model (Green and Srinivasan, 1978; Hair *et al.*, 2009). Since there were nine factors, the traditional conjoint methodology was used which supports the additive model. This assertion is supported by (Hair *et al.*, 2009):

> The most common and basic composition rule is an additive model. It assumes the respondent simply adds the values for each attribute (i.e., the part-worths of the levels) to get the total value for a profile. Thus, the total utility of any defined profile is simply the sum of the part-worths (Hair *et al.*, 2009).

Literature (Hwa and Chin, 2012; Iman *et al.*, 2012; Leishman et al., 2012; Marmolejo-Duarte and Ruiz-Lineros, 2013) shows that most of the conjoint analyses use the additive model especially when the number of factors is nine or less. The relationships between the part-worth could be one of the three available: Linear, quadratic or separate part-worth. This study used a separate part-worths relationship between the part-worth.

3.5.3 Data Collection

The third stage involved choosing the type of presentation method for the factors which could be one of the following (trade-off, full-profile, or pairwise comparison), the type of preference measure, and the method of data collection.

Presentation Method: The trade-off method described in (Johnson, 1974) evaluated two-attributes-at-a-time. It is not commonly used owing to some inherent limitations. "By decomposing the overall set of factors to two-at-a-time combinations, there is some sacrifice in realism"(Green and Srinivasan, 1978). The full-profile method was adopted by this study and is commonly used "principally because of its perceived realism as well as its ability to reduce the number of comparisons through the use of fractional factorial designs"(Hair *et al.*, 2009). Additionally, Green and Srinivasan (1978) state the main argument favouring the full-profile as providing more realistic stimuli:

> The main argument that seems to favour the full-profile approach is that it gives a more realistic description of stimuli by defining the levels of each of the factors and possibly taking into account the potential environmental correlations between factors in real stimuli (Green and Srinivasan, 1978).

The full-profile presentation type was chosen for this study and presented the respondents with a detailed description of hypothetical office locations using all nine factors. There were a total of 31 such profiles for the respondents to evaluate. The pairwise comparison involves the comparison of two profiles and differs from full-profile in the sense that the profiles do not usually have all the factors. It is also not commonly used and works well in other variants of conjoint analyses e.g. choice-based conjoint methodology.

Table 3.5.3-1 – Orthogonal Array of 31 Full Profiles

	Profile No	Location	Reputation	Accessibility	Price	Security	Parking	Green Rating	Building Grading	Building Size
1	1	Decentralised Districts	Excellent	Major Highways	R170	Level 3: Building Access Control and Guard	Open-air Parking	GBCSA 5-Star	B-Grade	50m2 - 500m2
2	2	Office Precincts	Excellent	Public Transportation	R170	Level 1: CCTV, Biometric Access	Covered open-air Parking	GBCSA 5-Star	A-Grade	501m2 - 3000m2
3	3	Central Business District	Excellent	Major Highways	R200	Level 3: Building Access Control and Guard	Basement Parking	Unrated	P-Grade	501m2 - 3000m2
4	4	Central Business District	Bad	Major Retail Centres, Hotels	R200	Level 1: CCTV, Biometric Access	Covered open-air Parking	GBCSA 4-Star	B-Grade	3000m2 - upward
5	5	Office Precincts	Poor	Major Highways	R200	Level 1: CCTV, Biometric Access	Basement Parking	GBCSA 5-Star	B-Grade	3000m2 - upward
6	6	Decentralised Districts	Poor	Major Highways	R150	Level 1: CCTV, Biometric Access	Covered open-air Parking	Unrated	P-Grade	50m2 - 500m2
7	7	Office Precincts	Bad	Major Highways	R170	Level 2: CCTV, Electric Fence	Open-air Parking	Unrated	P-Grade	3000m2 - upward
8	8	Central Business District	Excellent	Major Retail Centres, Hotels	R170	Level 2:CCTV, Electric Fence	Basement Parking	GBCSA 5-Star	P-Grade	3000m2 - upward
9	9	Decentralised Districts	Poor	Public Transportation	R170	Level 2:CCTV, Electric Fence	Covered open-air Parking	GBCSA 4-Star	P-Grade	3000m2 - upward

10	10	Office Precincts	Poor	Major Retail Centres, Hotels	R170	Level 3: Building Access Control and Guard	Basement Parking	GBCSA 4-Star	B-Grade	50m2 - 500m2
11	11	Central Business District	Poor	Major Highways	R170	Level 1: CCTV, Biometric Access	Open-air Parking	GBCSA 4-Star	A-Grade	501m2 - 3000m2
12	12	Central Business District	Excellent	Public Transportation	R150	Level 1: CCTV, Biometric Access	Basement Parking	GBCSA 4-Star	P-Grade	50m2 - 500m2
13[a]	13	Central Business District	Poor	Public Transportation	R150	Level 1: CCTV, Biometric Access	Basement Parking	Unrated	B-Grade	3000m2 - upward
14	14	Office Precincts	Bad	Public Transportation	R200	Level 3: Building Access Control and Guard	Open-air Parking	GBCSA 4-Star	P-Grade	501m2 - 3000m2
15	15	Decentralised Districts	Bad	Major Highways	R200	Level 2:CCTV, Electric Fence	Basement Parking	GBCSA 4-Star	A-Grade	50m2 - 500m2
16	16	Decentralised Districts	Excellent	Major Retail Centres, Hotels	R150	Level 2:CCTV, Electric Fence	Open-air Parking	GBCSA 4-Star	B-Grade	501m2 - 3000m2
17	17	Office Precincts	Excellent	Major Retail Centres, Hotels	R200	Level 2:CCTV, Electric Fence	Covered open-air Parking	Unrated	A-Grade	50m2 - 500m2
18	18	Office Precincts	Excellent	Major Highways	R150	Level 3: Building Access Control and Guard	Covered open-air Parking	GBCSA 4-Star	A-Grade	3000m2 - upward
19[a]	19	Central Business District	Bad	Major Retail Centres, Hotels	R150	Level 2: CCTV, Electric Fence	Covered open-air Parking	GBCSA 4-Star	A-Grade	501m2 - 3000m2
20	20	Central Business District	Poor	Public Transportation	R200	Level 2:CCTV, Electric Fence	Open-air Parking	GBCSA 5-Star	A-Grade	50m2 - 500m2

21	21	Office Precincts	Poor	Public Transportation	R150	Level 2:CCTV, Electric Fence	Basement Parking	Unrated	B-Grade	501m2 - 3000m2
22	22	Decentralised Districts	Bad	Major Retail Centres, Hotels	R170	Level 1: CCTV, Biometric Access	Basement Parking	Unrated	A-Grade	501m2 - 3000m2
23[a]	23	Central Business District	Bad	Major Retail Centres, Hotels	R170	Level 1: CCTV, Biometric Access	Open-air Parking	GBCSA 5-Star	A-Grade	3000m2 - upward
24	24	Office Precincts	Bad	Major Retail Centres, Hotels	R150	Level 1: CCTV, Biometric Access	Open-air Parking	GBCSA 5-Star	P-Grade	50m2 - 500m2
25	25	Central Business District	Poor	Major Retail Centres, Hotels	R150	Level 3: Building Access Control and Guard	Open-air Parking	Unrated	A-Grade	3000m2 - upward
26	26	Central Business District	Bad	Major Highways	R150	Level 2: CCTV, Electric Fence	Covered open-air Parking	GBCSA 5-Star	B-Grade	501m2 - 3000m2
27	27	Central Business District	Bad	Public Transportation	R170	Level 3: Building Access Control and Guard	Covered open-air Parking	Unrated	B-Grade	50m2 - 500m2
28	28	Decentralised Districts	Excellent	Public Transportation	R200	Level 1: CCTV, Biometric Access	Open-air Parking	Unrated	B-Grade	3000m2 - upward
29[a]	29	Decentralised Districts	Bad	Major Retail Centres, Hotels	R150	Level 3: Building Access Control and Guard	Basement Parking	GBCSA 5-Star	A-Grade	3000m2 - upward
30	30	Decentralised Districts	Poor	Major Retail Centres, Hotels	R200	Level 3: Building Access Control and Guard	Covered open-air Parking	GBCSA 5-Star	P-Grade	501m2 - 3000m2
31	31	Decentralised Districts	Bad	Public Transportation	R150	Level 3: Building Access Control and Guard	Basement Parking	GBCSA 5-Star	A-Grade	3000m2 - upward

a. Holdout

Profile numbers 13, 19, 23 and 29 are hold-out profiles. These were unknown to the respondents and were rated by them. However, the conjoint method does not use them during the calculation of utility scores but only for validation of the results.

Type of Preference Measure: The measure of preference could either be rank-ordering or rating e.g. (a 1- 10 scale) Likert kind of scale. This study used the 'rank-ordering' as a measure of preference, primarily because of the following:

> Obtaining a rank-order preference measure (i.e., rank-ordering the profiles from most to least preferred) has two major advantages: (1) it is likely to be more reliable because ranking is easier than rating with a reasonably small number (20 or fewer) of profiles, and (2) it provides more flexibility in estimating different types of composition rules (Hair *et al.*, 2009).

Data Collection Method: This is not about data collection per se, but illustrates the two techniques that are used in conjoint analysis data collection. These techniques are revealed or stated preference methods. The revealed preference method uses data on actual choices about real decisions whilst the stated preference method tasks individuals to make choices on hypothetical scenarios (van Bergen, 2011; Hwa and Chin, 2012). This study adopted a stated preference approach where respondents provided data on 31 hypothetical office locations. This stage involved the presentation of the stimuli sets; determination of sample sizes and administration of the survey. However, most of this information is covered in section 3.6.

3.5.4 Selecting an Estimation Technique

Selection of the estimation method falls into two categories: A metric method for ratings and a non-metric method for rank-orders. The non-metric method was adopted for this research study due to the reliability advantage that the non-metric method has over the metric one:

> Ranked data are likely to be more reliable since it is easier for a respondent to say which he/she prefers more as compared to expressing the magnitude of his/ her preference (Green and Srinivasan, 1978).

Green and Srinivasan (1978) go on to add another edge over the metric method in the sense that the nonmetric dependent variable can be used in either an additive or multiplicative manner.

> Data analysis based on a nonmetric dependent variable allows the part-worth functions to be combined in either an additive or multiplicative manner. This is because estimation of an additive model with a nonmetric dependent variable is also consistent with a multiplicative model since the logarithmic transformation is just one of the permissible monotone transformations of the dependent variable (Green and Srinivasan, 1978).

Historically, the selection of an estimation technique was dictated by the choice of preference measure (rank-order or ratings).

Rank-order models were typically estimated using some form of variance analysis. However, this has changed with new computer software, for instance, SPSS being able to "accommodate either type of evaluation (ratings or rankings), as well as estimate any of the three types of relationships (linear, ideal point, and part-worth)"(Hair *et al.*, 2009). This study utilised a rank-order method and data was estimated using the conjoint module of the statistical programme Statistical Packages for Social Science (SPSS) version 25.

3.5.5 Evaluating Model's Goodness of Fit

"The role of any goodness-of-fit measure is to assess the quality of the estimated model by comparing actual values of the dependent variable(s) with values predicted by the estimated model. In conjoint analysis, this entails that separate conjoint models are estimated for each individual, requiring that the goodness-of-fit measure provide information on the estimated part-worths for each respondent"(Hair *et al.*, 2009). The coefficient of determination (R^2) was measured between actual and predicted preferences. At an individual level, the goodness-of-fit measure was calculated on an individual basis and was dependent on the number and type of choice tasks. Since our research involved the usage of non-metric rank-order data, correlations based on the actual and the predicted ranks, for example,(Spearman's rho or Kendall's tau) were used (Hair *et al.*, 2009).

3.5.6 Model Validation Procedure

Literature (Louviere, 1988; Louviere and Johnson, 1990; Umesh and Mishra, 1990; Dorsch and Teas, 1992; Orme et al., 1997; Shepherd and Zacharakis, 1999; Kusumawati, 2011) has discussed the validity and reliability of conjoint studies.

Owing to the large number of profiles, respondents are bound to make errors in judgement (brought about by limitations in human cognitive structure and ability) during the preference selection (ranking the profiles). This assertion was made by (Umesh and Mishra, 1990) who stated:

> Typically, respondents are asked to rank descriptions of products called profiles using their true preferences for the attributes. However, inconsistencies in Judgment can crop up due to limitations in human cognitive structure and ability. Such errors in judgment worsen with increasing complexity of the task brought about by the use of a large number of profiles, numerous attributes and unfamiliar product profiles (Umesh and Mishra, 1990).

A consequence of the above challenge was to validate the conjoint results. Two methods of validation were proposed for this study – Convergent validity test and an internal validity test using holdout profiles.

Convergent Validity Test – Weaver (1985) stated that a convergent validity test examines the amount of agreement among different methods of measuring the same thing. Part I of the questionnaire used in this research asked the respondent to rank-order nine office-location factors. Part II of the questionnaire asked the respondent to rank 31 full-profiles (including 4 holdout profiles) of hypothetical office locations. An orthogonal design output of the conjoint analysis, obtained using the SPSS conjoint module created a rank-ordering of the 31 profiles. Therefore, there are two rank-order lists of the nine factors; first, a rank-order list of the nine factors in Part I, referred to as the self-explicated list; and second, the rank-order list obtained after running the conjoint analysis on Part II data, referred to as the conjoint analysis list.

Weaver (1985) further stated that while the two rank-order lists will not agree exactly, there should be a **large degree of similarity** [emphasis added].

> While it is expected that the two rank orders will not agree exactly, there should be a large degree of similarity. The important test is that the end points of each rank agree, i.e. the two or three highest ranked variables in the self-explicated ranking should be the same as the conjoint measurement derived rankings. A test of convergent validity will be to examine the top two variables in each ranking. Convergent validity will be satisfied if the top two variables are common for both ranks (first and second placement are not relevant). The bottom two variables will be examined in this manner as well (Weaver, 1985).

However, a 1992 study by (Dorsch and Teas, 1992) found that the self-explicated method had some potential problems when compared with the full-profile method.

> A comparison of the self-explicated approach with the full profile conjoint method demonstrated that the self-explicated approach (1) was inconsistent in the identification of acceptable and unacceptable stimuli, and (2) did not exhibit a high degree of convergent validity with respect to part-worth and importance estimates when compared with the full profile approach (Dorsch and Teas, 1992).

Holdout Profiles – The internal validity of the model was determined through the use of holdout profiles. A holdout profiles was rated by the respondents but was not used by the conjoint procedure for estimating utilities.

Instead, the conjoint procedure computed correlations between the observed and predicted rank orders for these profiles as a check on the validity of the utilities. This study included 4 holdout profiles. Comparison of the statistic *Kendall's tau* provided a glimpse into the correlations between the observed and estimated preferences.

Cronbach's Alpha - Since the instrument for collecting data had been adapted from the questionnaire produced by (Weaver, 1985), the reliability and validity of the newly constructed instrument was tested.

3.6 Data Collection Instrument

This section discusses aspects related to the data collection instrument, the data collected and the data collection methods. It is organised into three sub-sections. Sub-section one describes the design, compilation, pre-testing, distribution, and ethical considerations of the questionnaire while sub-section two details the data collection methods and the third sub-section describes the types of data collected for the study.

3.6.1 Questionnaire Design, Pre-test, Distribution and Ethical Considerations

A questionnaire was replicated in the South African context and distributed for self-completion. Each questionnaire was divided into three major sections; Part I which gave a self-explicated ranking of the office factors; Part II was used to collect information on specific themes of office-leasing decision management using full-profiles generated using SPSS, and Part III was used to collect demographic information of the respondents and consisted of open-ended and closed-end questions. Some of the responses to the questions used a rating of consumer preference guided by a Likert scale ranging from 1 = Strongly Agree, 2 = Agree, 3 = Unsure to 4 = Disagree and 5 = Strongly Disagree. The questionnaire also comprised open-ended questions where respondents were provided with space for voluntary comments, where necessary.

3.6.2 Compiling the Questionnaire

The compilation of the questionnaire is premised on the following two factors:

1. Derivation of a conjoint model (variate) of factors that influence relocation decision-making of office tenants.
2. Devise an instrument based on the conjoint variate to measure consumer preferences, rankings of the factors that define total utility for office space selection.

3. Together, this instrument was used to collect data from real estate decision-makers in companies within the Johannesburg office market.

To avoid re-inventing the wheel, a questionnaire used overseas was replicated in the South African context with changes being made to the original document, to suit the local setting. The original questionnaire for this study was compiled by and used in his study of criteria used by office tenants relocating in the Dallas-Fort Worth area, Texas, USA in 1982 see (Appendix A). Weaver (1985) used seven variables, attaching importance weights (derived through conjoint measurement techniques) to them. The seven variables had three similar levels, namely; **Above Average, Average and Below Average**. Fractional factorial design was then used to produce eighteen sets of location profiles based on a combination of the seven most important attributes that determine the relocation decision of the office tenants. These seven variables are listed in Table 3.6.2-1.

Table 3.6.2-1 – Factors and their meanings used in original questionnaire

Factors	Meaning
Accessibility	How accessible a location is to other important places such as : Central Business Districts Major Interstate Highways Major retail, entertainment and Hotels Public transportation Adequate parking
Face-to-Face Communication	Meetings with other important people
Reputation and Prestige	Image of the building in the business community
Price	Total cost of occupying the chosen site
Interior Design and Amenities	Quality of the interior finish flexibility of layout and environmental controls and adequacy of elevator service.
Leasing Agent and Building Management	The attitude and professional credibility of both parties.
Locational Amenities	Location relative to very important places such as executive clubs and executive residences.

Source: Author's review and analysis of (Weaver, 1985).

The original questionnaire asked respondents to rank, first, how important a list of seven variables were to their company when choosing office space to occupy. The ranking was done in terms of a 1 for the most important variable; 2 for the next variable; 3, 4, 5 and 6 in order of decreasing importance; through 7 for the least important. Second, a rating of the eighteen location profiles was done on a sliding scale of 1 to 10, with one indicating that a specific location was not very important, and ten indicating that it was very important. The last part of the questionnaire gave respondents the opportunity to give personal and demographic information as well as list any other items that were important to them from an office relocation decision-making perspective.

Weaver (1985)'s questionnaire formed the basis of the questionnaire that was sent out to respondents in South Africa. The questionnaire had to be contextualised to the South African setting and meant that changes had to be made to the original questionnaire ranging from addition of new variables (nine in the South African one versus seven in original questionnaire) to the alteration of the context of some of the variables so as to make them appeal to the South African market. The adjustments made to the questionnaire are shown in Table 3.6.2-1 below.

Table 3.6.2-2 – Changes made to Part I in original questionnaire

Original question/text/information in (Weaver, 1985)'s questionnaire	Change made	Reason for change
General Information and Background*:* Imagine that you have the primary responsibility to select new office space for your firm. After a careful and thorough study, you have decided to evaluate all potential locations using the following variables. To help in decision making later, give some thought to the list below. Rank the **7 variables** below in terms of a **1** for the **most important**; **2** for the **next most important**; **3, 4, 5,** and **6** in order of **decreasing importance**; through **7** for the **least important**.	General Information and Background*:* Imagine that you have the primary responsibility to select new office space for your firm. After a careful and thorough study, you have decided to evaluate all potential locations using the following variables. To help in decision making later, give some thought to the list below. Rank the **9 variables** below in terms of a **1** for the **most important**; **2** for the **next most important**; **3, 4, 5, 6, 7** and **8** in order of **decreasing importance**; through **9** for the **least important**.	Cater for Nine (9) variables in the South African Questionnaire.
ACCESSIBILITY: How accessible is it to other important places such as: Public transportation Major retail centres, hotels and airport Major interstate highways Adequate parking Central Business Districts	**ACCESSIBILITY:** How accessible is it to other important places such as: Public transportation Major retail centres, hotels and airport Major interstate highways	Adequate parking is now a variable. Central Business Districts is now a level under Location
FACE-TO_FACE COMMUNICATION: meetings with other important people	Removed from list of variables	Not relevant to current study since it is not supported by current literature
REPUTATION and PRESTIGE: image of building in the business community	**REPUTATION:** How is the attitude and professional credibility of landlord and/or building owner and relationship with tenants: Excellent Bad Poor	Contextualise to South African setting and define levels for the variable.
PRICE: total cost of occupying the chosen office	No Change	

***Source**: Author's own based on (Weaver, 1985)*

INTERIOR DESIGN and AMENITIES: Quality of interior finish, flexibility of layout and environmental controls and adequacy of elevator services	Removed from list of variables	Not relevant to current study since it is not supported by current literature
LEASING AGENT and BUILDING MANAGEMENT: the attitude and professional credibility of both parties:	Removed from list of variables	Not relevant to current study
LOCATIONAL AMENITIES: location relative to very important places such as executive clubs and executive residences.	Removed from list of variables	Not relevant to current study
Not in Original Questionnaire	**SECURITY:** the security detail around and within the building that could be: Level 1, Level 2, Level 3.	Recent literature regards variable as an important factor (See Table 2.5.1).
Not in Original Questionnaire	**RATING:** Is the energy efficiency (green) rating of the building important such as: GBCSA 5-star, GBCSA 4-star, Un-rated.	Recent literature regards variable as an important factor (See Table 2.5.1).
Not in Original Questionnaire	**GRADING:** Is the grading of the building important such as: P-Grade, A-Grade, B-Grade.	Recent literature regards variable as an important factor (See Table 2.5.1).
Not in Original Questionnaire	**SIZE: the size (**In m^2) of the office space desired: Small, Medium, Large.	Recent literature regards variable as an important factor (See Table 2.5.1).

***Source**: Author's own based on (Weaver, 1985)*

Table 3.6.2-3 – Changes made to Part II in original questionnaire

Original question/text/information in (Weaver, 1985)'s questionnaire	Change made	Reason for change
The inside pages are your evaluation of the eighteen imaginary office locations that you are considering. You are asked to pretend that while in the field, you not only used the seven variables discussed above but that you also **rated** each variable in terms of: **Above Average** **Average** **Below Average**	The inside pages of this questionnaire are your evaluation of the thirty-one imaginary office locations that you are considering. You are asked to pretend that while in the field, you not only used the nine variables discussed above but that you also **ranked** each of the 31 office locations.	Number of Location profiles increased to 31. In addition, the preference measure of the profiles is nonmetric implying a rank-ordering as opposed to a metric one in the original questionnaire which uses rating.
Assume that this chart represents notes made by you earlier. You have decided to rate potential office location using these notes. This might have represented the first step in your office selection process. After looking at all available spaces, you are now beginning to narrow down the available selection by rating each location on a scale of from 10 to 1. First, browse through the 18 office locations. Second, Rate the **18 office locations** on a scale of **10=highest rating to 1=lowest rating**. Please circle the letter that better indicates how you feel about the desirability of each office location	Assume that this chart represents notes made by you earlier. You have decided to rate potential office location using these notes. This might have represented the first step in your office selection process. After looking at all available spaces, you are now beginning to narrow down the available selection by ranking each location as to its desirability. First, browse through the 31 office locations. Second, Rank the **31 office locations** in terms of **preference** with a **1** for the **most preferred**; **2** for the **next preferred**; **3, 4, 5, 6 etc.** in order of **decreasing desirability**; through **31** for the **least preferred**. **(Note:** Use the numbers **"1-31" ONCE** for each Office Location**)**	Selection of rank-ordering versus rating as a preference measure.
The inside pages are your evaluation of the eighteen imaginary office locations that you are considering. You are asked to pretend that while in the field, you not only used the seven variables discussed above but that you	The inside pages of this questionnaire are your evaluation of the thirty-one imaginary office locations that you are considering. You are asked to pretend that while in the field, you not only used the nine variables discussed above but that you also **ranked** each of the	Number of Location profiles increased to 31. In addition, the preference measure of the profiles is nonmetric implying a rank-ordering as opposed to a metric one in the original questionnaire which uses rating.

also **rated** each variable in terms of: **Above Average** **Average** **Below Average**	31 office locations.	
How many years has your company been in business in the metroplex??	How many years has your company been in business	Removed the word “metroplex” to suit South African context.

***Source**: Author’s own based on analysis and review of (Weaver, 1985)*

3.6.3 Pre-testing the Questionnaire

The adjusted questionnaires were then sent for pre-testing. Ten questionnaires were sent out but only five responses were received. This represented a response rate of 50 %. Suggestions and comments were incorporated into a newer version of the questionnaire and ten questionnaires were sent out as part of a second round of pre-testing and only 7 responses were received in this case, representing a 70 % response rate. The questionnaire was then updated with the comments received and prepared for distribution.

3.6.4 Distributing the Questionnaire

The instrument and a simple instruction sheet were delivered to a either a property broker/Agent or any other employee whose role was to procure office space at various companies. These resources performed an administrator function, assisting with the distribution and collection of the instruments. Prior to their distribution an introductory letter from both the researcher was appended to the instrument. The respective administrators sent an introductory email to each of the selected respondents seeking their cooperation in completing the instruments and possibly having an interview with the researcher. The letter described the research and its importance. Finally, the administrator provided a telephone number for anyone with questions or who may need assistance in completing the instruments. The contact information for the researcher was also included on the introductory letter.

Once the administrators had received the requisite authority to distribute the forms, the instruments were sent to the respondents. Any person seeking assistance with completing the forms was referred to the researcher. The researcher assisted the respondents on how to read, comprehend and record the answers in an unbiased manner.

Two weeks after initial delivery, a follow-up phone call/email/visit was made to the administrators to get an update over the response rate. The researcher thanked those who had completed the forms and prompted the administrator to remind those who were yet to complete their forms. The data collection efforts took four months.

Owing to the complex nature of the questionnaire, specifically Part II (which contained the full-profiles), some respondents had to be guided with the completion of the forms.

3.6.5 Ethical Considerations

Appropriate ethical issues were adhered to. In the questionnaire, a letter was attached outlining the purpose of the research and the rights of the participants. Participation in the survey was voluntary and the respondents were able to withdraw at any time without prejudice. Before the questionnaires were sent out, permission was obtained from the University's Ethics committee. The Ethics committee granted the researcher a clearance certificate, allowing him unfettered access to companies and consequently, inviting the respondents to participate in the research through the University authorities. The names of the companies and the respondents will not be disclosed.

As this was a confidential survey, care was taken to ensure that the personal details of the respondents were kept confidential. To achieve this, there were no personal details and/or address on the questionnaire. Each questionnaire was marked with a special code to aid in the distribution and collection.

3.7 Data Collection Procedure

The data was collected using questionnaires completed by property managers, leasing managers, and would-be tenants. The data collection followed a stated preferences approach where 31 hypothetical office-location profiles comprising nine factors (identified from the review of literature) key to office relocation decisions were ranked in terms of most preferred to least preferred. The survey questionnaire was sent via e-mail to a single point of contact (SPOC) at key property leasing companies, real estate agencies, and general companies. The SPOC emailed the questionnaires to the respondents printed the questionnaires, completed them and sent them back to the contact. Owing to complexity of the questions, some respondents had to be guided through the questionnaire completion process.

3.8 Types of Data Collected

There were two sets of data that were collected. First, demographic and related data on the respondents was collected and second, full-profile conjoint analysis data was also collected by the respondents.

3.9 Chapter Summary

This chapter discussed the methods that were used in carrying out the study. It described research design considerations of the study specifically looking at the research design, research philosophy, research strategy, and the study setting. The aims and objectives of the study were also reinstated. The population studied as well as the criteria used in choosing the sampling type were outlined. The Conjoint methodology as well as other tools used in the analysis of the data was defined. Steps associated with the data collection instrument were outlined. These touched on most aspects of the questionnaire: design, compilation, pre-test, distribution, and ethical considerations of the questionnaire.

Chapter Four

4 DATA RESULTS, ANALYSIS AND DISCUSSION

This chapter presents results and analysis of the procedures described in chapter three and is is divided into five sections. All data analyses were performed using the mean, frequency charts, standard deviation and the conjoint module tools of the IBM Statistical Package for Social Science (SPSS) version 25 software. Section one describes the demographics of the respondents and states the survey response rate and the reliability and validity of the questionnaire among other things. Section two presents the results of the ideal preferences of the respondents while section three details the results of the self-explicated section (Part I of the questionnaire). Section four gives the results from the conjoint method explicitly stating the utility scores which are used to determine the relative importance of the factors. Lastly, section five performs a validation of the results obtained from the various analyses.

4.1 Questionnaire Reliability, Validity and Response Rate

This section describes the reliability and validity of the questionnaire and also depicts the response rate of the questionnaire.

4.1.1 Cronbach's Alpha

Cronbach's Alpha - Since the instrument for collecting data had been adapted from the questionnaire produced by (Weaver, 1985), the reliability and validity of the newly constructed instrument was tested and an aggregated value of 0.81 (81%) obtained using Cronbach's Alpha. This result implied that the instrument of evaluation (questionnaire) was reliable and comprised items that had internal consistency. This assertion is premised on the fact that the reliability figure obtained (81 %) was higher than the 0.7 value (70 %) typically required in statistical analysis (Hair et al., 2009)**.**

4.1.2 Response Rate

Sample sizes of conjoint studies generally range from 150 to 1,200 respondents (Orme, 1998). Hair *et al.* (2009) state the minimum sample size for conjoint studies as 50 and that sample-sizes of about 200 provide for an acceptable margin of error. This assertion is collaborated by (Orme, 1998) who stated that a sample size of 200 respondents was within the acceptable range.

Owing to the homogeneity of the respondents (office tenants usually have little differences in preferences); 200 questionnaires were produced and sent out. The actual response was 141 questionnaires. Obtaining a minimum of 66 people as described in the previous chapter ensured that the utilities had a margin of error of about ± 10 %. This represented a response rate of seventy-one percent (71%). A summary of the response rates is shown in Table 4.1.2-1

Table 4.1.2-1 – Questionnaire Response Rates

Stage	Questionnaires sent out	Questionnaires Received	Response Rate
Pre-test 1	10	5	50%
Pre-test 2	10	7	70%
Actual Study	200	141	71%

Source: Author's own compilation based on Questionnaire data.

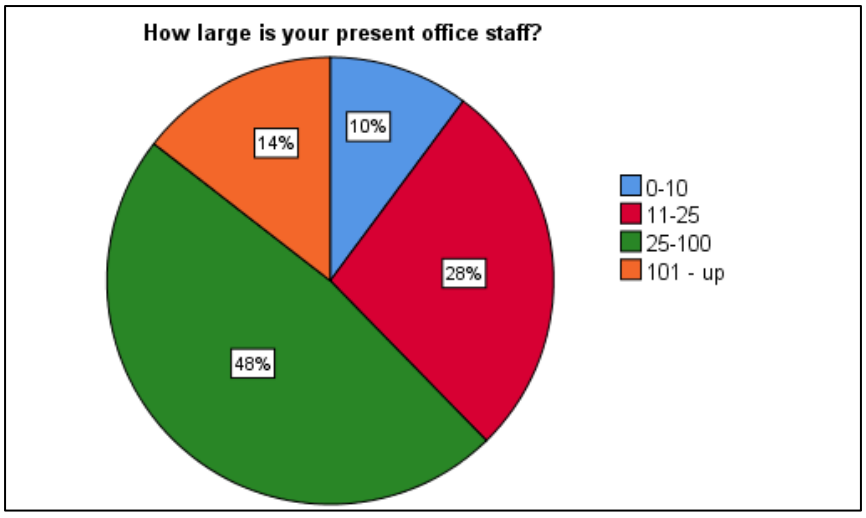
4.2 Demographics of the Respondents

This section presents the results of the descriptive statistics of the respondents and is included to get an appreciation of the reliability of the data

4.2.1 Staff Sizes of the Respondents' Company

Figure 4.2.1-1 shows depicts the number of office employees at companies whose staff responded to the survey.

Figure 4.2.1-1– Staff Sizes of the Respondents' Company



Source: Author's own compilation based on Questionnaire data.

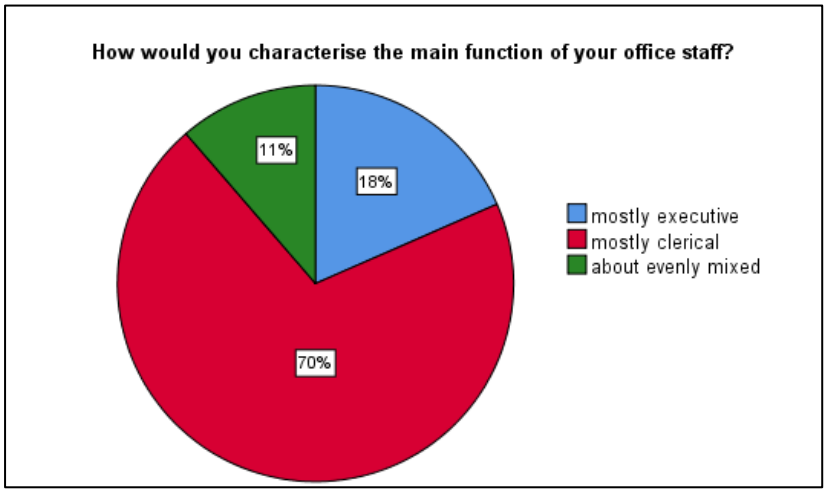
Sixty-six (48%) of the respondents were in companies whose staff size was between 25 -100 employees. This was followed by 38 employees (28%) in companies having 11-25 employees. Small companies with 0-10 employees accounted for 14 (10%) of the respondents.

Companies with more than 100 employees accounted for 20 (14%) of the respondents. Overall, almost half (48%) of the respondents were from companies that had between 25 -100 employees.

4.2.2 Main function of Office Staff in the Respondents' Company

The main functions of the office staff who responded to the survey are shown in Figure 4.2.2-1.

Figure 4.2.2-1 – Main function of the Office Staff.



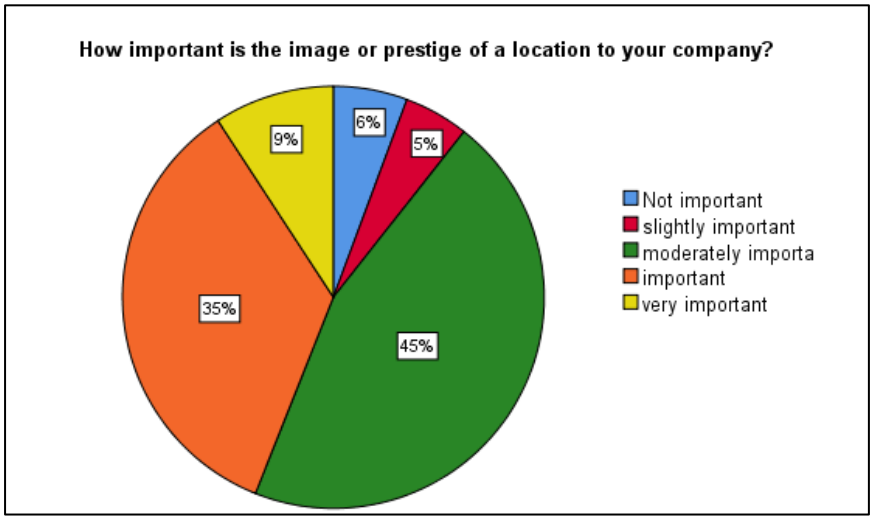
Source: Author's own compilation based on Questionnaire data.

More than half (70%) of the respondents performed a mostly clerical type of work. This was followed by 26 (18%) respondents who worked as executives. Lastly, about 16 (11%) of the respondents performed an evenly mixed function at work. Overall, 99 (70%) of the respondents performed a clerical type of work.

4.2.3 Importance of Image/Prestige of Company location

Sixty-three (45%) of the respondents considered the image/prestige of a location moderately important to the company's location while Forty-nine (35%) considered the image/prestige of the location important. While 13 (9%) of the respondents considered the image/prestige of a location very important, only Seven (5%) considered it slightly important. Lastly, 8 (6%) of the respondents considered the image or prestige associated with a location as not being important. Overall, 120 (84%) of the respondents considered the locational image/prestige of an office location relatively important to their company. The importance of the image and/or prestige of a location to their company as noted by the respondents are shown in Figure 4.2.3-1

Figure 4.2.3-1– Importance of Image/Prestige to Company location

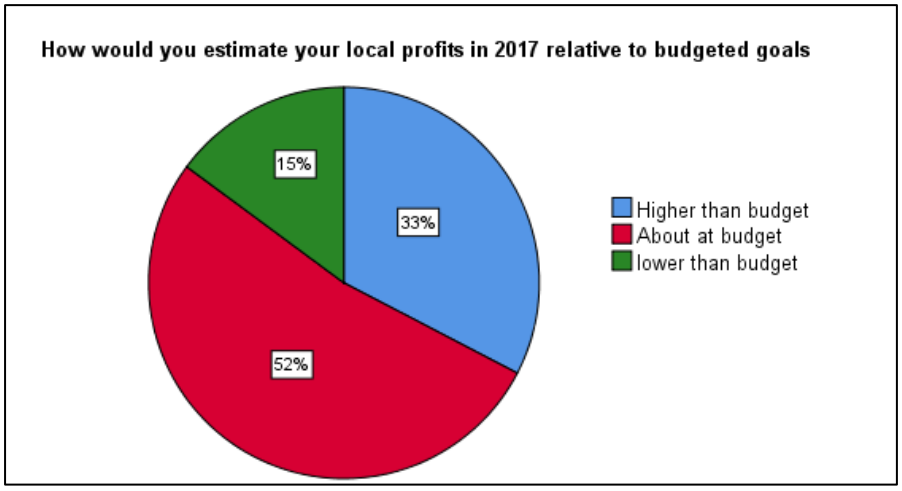


Source: Author's own compilation based on Questionnaire data.

4.2.4 Company Profits in 2017

The profits of the company in the year preceding the study are highlighted in Figure 4.2.4-1.

Figure 4.2.4-1– Company Profits in 2017



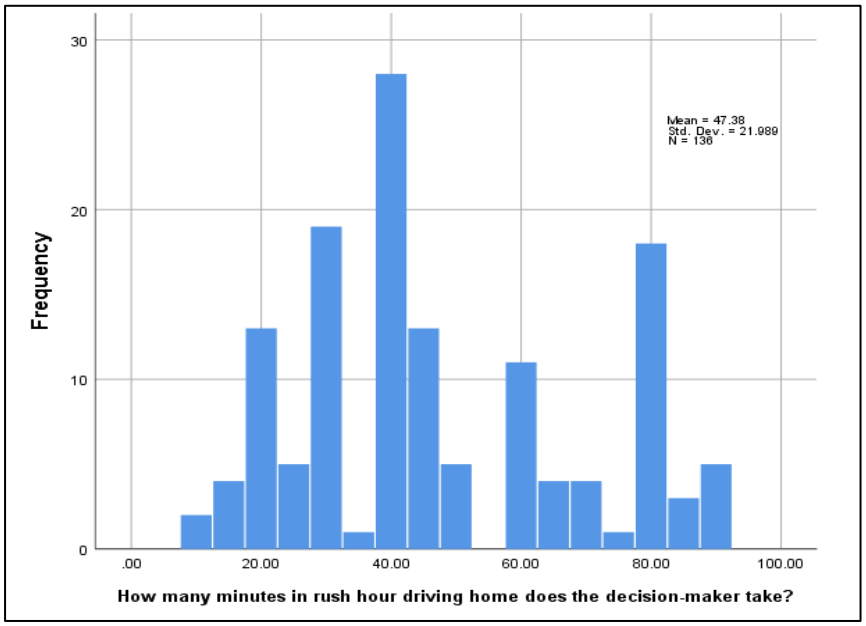
Source: Author's own compilation based on Questionnaire data.

Fifty-two per cent of the respondents were from companies whose 2017 profits were just about budget. Forty-six (33%) of the respondents were from companies whose 2017 profits were higher than budgeted. Lastly, 21 (15%) of the respondents were from companies whose profits were lower than budgeted. Overall, 74 (52%) of most companies' local profits were just about budget when compared to their budgeted goals.

4.2.5 Traveling Time Spent in Rush hour

The total travelling time (in rush hour) spent by the respondents to and from their places of work is depicted in Figure 4.2.5-1.

Figure 4.2.5-1 – Traveling Time Spent in Rush hour



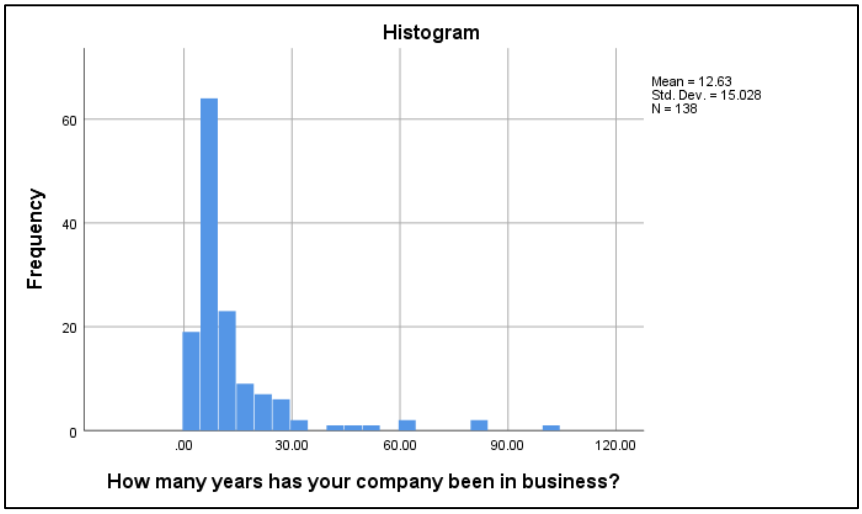
Source: Author's own compilation based on Questionnaire data.

The average time spent in rush hour by the respondent was 47 $\pm$ 22 minutes. The shortest time spent in rush hour was 10 minutes whilst the longest time spent was 90 minutes. Most of the respondents spent 40 minutes in rush hour traffic. The total number of respondents who responded to this question was n= 136.

4.2.6 Number of Years Company has been in business

The average number of years companies had been in business was between 13 and 28 years (13 $\pm$ 15) years. The youngest company had only being in existence for 2 years whilst the oldest had been in business for 100 years. Most of the companies had been in operation for less than 30 years. The total number of respondents who responded to this question was n= 138. The number of years a company has been in business is depicted in the histogram illustrated in Figure 4.2.6-1.

Figure 4.2.6-1 – Number of Years Company has been in business

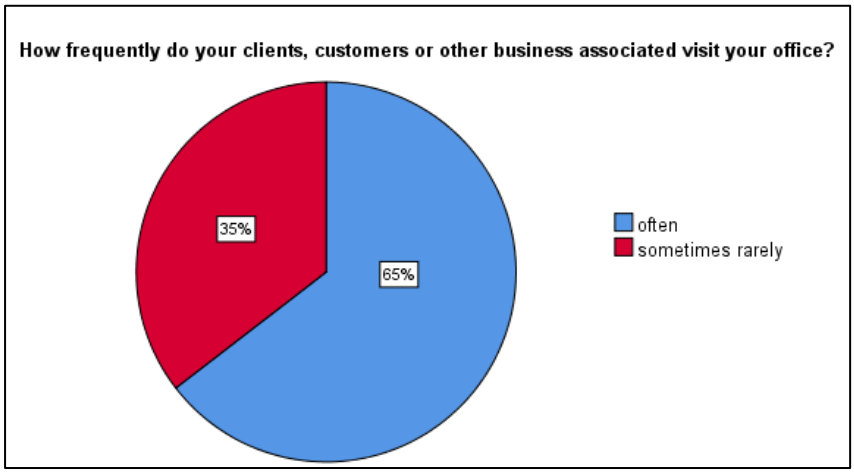


Source: Author's own compilation based on Questionnaire data.

4.2.7 Frequency of visits to offices

The frequency of visits to the offices of the respondents by clients, customers or other business associates is highlighted in Figure 4.2.7-1.

Figure 4.2.7-1– Frequency of visits to offices



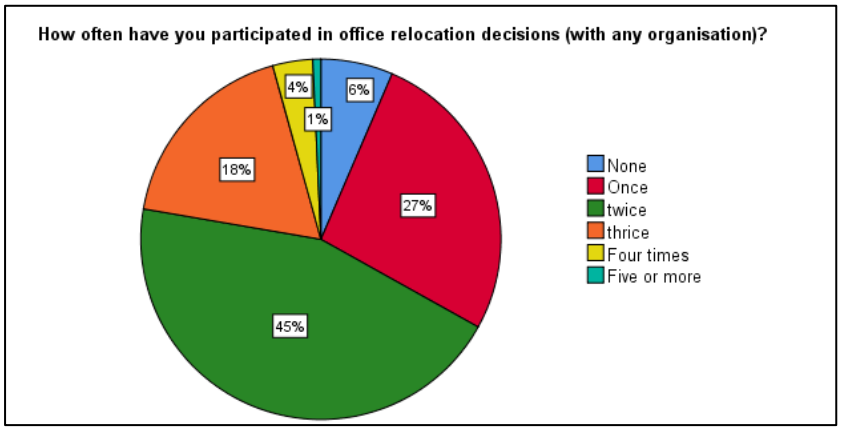
Source: Author's own compilation based on Questionnaire data.

Ninety-two (65%) of the respondents stated they were often visited to their premises by clients, other customers and other business associates while Forty-nine (35%) of the respondents rarely received any visitors. Overall, 92 (65%) of the respondent companies received visitors to their premises more often.

4.2.8 Participation in office relocation decision - making

The number of times respondents had participated in office relocation decision making is shown in Figure 4.2.8-1.

Figure 4.2.8-1– Participation in office relocation decision - making



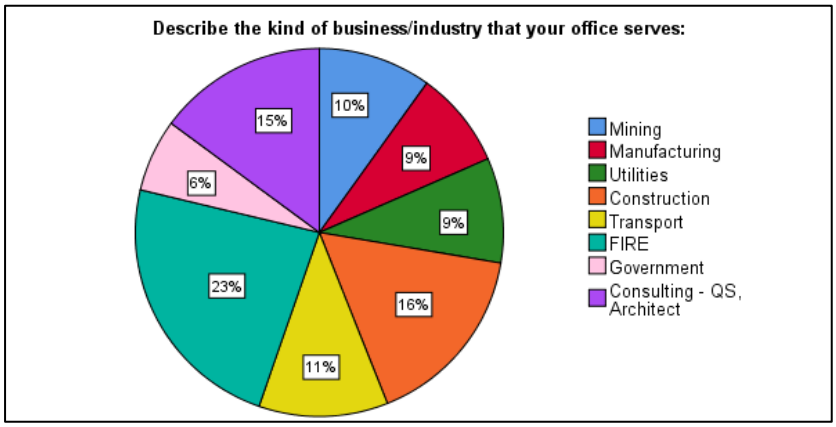
Source: Author's own compilation based on Questionnaire data.

Close to half (45%) of the respondents had participated twice in office relocation decisions. Thirty-seven (27%) of the respondents had participated once whilst 25 (18%) of the respondents had participated thrice in office relocation decisions. Five (4%) of the respondents had participated in the office relocation decisions four times. Nine (6%) of the respondents had never participated in an office relocation decision. Lastly, a single respondent had participated in 5 or more office relocation decisions. Overall, over 90% of the respondents had participated in office relocation decisions.

4.2.9 Type of Business Activity

The type of business sector that the respondent's companies represent or serve is shown in Figure 4.2.9-1.

Figure 4.2.9-1 – Type of Business Activity



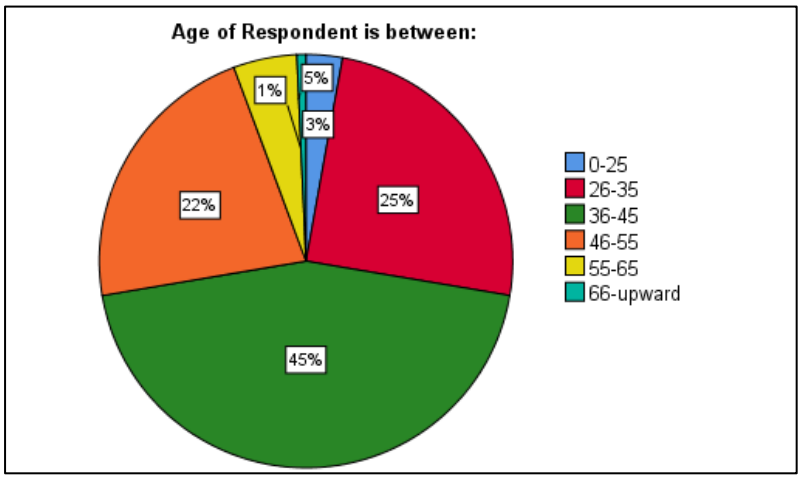
Source: Author's own compilation based on Questionnaire data.

Thirty-two (23%) of the respondents was from the Financial, Insurance and Real Estate (FIRE) companies while Twenty-three (16%) were from the head offices of construction companies. Twenty (14%) of the respondents were from consulting companies (Accounting/Auditing, Quantity surveying, and Architectural practices). Sixteen (11%) of the respondents were from companies operating in the Transport and Logistics businesses. Fourteen (10%) of the respondents were from the mining and utilities companies each. Twelve (9%) of the respondents were from manufacturing companies whilst 9 (6%) of the respondents were from government and related agencies.

4.2.10 Age of the Respondents.

Sixty-four (45%) of the respondents were aged between 36 - 45 years old. Thirty-six (26%) of the respondents were aged 26 - 35 years old whilst 31 (22%) of the respondents were aged 46-55 years old. Seven (5%) of the respondents were aged 55 – 65 years old. There were 4 (3%) respondents aged 0 -25 years. Lastly, 1 respondent was aged over 65 years old. Overall, over 99% of the respondents were below the official retirement age of 65 years with most of the respondents aged between 36 and 45 years. The ranges of the ages of the respondents are shown in Figure 4.2.10-1.

Figure 4.2.10-1 – Age of the Respondents.



Source: Author's own compilation based on Questionnaire data.

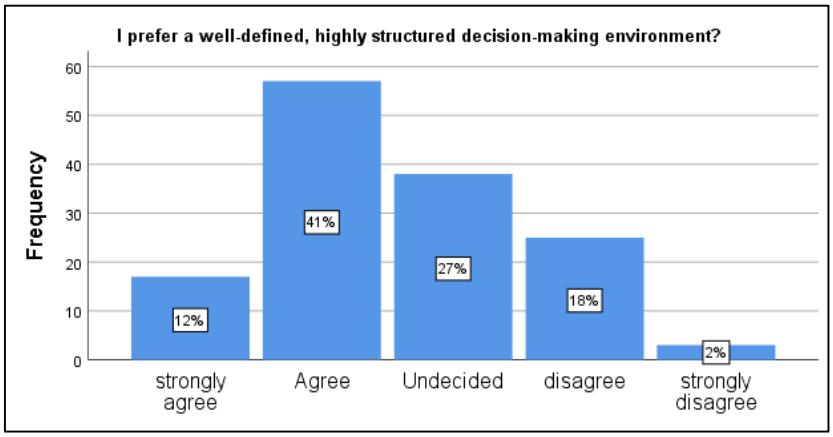
4.3 Results of the "Ideal" Preferences

Ideal preferences describe the choices of respondents making new office location decisions based on individual personal needs and desires in mind only.

4.3.1 The Decision-making Environment of the respondents.

The decision-making environment highlights the preferences of the respondents in having a well-defined, highly structured decision-making environment. The responses are depicted in Figure 4.3.1-1

Figure 4.3.1-1 – Decision-making environment of the respondents.



Source: Author's own compilation based on Questionnaire data.

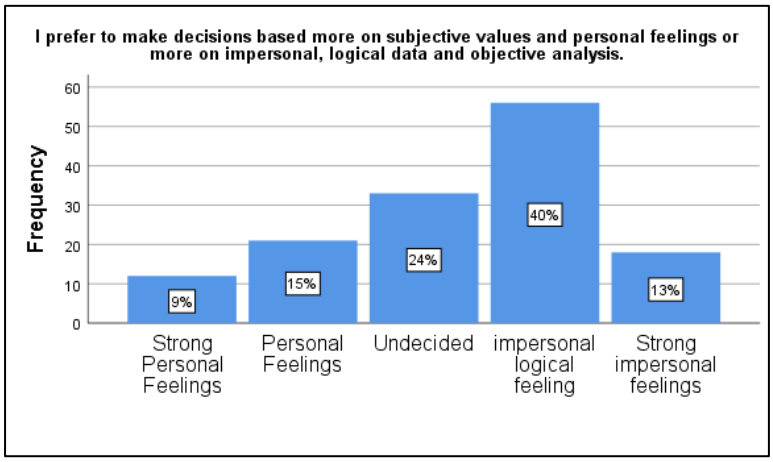
Only seventeen (12%) of the respondents strongly preferred a well-defined, highly structured decision-making environment while 56 (40%) of the respondents preferred a well-defined, highly structured decision-making environment. Thirty-eight (27%) of the respondents were undecided whilst 26 (19%) of the respondents disagreed with the notion of a well-defined, highly structured decision-making environment. Lastly, 3 (2%) of the respondents strongly disagreed. Overall, over half, 73 (52%) of the respondents preferred a well-defined, highly structured decision-making environment.

4.3.2 Decision-making preferences of the respondents.

Respondents were asked to state their feelings towards making decisions based on subjective values and personal feelings or more on impersonal, logical data and objective analysis. With regards to making decisions based on subjective values and personal feelings or more on impersonal, logical data and objective analysis, 12 (9%) of the respondents had strong personal feelings whilst 21 (15%) of the respondents just had personal feelings.

Thirty-three (24%) of the respondents were undecided. Fifty-six (40%) of the respondents had impersonal logical feelings towards decision-making compared to 18 (13%) respondents who had a strong disposition to making decisions based on impersonal, logical data and objective analyses. Overall, over half, 74 (53%) of the respondents preferred making decisions based on impersonal logical data and objective analysis. The results are shown in Figure 4.3.2-1.

Figure 4.3.2-1 – Decision-making preferences of the respondents.



Source: Author's own compilation based on Questionnaire data.

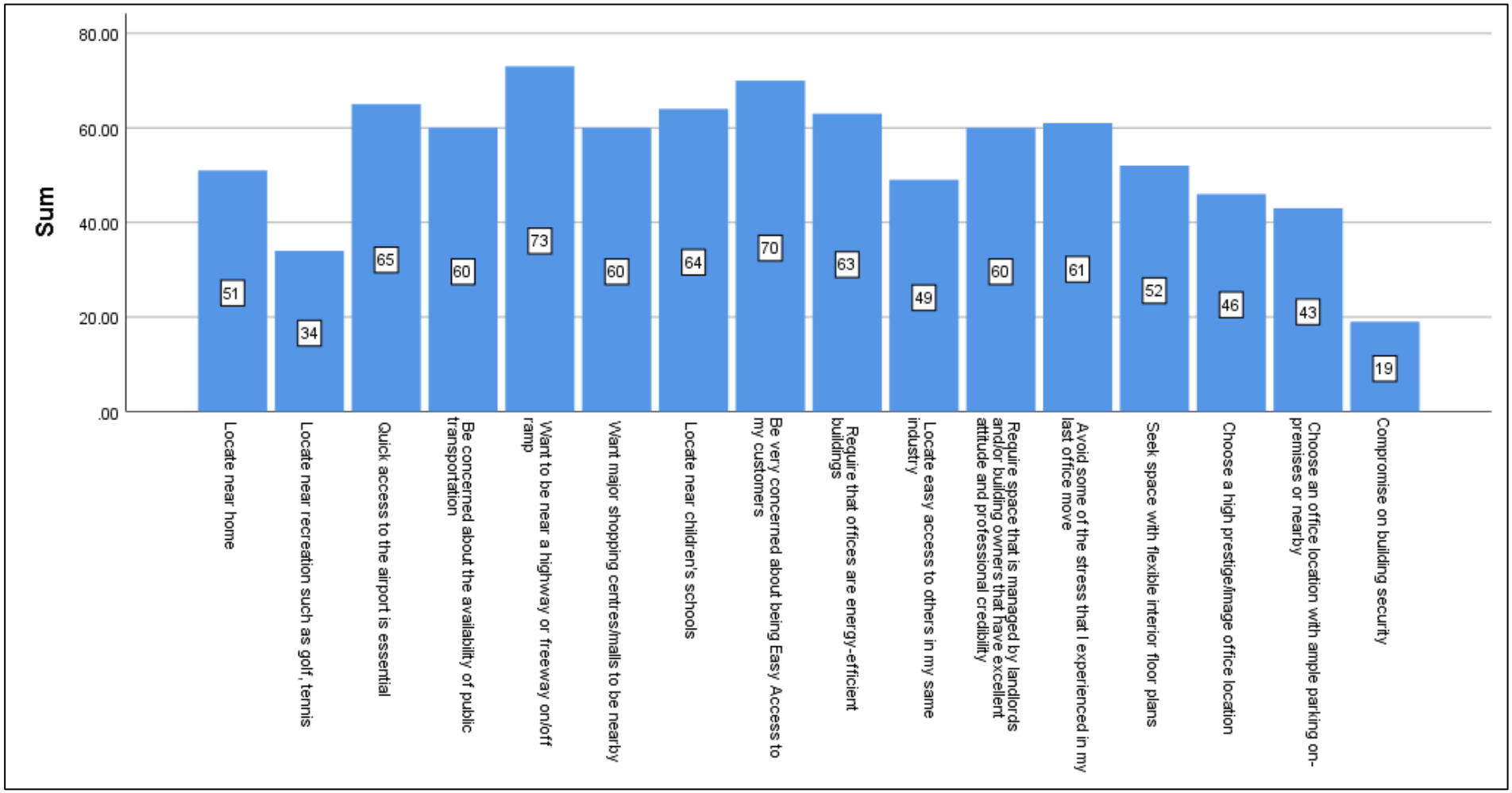
4.3.3 Order of Importance of the 'Ideal' Preferences.

The study showed the order of importance of the respondents' personal needs and desires when deciding on new office locations (arranged in decreasing order of importance). These results are interpreted as, for example, "Want to be near a highway or freeway on/off ramp (n=73, 8.39%)" means that 73 (8.39%) of the respondents ideally wished to be near a highway or freeway on/off ramp. The preference with the highest count is deemed the most important.

- Want to be near a highway or freeway on/off ramp (n=73, 8.39%)
- Be very concerned about being easy access to my customers n=70, 8.05%)
- Quick access to the airport is essential (n=65, 7.47%)
- Locate near children's schools (n=64, 7.36%)
- Require that offices are energy-efficient buildings (n=63, 7.24%)
- Avoid some of the stress that I experienced in my last office move (n=61, 7.01%)
- Be concerned about the availability of public transportation (n=60, 6.90%)
- Want major shopping centres/malls to be nearby (n=60, 6.90%)
- Require space that is managed by landlords and/or building owners that have excellent attitude and professional credibility (n=60, 6.90 %)
- Seek space with flexible interior floor plans (n=52, 5.98%)
- Locate near home (n=51, 5.86%)
- Locate easy access to others in my same industry (n= 49, 5.63%)
- Choose a high prestige/image office location (n=46, 5.29%)
- Choose an office location with ample parking on-premises or nearby (n=43, 4.94%)
- Locate near recreation such as golf, tennis (n=34, 3.91%)
- Compromise on building security (n=19, 2.18%)

The above results are depicted in Figure 4.3.3-1

Figure 4.3.3-1 – 'Ideal' Preferences of the Respondents.

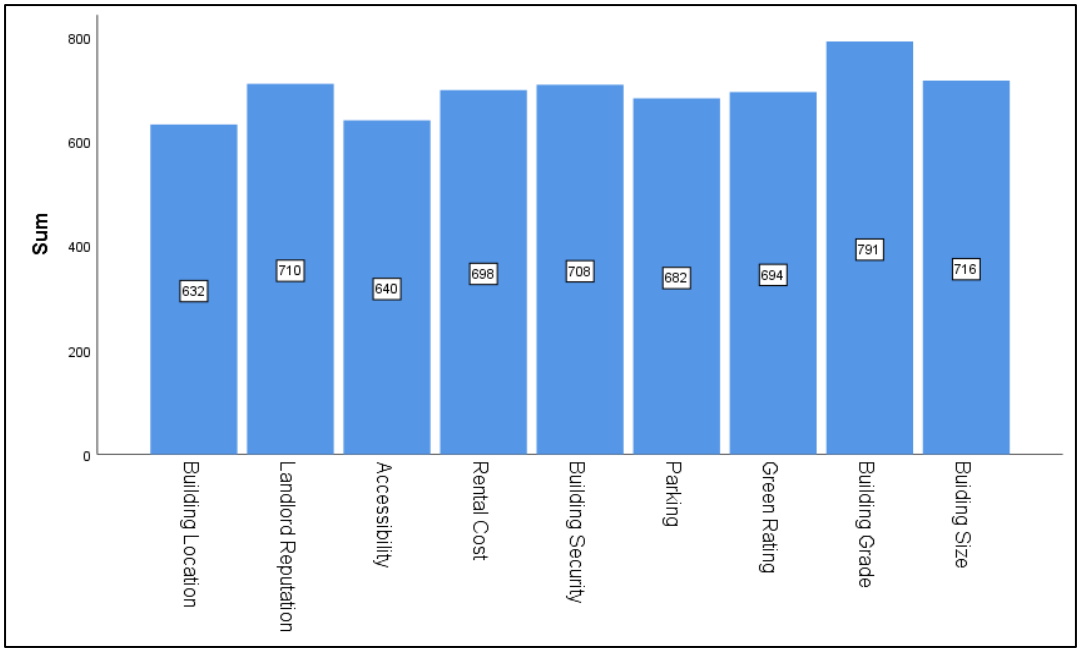


Source: Author's own compilation based on Questionnaire data.

4.4 Results of Self-Explicated Analysis

Self-explicated analysis involves the ranking of a 'score'. Although other studies, for example, (Markovina and Kovačić, 2008) used the mean score to arrive at the self-explicated ranking, the 'score' in this study is determined by simply summing up the number of respondents who chose a particular factor. Figure 4.4-1 shows the results of the self-explication method by the respondents reveal the following office location preferences (arranged in decreasing order of importance (score).

Figure 4.4-1 – Self-Explication Preferences of the Respondents



Source: Author's own compilation based on Questionnaire data.

Analysis of Figure 4.4-1 reveals the following table which shows the relative importance of the factors, with the factor with the highest score being the most important

Table 4.4-1 – Ranking of Self Explication Preferences

Factor	Score	Rank
Building Grade	791	1
Building Size	716	2
Landlord Reputation	710	3
Building Security	708	4
Rental Cost	698	5
Green Rating	694	6
Parking	682	7
Accessibility	640	8
Building Location	632	9

Source: Author's own compilation based on Questionnaire data.

The self-explication method reveals the relative importance of the factors finding that the grade of the building (P-grade, A-grade or B-grade) is the most important determinant in their office location decision-making. The Building size in m² is the second most important factor followed by the reputation (professionalism and credibility) of the landlord and/or building manager. The security of the building and the cost of renting the premises are the fourth and fifth important factors respectively. The bottom two factors are the Accessibility and the Building location.

4.5 Results of conjoint analysis of full-profiles

Conjoint analysis for this study was done using the conjoint module of SPSS version 25. The procedure was done using command syntax. Execution of the commands resulted in the calculation of a utility score, also known as a part-worth for each factor. These utility scores, analogous to regression coefficients provide a quantitative measure of the preference for each factor level. Low values indicate a lower preference whilst higher values denote a higher preference (Levy, 1995; Koo et al., 1999; Hair *et al.*, 2009; Oyatoye et al., 2013; IBM-Corporation, 2017). Since the part-worths are expressed in a common unit, they can be added to obtain the total utility or preference for a combination of factors. The part-worths create a model that can be used for predicting the preference of any product profile, including profiles known as simulation profiles that are not actually presented to respondents (IBM-Corporation, 2017). However, no simulation profiles were used in this study.

The results of the conjoint analysis of the data in the study are listed below:

4.5.1 Utility Scores and Relative Importance of the Preferences

A '*Utility' or 'Part-worth'* is a quantitative measure of the value (preference) of the respondents of a particular product at the factor level. A low utility value denotes a lower preference whilst a high utility value denotes a high preference for the factor.

An *'Importance of attribute'* denotes the relative importance and is calculated by determining the difference between the lowest and highest utilities (range) across the levels of attributes. The higher the range, the more important the factor is.

The Utility scores and relative importance of the factors as determined by the conjoint analysis of the data are summarised in Table 4.5.1-1.

Table 4.5.1-1 – Utility Score of the Preferences

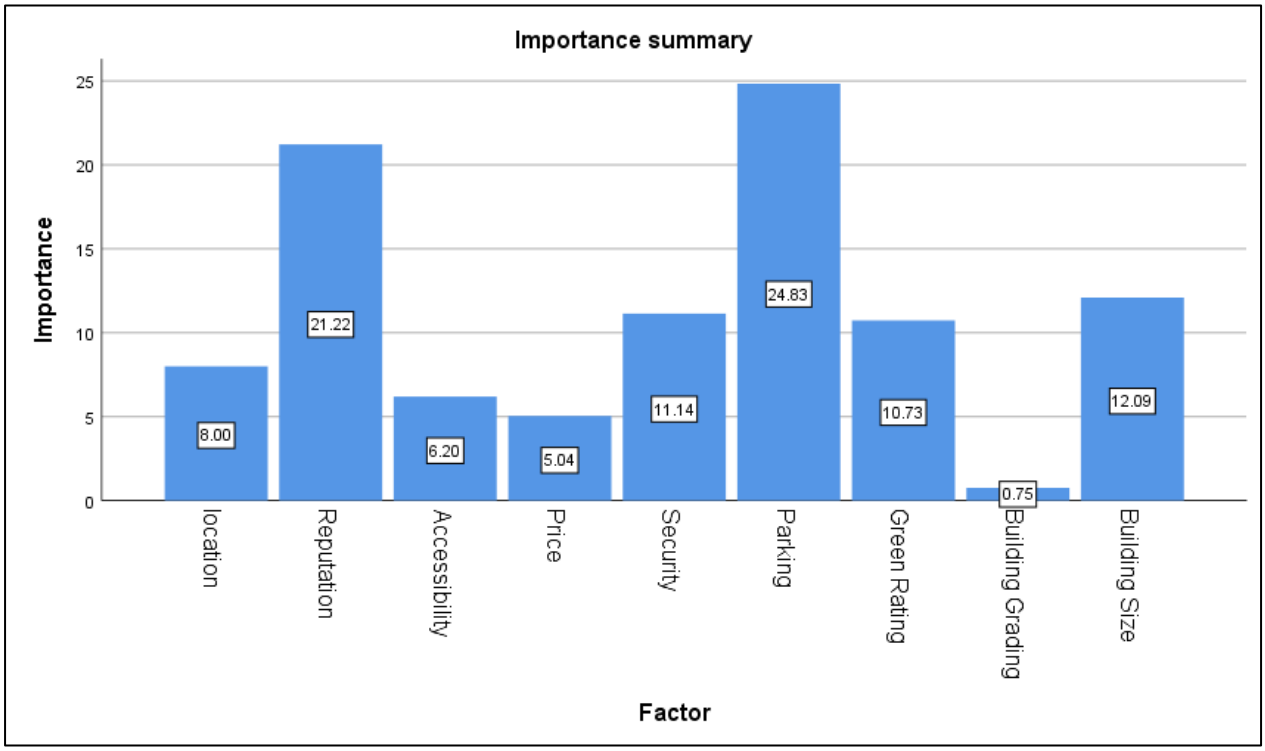
Factor	Attribute (level)	Utility Estimate	Relative Importance*	Rank
Reputation	Excellent	.383	21.219	2
	Bad	-.294		
	Poor	-.089		
Accessibility	Public Transportation	-.079	6.195	7
	Major Highways	.119		
	Major Retail Centres, Hotels	-.040		
Security	Level 1: CCTV, Biometric Access	-.019	11.136	4
	Level 2:CCTV, Electric Fence	-.168		
	Level 3: Building Access Control and Guard	.187		
Parking	Basement Parking	.323	24.831	1
	Open-air Parking	.144		
	Covered open-air Parking	-.468		
Size	50m2 - 500m2	-.052	12.089	3
	501m2 -3000m2	-.167		
	3000m2 - upward	.219		
location	Central Business District	-.127	8.001	6
	Decentralised Districts	-.255		
	Office Precincts	-.382		
Price	R150	.080	5.041	8
	R170	.161		
	R200	.241		
Rating	GBCSA 4-Star	.171	10.735	5
	GBCSA 5-Star	.342		
	Unrated	.513		
Grade	P-Grade	.012	0.752	9
	A-Grade	.024		
	B-Grade	.036		
(Constant)		13.486		

Source: Author's own compilation based on SPSS analysis of Questionnaire data.

The data shows the utilities and relative importance of the factors. The measurements were relative and restricted to the study. There is a likelihood that the relative importance would change if the range of the attributes changed (Hair *et al.*, 2009; Iman *et al.*, 2012). The factor with the highest range (the difference between the high and low utility) was the most important.

According to the conjoint analysis, the most important factor influencing the office relocation decision was Parking (24.83%) followed by Reputation at 21.22%; Size at 12.09% with Security (11.14%) in fourth place; Green Rating (10.74%) ,fifth and the Location of the building (8.00%) is sixth. The Accessibility of the building (6.20%) is seventh; Rental cost (price) of the building (5.04%) is eighth while the grade of the building being 0.75% is the least important. The relative importance of the factors is summarised in Figure 4.5.1-1:

Figure 4.5.1-1 – Summary of relative Importance of factors



Source: Author's own compilation based on SPSS analysis of Questionnaire data

4.5.2 Marginal Utilities

The marginal utility describes the preference of the respondent at the attribute level. Attributes are also known as levels in conjoint studies. The most important attribute is the one with the highest marginal utility. Table 4.5.2-1 (The marginal utility table) shows the attributes with the highest marginal utilities which are the most important attributes.

The results showed that office buildings that had owners and/or building managers with excellent attitude and professional credibility were preferred. This is because the 'excellent' attribute has a higher marginal (utility = 0.383) than the other two attributes. Respondents also preferred buildings that had access to major highways (0.119) which is larger than both -0.040 and -0.079 representing Public Transportation and major retail centres and hotels respectively.

However, Public transportation was the second most important attribute in terms of accessibility.

Table 4.5.2-1 – Marginal Utility

Factor	Attribute	Utility Estimate	Std. Error
Reputation	Excellent	.383	.196
	Bad	-.294	.196
	Poor	-.089	.196
Accessibility	Public Transportation	-.079	.196
	Major Highways	.119	.196
	Major Retail Centres, Hotels	-.040	.196
Security	Level 1: CCTV, Biometric Access	-.019	.196
	Level 2:CCTV, Electric Fence	-.168	.196
	Level 3: Building Access Control and Guard	.187	.196
Parking	Basement Parking	.323	.196
	Open-air Parking	.144	.196
	Covered open-air Parking	-.468	.196
Size	$50m^2$ - $500m^2$	-.052	.196
	$501m^2$ -$3000m^2$	-.167	.196
	$3000m^2$ - upward	.219	.196
location	Central Business District	-.127	.170
	Decentralised Districts	-.255	.340
	Office Precincts	-.382	.510
Price	R150	.080	.170
	R170	.161	.340
	R200	.241	.510
Rating	GBCSA 4-Star	.171	.170
	GBCSA 5-Star	.342	.340
	Unrated	.513	.510
Grade	P-Grade	.012	.170
	A-Grade	.024	.340
	B-Grade	.036	.510
(Constant)		13.486	.694

Source: Author's own compilation based on SPSS analysis of Questionnaire data.

The respondents also preferred buildings with level 3 security (marginal utility = 0.187) and basement parking (utility = 0.323). They also had a liking for buildings with office space of at least $3000m^2$ (utility = 0.219) situated in the Central business districts (-0.127).

Respondents also chose buildings whose total rental cost was R200/m^2 (utility = 0.241) and did not have a Green Building Council of South Africa rating (0.513). B-grade buildings were also preferred (0.036) when compared to P-grade and A-grade buildings.

4.5.3 Total Utility

The total utility is the summation of the individual utilities and denotes the overall preference for a combination of factors and attributes. The total utility Table 4.5.3-1 shows the profiles with their total utilities i.e. the summation of the marginal utilities plus the constant.

The result showed that office location-3 with a total utility profile of 14.97 was the most preferred office location. This office location comprises the following attributes: is located in the CBD, has excellent landlord reputation; has accessibility to major highways; has a total rental cost of R200/m^2; has Level 3 building security; with Basement parking; does not have green rating certification and range in size between 500m^2 and 3000m^2.

The least preferred office location was the one with the lowest total utility. Table 4.5.3-1 shows that office-location 19 had the lowest total utility of 12.50. However, this profile was a hold-out profile and hence the next lowest profile was chosen with a total utility just above 12.50. One can see that this profile is 12.84 (office location 26). This office location has the following attributes: It is located in the CBD, has property managers with a bad reputation, has level 2 security, has covered open parking, has green rating certification but is restricted in space (offering between 500m^2 and 3000m^2).

Table 4.5.3-1 – Total Utility

Profile	Total Utility Estimate
Office Location – 1	14.55
Office Location – 2	13.28
Office Location – 3	14.97
Office Location – 4	13.21
Office Location – 5	14.28
Office Location – 6	13.33
Office Location – 7	13.81
Office Location – 8	14.59
Office Location – 9	12.99
Office Location – 10	13.80
Office Location – 11	13.70
Office Location – 12	14.18
Office Location – 13	14.34
Office Location – 14	13.32
Office Location – 15	13.60
Office Location – 16	13.67
Office Location – 17	13.54
Office Location – 18	13.82
Office Location – 19	12.50
Office Location – 20	13.72
Office Location – 21	13.55
Office Location – 22	13.73
Office Location – 23	13.90
Office Location – 24	13.28
Office Location – 25	14.40
Office Location – 26	12.84
Office Location – 27	13.36
Office Location – 28	14.67
Office Location – 29	14.07
Office Location – 30	13.25
Office Location – 31	14.03
(Constant)	**13.486**

Source: Author's own compilation based on SPSS analysis of Questionnaire data

4.6 Validating the Results

As stated in chapter three (Section 3.5.6), two methods of validation were proposed for this study – Convergent validity test and an internal validity test using holdout profiles. Literature (Louviere, 1988; Louviere and Johnson, 1990; Umesh and Mishra, 1990; Dorsch and Teas, 1992; Orme *et al.*, 1997; Shepherd and Zacharakis, 1999; Kusumawati, 2011) has discussed the validity and reliability of conjoint studies.

4.6.1 Convergent Validity Test

Weaver (1985) stated that a convergent validity test examined the amount of agreement among different methods of measuring the same thing. Part I of the questionnaire used in this research asked the respondents to rank-order nine office-location factors. Part II of the questionnaire asked the respondents to rank 31 full-profiles (including 4 holdout profiles) of hypothetical office locations. Results of the conjoint analysis, obtained using SPSS conjoint module created a rank-ordering of the 31 profiles. Therefore, there were two rank-order lists of the nine factors; first, a rank-order list of the nine factors in response to Part I, referred to as the self-explicated list (Table 4.6.1-1); and, a second, a list that was obtained after running the conjoint analysis on data from Part II of the questionnaire, referred to as the conjoint analysis ranking (Table 4.6.1-2).

Table 4.6.1-1 – Self – Explicated Ranking

Factor	Rank
Grade	1
Size	2
Reputation	3
Security	4
Price	5
Rating	6
Parking	7
Accessibility	8
Location	9

Source: Author's own compilation based on SPSS analysis of Questionnaire data

Table 4.6.1-2 – Conjoint Analysis Ranking

Factor	Rank
Parking	1
Reputation	2
Size	3
Security	4
Rating	5
Location	6
Accessibility	7
Price	8
Grade	9

Source: Author's own compilation based on SPSS analysis of Questionnaire data

As stated in section 3.5.6, a convergent test is valid if there is a large degree of similarity.

> The important test is that the end points of each rank agree, i.e. the two or three highest ranked variables in the self-explicated ranking should be the same as the conjoint measurement derived rankings (Weaver, 1985).

Comparing the two Tables (4.6.1-1 and 4.6.1-2) above, we see that ranks 2, 3 and 4 were the same. Thus, it can be concluded that the model passed the convergent validity test.

4.6.2 Holdout Profiles

The internal validity of the model was also determined through the use of holdout profiles. .A holdout profile is rated by the respondents but is not used by the conjoint procedure for estimating utilities. Instead, the conjoint procedure computes correlations between the observed and predicted rank orders for these profiles as a check on the validity of the utilities. This study includes 4 holdout profiles.

Table 4.6.2-1 – Correlation between observed and estimated Preferences

	Value	Significance
Pearson's R	0.743	0.000
Kendall's tau	0.542	0.000
Kendall's tau for Holdouts	0.333	0.248

Source: Author's own compilation based on SPSS analysis of Questionnaire data

Comparison of the statistic *Kendall's tau* provides a glimpse into the correlations between the observed and estimated preferences. From Table 4.6.2-1, the values of Pearson's R and Kendall's tau are 0.743 and 0.542 respectively. The values are quite high and show a strong correlation between the averaged office location rankings and the conjoint estimates of the utilities. This is premised on the fact that the value of *Kendall's tau* obtained is within the values required in statistical analysis (Hair *et al.*, 2009). Therefore, we conclude that the model passed the internal validity test.

4.7 Discussion

4.7.1 Demographics Results

Main function of the Office Staff

Overall, about half (48 %) of the respondents were from companies that had between 25 - 100 employees. Ninety-nine (70 %) of the respondents performed a clerical type of work while 120 (84 %) of the respondents considered the image/prestige of an office location to their company relatively important. The fact that almost 50% of the respondents were from medium-sized companies; over 70 % performed both clerical type of work (which typically is representative of an office environment) and were particular about the image/prestige of their office location implies that these respondents are better positioned to responding to the questions posed to them in the questionnaires, thus lending credence to the credibility of the data.

Importance of Image/Prestige of Company Location

Additionally, the fact that over 80% of the respondents considered the image/prestige of an office location important to their company reinstates earlier findings (Dent and White, 1998; van Bergen, 2011; Iman *et al.*, 2012; Didiza, 2014; Remøy *et al.*, 2014; Zortuk *et al.*, 2014; Meiring, 2016) which emphasize the importance of locational image and/or prestige.

Travelling time Spent in Rush Hour

The average time spent in rush hour was just under an hour. This implies that the distance of the place of work (office) relative to the residences of the respondents is immaterial. To some extent, this is a consequence of the economy where new housing developments are being developed in far flung areas owing to non-availability of land in the areas surrounding or close to the central business districts and other office precincts.

Frequency of Visits to Office

Ninety-two (65 %) of the respondent companies received visitors to their premises more often while over 90 % of the respondents had participated in office relocation decisions. Overall, over 99 % of the respondents were below the official retirement age of 65 years with most of the respondents being aged between 36 and 45 years. The fact that respondents aged between 36 and 45 years make office relocation decisions reinforces the assertion that middle-aged people, typically managers and executives make office relocation decisions.

Since 90% of the respondents had participated in office relocation decisions and over 50% of the office relocation decisions in the Johannesburg metropolitan area were arrived at in highly structured environments using impersonal logical data, and through objective analysis, lends credence to the quality and credibility of this decision-making process.

4.7.2 'Ideal' Preferences of the Respondents.

The findings highlight the responses from respondents (when considering only their personal needs and desires). Seventy-three (8.39 %) of the respondents want to be to be near a highway or freeway on/off ramp. The importance of accessibility reinforces earlier findings (van de Wetering and Wyatt, 2011; Leishman *et al.*, 2012). Seventy (8.05 %) of the respondents would be very concerned about having easy access to their customers. Sixty-five (7.47 %) of the respondents would prefer an office location that has quick access to the airport with 64 (7.36 %) preferring an office location situated nears their children's schools. Sixty-three (7.24 %) of the respondents required offices that are energy-efficient keeping in line with the findings of (Chegut et al., 2010; van Bergen, 2011; van de Wetering and Wyatt, 2011; Jailani et al., 2015; Meiring, 2016; Mohd Adnan et al., 2017) with 61 (7.01 %) preferring to avoid some of the stress that they experienced in their last office move. Sixty (6.90 %) of the respondents would be concerned about the availability of public transport with 60 (6.90 %) wanting major shopping centres/malls in the nearby vicinity. Another 60 (6.90 %) of the respondents require space that is managed by landlords and/or building owners that have excellent attitude and professional credibility with 52 (5.98 %) seeking space with flexible interior floor plans. Offices located near home are desired by 51 (5.86 %) of the respondents with 49 (5.63 %) wanting offices with easy access to others in the same industry. Forty-six (5.29 %) of the respondents are concerned with a high prestige/image office location with 43 (4.94 %) wanting an office location with ample parking on-premises or nearby. Thirty-four (3.91 %) of the respondents prefer an office building located with 19 (2.18 %) unlikely to compromise on building security. The security aspect of most office tenants is a new phenomenon with most studies (Adnan and Daud, 2010; Wai and Wei, 2010; Leishman et al., 2012; Calixijan and Murcia, 2015) listing it as a key requirement.

4.7.3 Self – Explicated Analysis Results

The self-explicated rankings were obtained by taking the sum. The sum was used to derive self-explicated rankings in other studies (Markovina and Kovačić, 2008). The factor with the highest sum was ranked first (most important) and so on.

The factor rankings arranged in order of decreasing importance were Building grade (sum=791), Building size (sum =716), landlord reputation (sum =710), Building security (sum = 708), Rental cost (sum = 698), Green rating (sum = 694), Parking (sum = 682), Accessibility (sum = 640) and Building location (sum = 632). This finding implies that given a list of relocation factors, the respondents cursorily choose the Building grade (usually associated with prestige/image) as the most important factor in their selection process collaborating (Adnan and Daud, 2010; Meiring, 2016).

4.7.4 Full Profile Conjoint Analysis Results

The full profile conjoint rankings were obtained by running a conjoint analysis on the questionnaire data. The factor with the highest range (the difference between the highest and lowest utility) provides the relative importance (in %) and is ranked first (most important). The factor rankings, according to conjoint analysis, arranged in order of decreasing importance are Parking (relative importance = 24.83%), Landlord Reputation (relative importance = 20.66%), Building Size (relative importance = 12.09%), Building security (relative importance = 11.14%), Green Rating (relative importance = 10.73%), Building Location (relative importance = 8.00%), Accessibility of the Building (relative importance = 6.20%), Price (relative importance = 5.04%) and the building grade (relative importance = 0.75%).

4.7.5 Marginal Utility Analysis Results

The attribute with the highest marginal utility is the most important attribute. Parking was the most important factor with a relative importance of 24.83 %. It comprises three attributes; Basement Parking (utility =0.323), Open-air Parking (utility = 0.144) and Covered open-air parking (utility =-0.468). The respondents preferred office buildings with basement parking as it had the highest utility (0.323), followed by open-air parking (utility = 0.144). Parking had been identified in studies by (Ho *et al.*, 2005; Adnan and Daud, 2010; van Bergen, 2011; Hwa and Chin, 2012; Meiring, 2016) as one of the important factors in the office relocation decision-making process.

The reputation of the landlord/Building manager is the second most important factor with a relative importance of 21.22 %. It consists of three attributes: Excellent (utility = 0.383), Bad (utility = -0.294) and Poor (utility = -0.089). The respondents preferred office buildings that were managed by landlords or building owners with excellent reputation and integrity as shown by the utility = 0.383. Reputation was an important factor in the office relocation decision-making process in studies by (Adnan and Daud, 2010; Iman *et al.*, 2012; Didiza, 2014; Calixijan and Murcia, 2015; Meiring, 2016).

Naturally, tenants will want a building that has good management as a way of mitigating risks associated with building maintenance.

The size of the building was the third-most important factor with a relative importance of 12.07 %. It comprises three levels: office size of 50m^2 - 500m^2 (utility = -0.052), office size of 501m^2 -3000m^2 (utility = -0.167), office size of 3000m^2 – upward (utility = 0.219). The respondents preferred buildings with sizes of 3000m^2 and above. This resonates well with the finding that most offices are occupied by firms that have between 25 -100 employees (see figure 4.2-1). Building size was one of the factors in the office relocation decision-making process in studies by (Wai and Wei, 2010; van Bergen, 2011; Iman *et al.*, 2012; Leishman *et al.*, 2012; Zortuk *et al.*, 2014; Gawlik *et al.*, 2017).

Security of the building was the fourth most important factor with a relative importance of 11.13 %. It consists of three levels: Level 1 - CCTV, Biometric Access (utility = -0.019), Level 2 – CCTV, Electric Fence (utility = -0.168) and Level 3 – Building Access Control and Guard (utility = 0.187). The respondents preferred buildings with building access control and a security guard (utility = 0.187).

The green rating of the building was the fifth most important factor with a relative importance of 10.74 %. It comprises three attributes: Green Building Council of South Africa (GBCSA) 5-star rating (utility = 0.342); Green Building Council of South Africa (GBCSA) 4-star rating (utility = 0.171) and No Rating (utility = 0.513). The respondents preferred buildings without any green features (conventional) buildings (utility = 0.513). This preference by the respondents contrasts studies that highlight sustainability benefits of buildings (Hodges, 2005; Chegut *et al.*, 2010).

The location of the building was the sixth most important factor with a relative importance of 8.00 %. It comprises three attributes: Central Business District –CBD (utility=-0.127), Decentralised Districts-DD (utility = -0.255) and office precincts (utility =-0.382). The respondents preferred the CBD with a utility =-0.127 followed by the decentralised districts (utility = -0.255). The CBD choice is a bit bizarre in the South African context because the CBD is not the best of locations. A plausible explanation for this could be the fact that most of the large corporations still have their head offices in the CBD. Location was a determinant factor in the office selection process in studies by (Dent and White, 1998; van Bergen, 2011; Iman *et al.*, 2012; Rymarzak *et al.*, 2012; Didiza, 2014; Zortuk *et al.*, 2014; Adnan *et al.*, 2015; Calixijan and Murcia, 2015; Meiring, 2016; Gawlik *et al.*, 2017).

The Accessibility to the office building was the seventh most important fact with a relative importance of 6.20 %. It is composed of three attributes: Public transportation (utility =-0.079), major highways (utility =0.119) and major retail centres and hotels (utility =-0.040). The respondents preferred easy access to major highways and freeways (utility = 0.119) followed by access to retail centres and malls (utility = -0.040). This supports the preferences of the respondents wanting offices with parking, not worrying about distance to office from home and wanting the children's school near the office and easy access to the clients/customers. This implies that most respondents have their own cars which they use to travel to and from the office, dropping off and picking up the kids on the way to work and back home respectively. Easy access to the highway is preferred so as to avoid spending long times in traffic. Accessibility to public transport, highways and retail centres and malls is an important consideration in the office selection process.

The total cost of rental (price) was the eighth most important factor with a relative importance of 5.04 %. It comprises three price points: R150/m^2 (utility = 0.080), R170/m^2 (utility = 0.161) and R200/m^2 (utility = 0.241). The respondents preferred office buildings with a total rental cost of R200/m^2 (utility =0.241) followed by R170/m^2 (utility =0.161). These findings lend support to findings that price is an important factor in the office selection process.

The grade of the building was the least important factor with a relative importance of the 0.752 %. It comprises three attributes: P-grade (utility = 0.012), A-grade (utility =0.024) and B-grade (utility = 0.036). The respondents preferred B-grade offices (utility = 0.036) followed by A-grade offices (utility = 0.024). A plausible explanation for this could be the fact that most B-grade buildings are located in the CBD which has the highest stock of A-grade and B-grade offices.

4.7.6 Total Utility Results

The total utility is derived by adding up the marginal utilities plus a constant. The total utility denotes the most preferred full profile of the hypothetical office locations presented. Office location-3 (total utility estimate = 14.97) is the most preferred office location. This office location comprises the following attributes: is located in the CBD, has excellent landlord reputation; has accessibility to major highways; has a total rental cost of R200/m^2; has Level 3 building security; with Basement parking; has no green rating and range in size between 500m^2 and 3000m^2. An implication of this finding is that, even though no simulation profiles were run, all new office developments should be built with the features as outlined in office-location-3 above as this is the most preferred office location.

4.7.7 Comparison of Self-Explicated vs Conjoint Analysis Results

The results of the self-explicated analysis produced a closely similar ranking list to the one produced from the conjoint analysis. Literature (Louviere, 1988; Louviere and Johnson, 1990; Umesh and Mishra, 1990; Dorsch and Teas, 1992; Orme *et al.*, 1997; Shepherd and Zacharakis, 1999; Kusumawati, 2011) shows that self-explication results do show some variations with those produced by conjoint methods. The self-explicated ranking produced building grade as the number one preference, size in second place; reputation and security in third and fourth places respectively. The conjoint method produced parking as the number one preference. This finding is at odds with respondents who did not consider parking as important when using the self-explication method. One possible explanation for this is the fact that conjoint analysis does place limitations on the number of factors and levels. Even with the use of fractional factorial design, the number of profiles does get large and it's important to strike a balance with the number of profiles and the quality of the data if factors and levels are reduced in number. Another plausible explanation is that owing to the large number of profiles, (31) in this study, some respondents may, as a result of response fatigue, resorted to simplifying tactics in completing the questionnaires. Consequently, the resulting part-worths were most likely a distortion of their true preferences.

4.8 Chapter Summary

This chapter analysed the data results and discussed the findings. The response rates for the pre-tests and the actual study were 70 % and 71 % respectively. The demographics of the respondents showed that over 90 % of the respondents had participated in office relocation decisions with over 50 % of the office relocation decisions in the Johannesburg metropolitan area being arrived at in highly structured environments based on impersonal logical data and through objective analysis.

These findings lend credence to the quality of data and credibility of this decision-making process. The self-explicated results and the full conjoint analysis results are presented. Despite the differences the rankings of the factors as presented by the two methods, the model passed the convergent validity test. The Discussion section illustrated the implications of the findings.

Chapter Five

5 SUMMARY, CONCLUSION AND RECOMMENDATIONS

This chapter provides a summary of the findings; conclusion and recommendations of the study. It is organised into three sections. Section one gives a summary of the findings while section two provides a conclusion of the study. Lastly, section three gives recommendations based on the findings.

5.1 Summary

This section provides a precis of the main determinants in office relocation decisions within the Johannesburg metropolitan area from an ideal, self-explicated and conjoint analysis preferences perspective.

5.1.1 What are the ideal preferences of Johannesburg office?

The findings highlight the responses from respondents (when taking only their personal needs and desires into consideration) and show that accessibility is a key factor with most office tenants desiring to be near a highway or freeway on/off ramp. This finding on accessibility reinforces earlier findings on the importance of accessibility and also collaborates the neo-classical location theory. They respondents also cared about having easy access to their customers as well as having an office location that had quick access to the airport. The fact that the distance of the office location from the homes was not material, most respondents preferred an office location situated near their children's schools. Energy-efficient offices were also a key requirement. This is more pronounced in government and quasi-government organisations where energy efficiency was a mandatory requirement in procurement documents. Respondents also desired the availability of public transport; and presence of major shopping centres/malls in the nearby vicinity. They also preferred office space that is managed by landlords and/or building owners that had excellent attitude and professional credibility and had flexible interior floor plans. Offices located near home are desired by over half of the respondents as well as offices that are easily accessible to others in the same industry. The respondents were also concerned with a high prestige/image office location with ample parking on-premises or nearby. Lastly, they were unlikely to compromise on building security.

5.1.2 What are the self-explicated preferences of Johannesburg office tenants?

The study also shows the self-explicated rankings of the factors. The rankings were obtained by taking the mean score. The factor with the highest mean score was ranked first (most important) and so on.

The factor rankings arranged in order of decreasing importance were Building grade, Building size, Landlord reputation, Building security, Rental cost, Green rating, Parking, Accessibility and Building location. This finding implies that given a list of relocation factors, the respondents cursorily choose the Building grade (usually associated with prestige/image) as the most important factor while location of the building is the least important factor.

5.1.3 What are the conjoint analysis (full-profile) preferences of Johannesburg office tenants?

The findings are that the availability of parking that could either be Basement Parking, Open-air Parking or covered parking (although, the respondents show a high preference for basement parking) is the most important factor in the relocation decision making process. Next, most important factor was the professional reputation and credibility of the landlord and/or property manager of the office building. The third most important factor was the size of the building. Analysis shows that buildings of size of 3000m^2 are the most preferred. The security of the building, illustrated by the three levels of the building is the fourth most important factor. The respondents had a high preference for level 3 security. The green rating of the building was the fifth most important factor with the results showing a high preference for un-rated (conventional) buildings. The Location of the office building was the sixth most important factor with respondents having a high preference for buildings located in the CBD. The Accessibility of the office building to other important places was the seventh most important factor. However, the respondents had a high preference for office buildings that have easy access to major highways. The total cost of occupying the premises was the eighth most important factor with a price point of R200/m^2 being the most preferred. The least important factor was the grade of the building. This is somehow tied to the green rating of the building. Nevertheless, the respondents had a high preference for office buildings with a B-grade.

5.2 Conclusion/Practical implications of findings

The study makes several contributions to scholarship and practice in the fields of property management, tenant acquisition, retention, and management. Specifically, it illustrates the application of proven market research techniques to the office market in South Africa, which is not a common area of scientific interest mainly due to unavailability of data inter alia. Traditionally, most conjoint analyses in the real estate sector focus on mature markets in the West and empirical evidence from less developed markets, specifically in Africa is scarce. From a practical standpoint, the results of this research will be directly relevant to the South African property market in assisting companies in making the right office relocation decisions.

The outcomes will (1) provide building owners and landlords with a mechanism which can be used in reducing the financial effects attributed to rising vacancies and other factors exerting downward pressures on occupancy levels and (2) will assist with the identification and creation of customer segments which can be effectively targeted with the right products/features, thus reducing tenant churn, by offering the right product to the right customers (segment) the first time.

5.3 Recommendations

The results of this study add to the body of knowledge of the preferences of office tenants in the Johannesburg office market. This knowledge can be used by a wide audience of stakeholders that includes developers, architects and designers, investors, tenants, estate agents, researchers and academia. Property developers of new office buildings or refurbishments of older stock should ensure that the new office buildings have the following features at a minimum: Have ample parking, are centrally located, are managed by reputable leasing companies or developed by reputable developers, have easy access to major highways and major malls, have adequate security, large floor plates and have B-grade finishes. Architects and designers of new building stock should ensure that they design new buildings that are fit-for-purpose by taking into consideration, the findings of conjoint studies. Estate agents need to help with the identification of amenities and other features which could then be used as part of conjoint studies. Researchers and other academia can propound and evangelise the benefits of using conjoint methods in conducting market studies in the real estate sector.

5.3.1 Future Research Areas

Future research may include extending the methodology to other users of space other than office tenants. Additionally, the scope can also be widened to other metropolitan areas in South Africa and results compared. Lastly, recent literature (Adnan *et al.*, 2015; Bauer *et al.*, 2015) show limitations of the conjoint methodology especially when it comes to handing large numbers of factors and levels. Newer methods like stated preference elicitation (Ben-Akiva *et al.*, 2015; Marmolejo-Duarte and Bravi, 2017) and other variants of conjoint analysis e.g. choice-based and adaptive hybrid (Bauer *et al.*, 2015; Voleti *et al.*, 2017) may be used to study and understand the factors affecting the relocation decisions.

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7 APPENDICES

7.1 Appendix A – Original Survey Questionnaire

Top Executives and Their Office Location Decisions

Part I

General Information and Background: Imagine that you have the primary responsibility to select new office space for your firm. After a careful and thorough study, you have decided to evaluate all potential locations using the following variables. To help in decision making later, give some thought to the list below. Rank the variables in terms of a **1** for the **most important**; **2** for the **next most important**; **3**,**4**,**5**, and **6** in order of **decreasing importance**; through **7** for the **least important**.

Variables You Consider Important in the Office Location Decision

A. ACCESSIBILITY: How accessible is it to other important places such as:

Rank ____

- central business districts
- major interstate highways
- major retail, entertainment, hotels, and airports
- public transportation
- adequate parking

B. FACE-TO-FACE COMMUNICATION: meetings with other important people

Rank ____

C. REPUTATION & PRESTIGE: image of the building in the business community

Rank ____

D. PRICE: total cost of occupying the chosen office

Rank ____

E. INTERIOR DESIGN & AMENITIES: quality of interior finish, flexibility of layout and environmental controls, and adequacy of elevator services

Rank ____

F. LEASING AGENT & BUILDING MANAGEMENT: the attitude and professional credibility of both parties

Rank ____

G. LOCATIONAL AMENITIES: location relative to very important places such as executive clubs and executive residences

Rank ____

Instructions:

1. Please review the above rankings of the seven variables considered important in choosing an office location.
2. Pretend that the inside pages of this questionnaire are your field notes on the 18 offices you visited. You should scan them now.
3. The inside pages are your evaluation of the eighteen imaginary office locations that you are considering. You are asked to pretend that while in the field you not only used the seven variables discussed above to describe the offices but you also rated each variable in terms of:

   above average **average** **below average**

4. Open the questionnaire and proceed to evaluate each office as to its desirability.

Assume that this chart represents notes made by you earlier. You have decided to rate each potential office location usi these notes. This might have represented the first step in your office selection process. After looking at all available spa you are now beginning to narrow down the available selection by rating each location on a scale of from 10 to 1. Yo rating process should consider the ranking of the seven variables decided on the first page of this questionnaire.

OFFICE LOCATION A

High Rating 10 9 8 7 6 5 4 3 2 1 Low Rating

Accessibility	*average*
Face-to-Face Communications	*above average*
Reputation & Prestige	*above average*
Price	*above average*
Interior Design & Amenities	*above average*
Leasing Agent & Building Mgt.	*above average*
Locational Amenities	*above average*

OFFICE LOCATION B

High Rating 10 9 8 7 6 5 4 3 2 1 Low Rating

Accessibility	*above average*
Face-to-Face Communications	average
Reputation & Prestige	average
Price	average
Interior Design & Amenities	**Below Average**
Leasing Agent & Building Mgt.	average
Locational Amenities	average

OFFICE LOCATION C

High Rating 10 9 8 7 6 5 4 3 2 1 Low Rating

Accessibility	*above average*
Face-to-Face Communications	**Below Average**
Reputation & Prestige	**Below Average**
Price	**Below Average**
Interior Design & Amenities	average
Leasing Agent & Building Mgt.	**Below Average**
Locational Amenities	**Below Average**

OFFICE LOCATION D

High Rating 10 9 8 7 6 5 4 3 2 1 Low Rating

Accessibility	average
Face-to-Face Communications	*above average*
Reputation & Prestige	average
Price	average
Interior Design & Amenities	average
Leasing Agent & Building Mgt.	*above average*
Locational Amenities	**Below Average**

OFFICE LOCATION E

High Rating 10 9 8 7 6 5 4 3 2 1 Low Rating

Accessibility	average
Face-to-Face Communications	average
Reputation & Prestige	**Below Average**
Price	**Below Average**
Interior Design & Amenities	*above average*
Leasing Agent & Building Mgt.	average
Locational Amenities	*above average*

OFFICE LOCATION F

High Rating 10 9 8 7 6 5 4 3 2 1 Low Rating

Accessibility	average
Face-to-Face Communications	**Below Average**
Reputation & Prestige	*above average*
Price	*above average*
Interior Design & Amenities	**Below Average**
Leasing Agent & Building Mgt.	**Below Average**
Locational Amenities	average

OFFICE LOCATION G

Accessibility
Face-to-Face Communi
Reputation & Prestige
Price
Interior Design & Ame
Leasing Agent & Buildi
Locational Amenities

OFFICE LOCATION H

Accessibility
Face-to-Face Communi
Reputation & Prestige
Price
Interior Design & Ame
Leasing Agent & Buildi
Locational Amenities

OFFICE LOCATION I

Accessibility
Face-to-Face Communi
Reputation & Prestige
Price
Interior Design & Ame
Leasing Agent & Buildi
Locational Amenities

OFFICE LOCATION J

Accessibility
Face-to-Face Communi
Reputation & Prestige
Price
Interior Design & Ame
Leasing Agent & Buildi
Locational Amenities

OFFICE LOCATION K

Accessibility
Face-to-Face Communi
Reputation & Prestige
Price
Interior Design & Ame
Leasing Agent & Buildi
Locational Amenities

OFFICE LOCATION L

Accessibility
Face-to-Face Communi
Reputation & Prestige
Price
Interior Design & Ame
Leasing Agent & Buildi
Locational Amenities

mended that you refer frequently to your earlier rankings of the seven variables as you proceed to rate each n below (A through R). Rate each location on a scale of **10 = highest rating** to **1 = lowest rating**. Please circle the er that best indicates how you feel about the desirability of each possible office location.

7 6 5 4 3 2 1 Low Rating

Below Average
above average
Below Average
Below Average
average
above average
Below Average

OFFICE LOCATION M

High Rating 10 9 8 7 6 5 4 3 2 1 Low Rating

Accessibility — **Below Average**
Face-to-Face Communications — above average
Reputation & Prestige — average
Price — above average
Interior Design & Amenities — **Below Average**
Leasing Agent & Building Mgt. — average
Locational Amenities — **Below Average**

3 7 6 5 4 3 2 1 Low Rating

Below Average
average
above average
average
Below Average
average
above average

OFFICE LOCATION N

High Rating 10 9 8 7 6 5 4 3 2 1 Low Rating

Accessibility — **Below Average**
Face-to-Face Communications — average
Reputation & Prestige — **Below Average**
Price — **Below Average**
Interior Design & Amenities — above average
Leasing Agent & Building Mgt. — **Below Average**
Locational Amenities — above average

8 7 6 5 4 3 2 1 Low Rating

Below Average
Below Average
average
above average
above average
Below Average
average

OFFICE LOCATION O

High Rating 10 9 8 7 6 5 4 3 2 1 Low Rating

Accessibility — **Below Average**
Face-to-Face Communications — **Below Average**
Reputation & Prestige — above average
Price — average
Interior Design & Amenities — average
Leasing Agent & Building Mgt. — above average
Locational Amenities — average

9 8 7 6 5 4 3 2 1 Low Rating

above average
above average
Below Average
average
above average
average
average

OFFICE LOCATION P

High Rating 10 9 8 7 6 5 4 3 2 1 Low Rating

Accessibility — average
Face-to-Face Communications — above average
Reputation & Prestige — above average
Price — **Below Average**
Interior Design & Amenities — **Below Average**
Leasing Agent & Building Mgt. — **Below Average**
Locational Amenities — average

9 8 7 6 5 4 3 2 1 Low Rating

above average
average
above average
above average
average
Below Average
Below Average

OFFICE LOCATION Q

High Rating 10 9 8 7 6 5 4 3 2 1 Low Rating

Accessibility — average
Face-to-Face Communications — average
Reputation & Prestige — average
Price — average
Interior Design & Amenities — above average
Leasing Agent & Building Mgt. — above average
Locational Amenities — **Below Average**

10 9 8 7 6 5 4 3 2 1 Low Rating

above average
Below Average
average
Below Average
Below Average
above average
above average

OFFICE LOCATION R

High Rating 10 9 8 7 6 5 4 3 2 1 Low Rating

Accessibility — average
Face-to-Face Communications — **Below Average**
Reputation & Prestige — **Below Average**
Price — above average
Interior Design & Amenities — average
Leasing Agent & Building Mgt. — average
Locational Amenities — above average

Part III

The following questions concern data about you and your firm. We need these data in order to properly understand and analyze your earlier responses. The information you supply will remain confidential.

1. How large is your present office staff? (circle one) **0-10 11-25 26-100 101-up**
2. How would you characterize the **main** function of your office staff?

   mostly executive □ **mostly clerical/technical** □ **about evenly mixed** □
3. How important is the image or prestige of a location to your company? (circle one)

   very important 5 4 3 2 1 ***of little importance***
4. How would you estimate your local profits in 1981 relative to budgeted goals?

   higher than budget □ **about at budget** □ **lower than budget** □
5. How many minutes in rush hour driving time does the chief decision maker travel in going from home to the office? _____
6. How many years has your company been in business in the Metroplex? _____
7. How frequently do your clients, customers, or other business associates visit your office?

   often □ **sometimes** □ **rarely** □
8. What is your office's Zip code? _____
9. How often have you participated in office relocation decisions (with any organization)? (circle one)

   0 1 2 3 4 5 or more
10. Describe the kind of business/industry your office serves. _____

_____

Please make a personal response to the questions below.

11. My age is between (circle one) **0-25 26-35 36-45 46-55 56-65 66-up**
12. I prefer a well-defined, highly structured decision-making environment (circle one)

    Agree 1 2 3 4 5 ***Disagree***
13. I prefer to make decisions based more on subjective values and personal feelings or more on impersonal, logical data, and objective analysis. (circle one)

    Personal Feelings 1 2 3 4 5 ***Impersonal Logic***
14. **"If I had to decide on a new office location with only my personal needs and desires in mind, I would . . ." (Check all that apply.)**

- locate near my home □
- locate near recreation such as golf, tennis, or racketball □
- find the driving time to the airport critical □
- be concerned about the availability of public transportation □
- want to be near an interstate on/off ramp □
- require major shopping to be close by □
- want to be near executive neighborhoods □
- be very concerned about being close to my customers □
- require good hotels to be close by □
- choose space that would encourage face-to-face meetings with my customers and other important clients and contacts □
- want individual heating and air conditioning controls in my office □
- seek space with flexible interior floor plans □
- choose a high-prestige office location □
- avoid some of the stress I experienced due to the last office move □
- locate close to others in my same industry □

92-16

7.2 Appendix B – Survey Questionnaire used in Current Study

Johannesburg Managers and Their Office Location Decisions

Part I

General Information & Background: Imagine that you have the primary responsibility to select new office space for your firm. After a careful and thorough study, you have decided to evaluate all potential locations using the following variables. To help in decision making later, give some thought to the list below. Rank the **9 variables** below in terms of a **1** for the **most important**; **2** for the **next most important**; **3, 4, 5, 6, 7** and **8** in order of **decreasing importance**; through **9** for the **least important**. **(Note:** Use the numbers **"1-9" ONCE** for each Variable**).**

Variables You Consider Important in the Office Location Decision

A. LOCATION: Is the location of the offices important such as:
Rank ____ ● Central Business District ● Decentralised Districts e.g. Sandton or Rosebank ● Office Precincts e.g. Melrose Arch, Waterfall

B. REPUTATION: How is the attitude and professional credibility of Landlord and/or Building Owner and relationship with tenants:
Rank ____ ● Excellent ● Bad ● Poor

C. ACCESSIBILITY: How accessible is it to other important places such as:
Rank ____ ● Public transportation ● Major retail centres, hotels and airport ● Major Highways

D. PRICE: total cost of occupying the chosen office
Rank ____ ● R150/m² ● R170/m² ● R200/m²

E. SECURITY: the security detail around and within the building that could be:
Rank ____
● Level 1: CCTV, Biometric Access & Electric Fence
● Level 2: CCTV, Electric Fence & Security Guard
● Level 3: Building Access Control & Security Guard

F. PARKING: availability of adequate parking that could either be:
Rank ____ ● Basement Parking ● Open-air Parking ● Covered open-air Parking

G. RATING: Is the energy efficiency (green) rating of the building important such as:
Rank ____ ● GBCSA 5-star ● GBCSA 4-star ● Unrated

H. GRADING: is grading of building important such as:
Rank ____ ● P-Grade ● A-Grade ● B-Grade

I. SIZE: size (in m²) of the office space desired.
Rank ____
● Small ● Medium ● Large

Instructions:

1. Please review the above rankings of the nine variables considered important in choosing an office space.
2. Pretend that the inside pages of this questionnaire are your field notes on the 31 offices you have visited. You should scan them now.
3. The inside pages of this questionnaire are your evaluation of the thirty-one imaginary office locations that you are considering. You are asked to pretend that while in the field, you not only used the nine variables discussed above but that you also **ranked** each of the 31 office locations.
4. Open the questionnaire and proceed to evaluate each office as to its desirability.

Part II

Assume that this chart represents notes made by you earlier. You have decided to rate potential office location using these notes. This might have represented the first step in your office selection process. After looking at all available spaces, you are now beginning to narrow down the available selection by ranking each location as to its desirability.

First, browse through the 31 office locations. Second, Rank the **31 office locations** in terms of **preference** with a **1** for the **most preferred**; **2** for the **next preferred**; **3, 4, 5, 6 etc.** in order of **decreasing desirability**; through **31** for the **least preferred**. **(Note:** Use the numbers **"1-31" ONCE** for each Office Location)

OFFICE LOCATION - 1 Rank:_____	
• **Location**	Decentralised Districts
• **Reputation**	Excellent
• **Accessibility**	Easy Access to Major Highways
• **Price**	R170/m²
• **Security**	Building Access Control, Security Guard
• **Parking**	Open-air Parking
• **Rating**	GBCSA 5-Star Rating
• **Grade**	B-Grade
• **Size**	50m² - 500m²

OFFICE LOCATION – 2 Rank:_____	
• **Location**	Office Precincts
• **Reputation**	Excellent
• **Accessibility**	Easy Access to major Malls, Hotel Airports
• **Price**	R170/m²
• **Security**	CCTV, Biometric Access, Electric fence
• **Parking**	Open-air Parking (Covered)
• **Rating**	GBCSA 5-Star Rating
• **Grade**	A-Grade
• **Size**	501m² - 3000m²

OFFICE LOCATION - 3 Rank:_____	
• **Location**	Central Business District
• **Reputation**	Excellent
• **Accessibility**	Easy Access to Major Highways
• **Price**	R200/m²
• **Security**	Building Access Control, Security Guard
• **Parking**	Basement Parking (Covered)
• **Rating**	None
• **Grade**	P-Grade
• **Size**	501m² - 3000m²

OFFICE LOCATION - 4 Rank:_____	
• **Location**	Central Business District
• **Reputation**	Bad
• **Accessibility**	Easy Access to Public Transportation
• **Price**	R200/m²
• **Security**	CCTV, Biometric Access, Electric fence
• **Parking**	Open-air Parking (Covered)
• **Rating**	GBCSA 4-Star Rating
• **Grade**	B-Grade
• **Size**	3000m² - upward

OFFICE LOCATION - 5 Rank:_____	
• **Location**	Office Precincts
• **Reputation**	Poor
• **Accessibility**	Easy Access to Major Highways
• **Price**	R200/m²
• **Security**	CCTV, Biometric Access, Electric fence
• **Parking**	Basement Parking (Covered)
• **Rating**	GBCSA 5-Star Rating
• **Grade**	B-Grade
• **Size**	3000m² - upward

OFFICE LOCATION - 6 Rank:_____	
• **Location**	Decentralised Districts
• **Reputation**	Poor
• **Accessibility**	Easy Access to Major Highways
• **Price**	R150/m²
• **Security**	CCTV, Biometric Access, Electric fence
• **Parking**	Open-air Parking (Covered)
• **Rating**	None
• **Grade**	P-Grade
• **Size**	50m² - 500m²

OFFICE LOCATION – 7 Rank:_____	
• **Location**	Office Precincts
• **Reputation**	Bad
• **Accessibility**	Easy Access to Major Highways
• **Price**	R170/m²
• **Security**	CCTV, Electric Fence, Security Guard
• **Parking**	Open-air Parking
• **Rating**	None
• **Grade**	P-Grade
• **Size**	3000m² - upward

OFFICE LOCATION - 8 Rank:_____	
• **Location**	Central Business District
• **Reputation**	Excellent
• **Accessibility**	Easy Access to Public Transportation
• **Price**	R170/m²
• **Security**	CCTV, Electric Fence, Security Guard
• **Parking**	Basement Parking (Covered)
• **Rating**	GBCSA 5-Star Rating
• **Grade**	P-Grade
• **Size**	3000m² - upward

OFFICE LOCATION - 9 Rank:_____	
• **Location**	Decentralised Districts
• **Reputation**	Poor
• **Accessibility**	Easy Access to major Malls, Hotels and Airports
• **Price**	R170/m²
• **Security**	CCTV, Electric Fence, Security Guard
• **Parking**	Open-air Parking (Covered)
• **Rating**	GBCSA 4-Star Rating
• **Grade**	P-Grade
• **Size**	3000m² - upward

OFFICE LOCATION - 10 Rank:_____	
• Location	Office Precincts
• Reputation	Poor
• Accessibility	Easy Access to Public Transportation
• Price	R170/m²
• Security	Building Access Control, Security Guard
• Parking	Basement Parking (Covered)
• Rating	GBCSA 4-Star Rating
• Grade	B-Grade
• Size	50m² - 500m²

OFFICE LOCATION - 11 Rank:_____	
• Location	Central Business District
• Reputation	Poor
• Accessibility	Easy Access to Major Highways
• Price	R170/m²
• Security	CCTV, Biometric Access, Electric fence
• Parking	Open-air Parking
• Rating	GBCSA 4-Star Rating
• Grade	A-Grade
• Size	501m² - 3000m²

OFFICE LOCATION – 12 Rank:_____	
• Location	Central Business District
• Reputation	Excellent
• Accessibility	Easy Access to major Malls, Hotels & Airports
• Price	R150/m²
• Security	CCTV, Biometric Access, Electric fence
• Parking	Basement Parking (Covered)
• Rating	GBCSA 4-Star Rating
• Grade	P-Grade
• Size	50m² - 500m²

OFFICE LOCATION - 13 Rank:_____	
• Location	Central Business District
• Reputation	Poor
• Accessibility	Easy Access to major Malls, Hotels and Airports
• Price	R150/m²
• Security	CCTV, Biometric Access, Electric fence
• Parking	Basement Parking (Covered)
• Rating	None
• Grade	B-Grade
• Size	3000m² - upward

OFFICE LOCATION – 14 Rank:_____	
• Location	Office Precincts
• Reputation	Bad
• Accessibility	Easy Access to major Malls, Hotels and Airports
• Price	R200/m²
• Security	Building Access Control, Security Guard
• Parking	Open-air Parking
• Rating	GBCSA 4-Star Rating
• Grade	P-Grade
• Size	501m² - 3000m²

OFFICE LOCATION - 15 Rank:_____	
• Location	Decentralised Districts
• Reputation	Bad
• Accessibility	Easy Access to Major Highways
• Price	R200/m²
• Security	CCTV, Electric Fence, Security Guard
• Parking	Basement Parking (Covered)
• Rating	GBCSA 4-Star Rating
• Grade	A-Grade
• Size	50m² - 500m²

OFFICE LOCATION - 16 Rank:_____	
• Location	Decentralised Districts
• Reputation	Excellent
• Accessibility	Easy Access to Public Transportation
• Price	R150/m²
• Security	CCTV, Electric Fence, Security Guard
• Parking	Open-air Parking
• Rating	GBCSA 4-Star Rating
• Grade	B-Grade
• Size	501m² - 3000m²

OFFICE LOCATION - 17 Rank:_____	
• Location	Office Precincts
• Reputation	Excellent
• Accessibility	Easy Access to Public Transportation
• Price	R200/m²
• Security	CCTV, Electric Fence, Security Guard
• Parking	Open-air Parking (Covered)
• Rating	None
• Grade	A-Grade
• Size	50m² - 500m²

OFFICE LOCATION - 18 Rank:_____	
• Location	Office Precincts
• Reputation	Excellent
• Accessibility	Easy Access to Major Highways
• Price	R150/m²
• Security	Building Access Control, Security Guard
• Parking	Open-air Parking (Covered)
• Rating	GBCSA 4-Star Rating
• Grade	A-Grade
• Size	3000m² - upward

OFFICE LOCATION - 19 Rank:_____	
• Location	Central Business District
• Reputation	Bad
• Accessibility	Easy Access to Public Transportation
• Price	R150/m²
• Security	CCTV, Electric Fence, Security Guard
• Parking	Open-air Parking (Covered)
• Rating	GBCSA 4-Star Rating
• Grade	A-Grade
• Size	501m² - 3000m²

OFFICE LOCATION - 20 Rank:_____	
• Location	Central Business District
• Reputation	Poor
• Accessibility	Easy Access to major Malls, Hotels and Airports
• Price	R200/m²
• Security	CCTV, Electric Fence, Security Guard
• Parking	Open-air Parking
• Rating	GBCSA 5-Star Rating
• Grade	A-Grade
• Size	50m² - 500m²

OFFICE LOCATION - 21 Rank:_____	
• Location	Office Precincts
• Reputation	Poor
• Accessibility	Easy Access to major Malls, Hotels and Airports
• Price	R150/m²
• Security	CCTV, Electric Fence, Security Guard
• Parking	Basement Parking (Covered)
• Rating	None
• Grade	B-Grade
• Size	501m² - 3000m²

OFFICE LOCATION - 22 Rank:_____	
• Location	Decentralised Districts
• Reputation	Bad
• Accessibility	Easy Access to Public Transportation
• Price	R170/m²
• Security	CCTV, Biometric Access, Electric fence
• Parking	Basement Parking (Covered)
• Rating	None
• Grade	A-Grade
• Size	501m² - 3000m²

OFFICE LOCATION - 23 Rank:_____	
• Location	Central Business District
• Reputation	Bad
• Accessibility	Easy Access to Public Transportation
• Price	R170/m²
• Security	CCTV, Biometric Access, Electric fence
• Parking	Open-air Parking
• Rating	GBCSA 5-Star Rating
• Grade	A-Grade
• Size	3000m² - upward

OFFICE LOCATION - 24 Rank:_____	
• Location	Office Precincts
• Reputation	Bad
• Accessibility	Easy Access to Public Transportation
• Price	R150/m²
• Security	CCTV, Biometric Access, Electric fence
• Parking	Open-air Parking
• Rating	GBCSA 5-Star Rating
• Grade	P-Grade
• Size	50m² - 500m²

OFFICE LOCATION - 25 Rank:_____	
• Location	Central Business District
• Reputation	Poor
• Accessibility	Easy Access to Public Transportation
• Price	R150/m²
• Security	Building Access Control, Security Guard
• Parking	Open-air Parking
• Rating	None
• Grade	A-Grade
• Size	3000m² - upward

OFFICE LOCATION - 26 Rank:_____	
• Location	Central Business District
• Reputation	Bad
• Accessibility	Easy Access to Major Highways
• Price	R150/m²
• Security	CCTV, Electric Fence, Security Guard
• Parking	Open-air Parking (Covered)
• Rating	GBCSA 5-Star Rating
• Grade	B-Grade
• Size	501m² - 3000m²

OFFICE LOCATION – 27 Rank:_____	
• Location	Central Business District
• Reputation	Bad
• Accessibility	Easy Access to major Malls, Hotels & Airports
• Price	R170/m²
• Security	Building Access Control, Security Guard
• Parking	Open-air Parking (Covered)
• Rating	None
• Grade	B-Grade
• Size	50m² - 500m²

OFFICE LOCATION – 28 Rank:_____	
• Location	Decentralised Districts
• Reputation	Excellent
• Accessibility	Easy Access to major Malls, Hotels and Airports
• Price	R200/m²
• Security	CCTV, Biometric Access, Electric fence
• Parking	Open-air Parking
• Rating	None
• Grade	B-Grade
• Size	3000m² - upward

OFFICE LOCATION - 29 Rank:_____	
• Location	Decentralised Districts
• Reputation	Bad
• Accessibility	Easy Access to Public Transportation
• Price	R150/m²
• Security	Building Access Control, Security Guard
• Parking	Basement Parking (Covered)
• Rating	GBCSA 5-Star Rating
• Grade	A-Grade
• Size	3000m² - upward

OFFICE LOCATION – 30 Rank:_____	
• Location	Decentralised Districts
• Reputation	Poor
• Accessibility	Easy Access to Public Transportation
• Price	R200/m²
• Security	Building Access Control, Security Guard
• Parking	Open-air Parking (Covered)
• Rating	GBCSA 5-Star Rating
• Grade	P-Grade
• Size	501m² - 3000m²

OFFICE LOCATION - 31 Rank:_____	
• Location	Decentralised Districts
• Reputation	Bad
• Accessibility	Easy Access to major Malls, Hotels and Airports
• Price	R150/m²
• Security	Building Access Control, Security Guard
• Parking	Basement Parking (Covered)
• Rating	GBCSA 5-Star Rating
• Grade	A-Grade
• Size	3000m² - upward

Part III

The following questions concern data about you and your firm. We need these data in order to properly understand and analyse your earlier responses. The information you supply will remain confidential.

1. How large is your present office staff (circle one) 0 -10 11-25 26 -100 101– up
2. How would you characterise the main function of your office staff?

   mostly executive ☐ mostly clerical/technical ☐ about evenly mixed ☐
3. How important is the image or prestige of a location to your company: (circle one)

   very important 5 4 3 2 1 of little importance
4. How would you estimate your local profits in 2017 relative to budgeted goals

   higher than budget ☐ about at Budget ☐ lower than budget ☐
5. How many minutes in rush hour driving home does the decision-maker take in going from home to the office?
6. How many years has your company been in business?
7. How frequently do your clients, customers or other business associated visit your office?

   often ☐ sometimes rarely ☐
8. How often have you participated in office relocation decisions (with any organisation) (circle one)

   0 1 2 3 4 5 or more
9. Describe the kind of business/industry that your office serves:

Please make a personal response to the questions below

10. My age is between: (circle one) 0-25 26-35 36-45 46-55 55-65 66-upward
11. I prefer a well-defined, highly structured decision-making environment (circle one)

    Agree 1 2 3 4 5 Disagree
12. I prefer to make decisions based more on subjective values and personal feelings or more on impersonal, logical data and objective analysis. (circle one)

    Personal Feelings 1 2 3 4 5 Impersonal logic

13. **"If I had to decide on a new office location with only my personal needs and desires in mind, I would ..." (tick all that apply)**

- ❑ locate near home
- ❑ locate near recreation such as golf, tennis
- ❑ quick access to the airport is essential
- ❑ be concerned about the availability of public transportation
- ❑ want to be near a highway or freeway on/off ramp
- ❑ want major shopping centres/malls to be nearby
- ❑ locate near children's schools
- ❑ be very concerned about being Easy Access to my customers
- ❑ require that offices are energy-efficient buildings
- ❑ locate easy access to others in my same industry
- ❑ require space that is managed by landlords and/or building owners that have excellent attitude and professional credibility
- ❑ avoid some of the stress that I experienced in my last office move
- ❑ seek space with flexible interior floor plans
- ❑ choose a high prestige/image office location
- ❑ choose an office location with ample parking on-premises or nearby
- ❑ compromise on building security

7.3 Appendix C – Participant Information Sheet

Participant Information Sheet

Study Title: A Conjoint Analysis of Johannesburg office tenant's preferences

Dear Sir/Madam

I, Moono Siamuzyulu, a Masters student at the University of the Witwatersrand with student number, 1502787 am doing a research on the analysis of Johannesburg office tenant preferences. The study is therefore, aimed at establishing what factors realistically influence office relocation decisions. To achieve a level of realism in the research, a conjoint methodology will be employed to analyse the data. This research effort is not sponsored by or designed for any particular developer, office building or property leasing company. The research is intended to gather general office information in the Johannesburg metropolitan area and is being conducted for academic purposes only as partial fulfilment of the Master's degree in Property Development and Management.

Invitation to Participate: I am kindly inviting you or your organisation to take part in this research study in order to provide data that might help improve Real Estate/Leasing managers' comprehension of the factors they should consider in the selection of office space. The results of this research will realistically assist your company in bench-marking leasing criteria with other companies within the Johannesburg metropolitan area.

What is involved in the study: The study will be conducted through administering of paper questionnaires which should take about 10 minutes to complete. The study aims to conduct the survey amongst 400 office tenants in the greater Johannesburg metropolitan area. To address POPI (Protection of Personal Information) Act concerns and any Landlord-Tenant confidentiality agreements, the questionnaires will be sent to an administrator who will redistribute the questionnaires and collect the completed ones.

Risks: It is anticipated that there is no risk involved in participating in the study as the completion of the questionnaire will be conducted at your preferred location at your own convenience. The risk of confidentiality is mitigated through the actions stated in the consent form.

Participation is voluntary: Your participation in this study is voluntary and can be withdrawn at any point during the study without giving any reasons thereof and will not result in any penalties, legal actions or any loss on your part.

Reimbursements: It is envisaged that the study will not result in any unforeseen expenditure on your part, other than the time taken to complete the questionnaire which should take no more than 15 minutes. Therefore, there will be no monetary reimbursements for your participation. However, as a token of appreciation of your time, results of the survey will be sent to you. Kindly provide your email address to receive the survey analysis.

Confidentiality: Any personal information provided during the study will be kept confidential and will not be included in the reporting of the results. Confidentiality is therefore guaranteed and your specific responses will not be linked back to you in any way whatsoever. However, absolute confidentiality cannot be guaranteed in exceptional circumstances like when required by law enforcement agencies or required by the University for Quality Assurance in the assessment of the data reported and analysed.

Contact details of researcher: For further information, related to the study or for assistance with the questionnaire, you may contact the researcher on the details below.

Cell: +27843980000
E-mail: 1502787@students.wits.ac.za

Contact details of REC administrator and chair – for reporting of complaints/problems or after the study you can report on the details below.

Name: Dr. Kola Ijasan
Phone: +27117177681
E-mail: kola.ijasan@wits.ac.za

7.4 Appendix D – Participant Informed Consent Form



INFORMED CONSENT

This survey, conducted by Moono Siamuzyulu (student 1502787), is part of a Wits University study on the preferences of office tenants in Johannesburg using a conjoint method.

The aim of this survey is to establish the importance of various factors that influence occupation by office tenants in Johannesburg using a conjoint method. In contrast to other methods that have been previously used to determine the factors influencing office relocation decisions, Conjoint Analysis is a methodology that closely mimics the actual behaviour of the decision-makers in arriving at relocation decisions. With current high vacancy rates being experienced in the office sector, it is paramount that needs of would-be office occupiers match the space that is available. Therefore, the results from the study will assist the property industry, specifically the landlords and building owners, in alleviating the decreasing income/revenues, leasing commissions and other downward pressures on current occupancy levels.

This research will adhere to the framework and policies of the School of Construction Economics & Management and the University of the Witwatersrand Research Ethics Committee. Your responses in the questionnaire will be treated with anonymity and confidentiality unless express permission is granted for them to be used otherwise. In addition, the data obtained will be destroyed after 5 years, will neither be used for commercial purposes nor made available to third parties without your express written consent.

By participating in this survey, you express your consent for us to use the data for research purposed as stated above. You have the right to discontinue participation in this research at any time without providing any reason/s thereof. The results from the study will be made available to you on request. You understand that there are no foreseeable risks to you or the company by agreeing to take part in this study.

Name of Company: _____

Name of Participant: _____

Signature of Participant: _____ Date: _____