AN EXPLORATORY STUDY OF THE VARIABLES WHICH IMPACT SERVICE QUALITY AND BRAND TRUST LEVELS FOR CONSUMERS SHOPPING IN IRISH SUPERMARKET CHAINS

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ABSTRACT

AN EXPLORATORY STUDY OF THE VARIABLES WHICH IMPACT SERVICE QUALITY AND BRAND TRUST LEVELS FOR CONSUMERS SHOPPING IN IRISH SUPERMARKET CHAINS

Niamh Delaney

The purpose of this research is to conduct an exploratory study on the variables that impact service quality and brand trust levels in the five main Irish supermarket chains. Brand trust levels were measured both before and after the introduction of a hypothetical food scandal to assess the impact of this situation on the respondent. To this end, the following study determines the underlying demographic, socioeconomic and lifestyle factors of the respondent and investigates their baseline service quality and brand trust levels prior to the introduction of the scandal.

This paper adopts a cross-sectional research design and takes a quantitative approach, with an online questionnaire administered to 280 people, of which 269 were valid and/or complete responses. A snowball and convenience approach was taken to distribute the survey. Data analysis is performed using SPSS, with supermarket chain of choice shown as a driver of service quality and service quality a strong predictor of both initial and remeasured brand trust levels.

Univariate testing was first completed using non-parametric methods such as Krustal-Wallis, Mann-Whitney and Spearman's correlation. All variables which showed differences between groups when compared against service quality and/or brand trust levels were then used to build the most parsimonious linear regression models to predict both service quality and brand trust levels (initial and remeasured). The findings provided strong predictive power between service quality and brand trust levels throughout Irish supermarkets and finds a weak statistical significance level between choice of supermarket and resultant service quality and/or brand trust levels.

This study adds to existing research on how service quality and brand trust are interlinked concepts which drive customer satisfaction and purchase re-intention within the supermarket chain of choice.

Keywords: service quality, customer loyalty, brand trust, framing, supermarket, behavioural economics, purchase intention.

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CHAPTER ONE: INTRODUCTION

1.1 Introduction

Service quality and brand trust are of core importance to any business which are working to maintain and grow share of their market and encouraging consumers to remain loyal to them. Service quality has been discussed in detail throughout the research with many different models discussing the factors and influencers that drive service quality perceptions (Min, 2010). In addition, customer expectations also play a core role in determining service quality perception levels due to the personal nature of the two constructs (Parasuraman 1985). No two consumers will have the same levels of expectation and perception when approaching a brand and so it is important to measure consumer reactions and hear their voice in identifying areas for improvement (Wilson et al 2016).

Brand trust also plays a key role in determining customer satisfaction and purchase intention. The quality-satisfaction link is a key driver of customer loyalty (Wilson et al 2016) and so, maintaining customer trust and satisfaction levels is important to achieve for any given brand. In addition, breaking this trust through any form of company "scandal" can prove detrimental to the company in the future. Examples throughout the literature such as the BSE crisis, Volkswagen emissions tampering and Facebook data scandal. The magnitude and risk factors to the end customer will also be important in determining the impacts of these scandals. In addition media coverage and in company reactions and press release may exacerbate or temper the response and actions of consumers (Falkheimer and Heide 2015).

In Ireland alone, the consumer insights agency Kantar Worldpanel reports that the five main supermarket chains generated revenue of €10.85bn last year on groceries, an increase of 2.8% from 2017 (Quinn, 2019). Whilst a breadth of research exists on investigation of loyalty in supermarket chains across the world, there have been none that focus primarily on the Irish grocery sector. In addition the reaction of consumers to a scandal which occurred with their grocer of choice has not been tested. Whilst many past studies have focussed on measuring service quality, customer satisfaction and/or brand trust, the following will provide a conclusive analysis of the personal attributes of the consumer in driving these metrics and determine their impact (or not).

The following study completed an analysis of underlying demographic, socioeconomic and lifestyle factors (related to grocery shopping) before moving to consider service quality attributes and measurement. The eleven element scale as developed by Min (2010) was then aggregated to give a final service quality score for the respondent. Following this an eight factor initial brand trust score was used from Delgado-Ballester and Munuera-Alemán (2003) and again aggregated to give an initial brand trust score. This was then followed up by the introduction of a hypothetical food scandal which was then followed by a further measure of brand trust levels (self-developed by the author to address the research question at hand). Both brand trust scores maintained a focus on reliability and intentions of the customer in determining their underlying feelings toward the brand in question (as per construct by Delgado-Ballester and Munuera-Alemán 2003) .

The key methodological tools developed in this study are data gathering and experimentation through the use of an online survey tool. The results, it is hoped, will add to the extant field of information

across the grocery sector and in understanding the impact of a hypothetical food scandal to the reactions of the consumer. In addition it will add to the literature from an Irish context, given its focus on the five main supermarket chains based in the Republic of Ireland. Finally, this provides a good example of behavioural economics framing of decisions based on a given reference point of the consumer. In practice it is difficult to understand what their "real life" reaction and actions would be following such a scandal being reported.

Gravetter and Forzano (2012) laud the use of survey tools in behavioural economics and/or marketing as they provide an efficient way of gathering plentiful information, thus negating the need to directly observe how people behave in real world scenarios. In addition, Thaler (2015) defends the use of surveys for experimentation in studies to gauge reactions to such scenarios and situations.

As discussed the literature has provided no material on service quality and brand trust levels in Irish supermarkets . With the growth of the sector and intense competition across the oligopolistic market environment, it is important that such insights be developed and understood. To this effect, the following study investigates service quality and brand trust across all five main supermarket chains. The present study will also provide some insights for management, particularly across the Irish grocery sector.

1.2 Dissertation Structure

Chapter One will present the motivations behind why the author decided to investigate and determine the service quality and brand trust levels across Irish supermarket chains.

Chapter Two presents the research in terms of service quality, customer loyalty, behavioural economics and brand trust, in terms of underlying theoretical frameworks and previous field studies.

Chapter Three outlines the dissertation purpose and aim and provides key objectives for the study.

Chapter Four provides the research methodology which was conducted by the researcher in answering the research question to hand. Information in terms of research philosophy, research instrument and data analysis planning will be provided.

Chapter Five presents the statistical results and findings of the study. Descriptive and exploratory statistics will be provided with a general overview of the sample followed by univariate analysis and regression modelling investigating the underlying dependent variables.

Chapter Six discusses the findings of the study with references back to past research and the managerial implications which can be gleaned from them.

Chapter Seven concludes the study with limitations and recommendations for further research potential provided.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

The following chapter will begin with an assessment of the traditional economic theory before moving to the growth of the behavioural branch of economics, in highlighting the importance of factors such as preference and bias in consumer decision making. This will be followed by the significance of service quality and customer loyalty levels and the means and frameworks of measurement which have been used to address these previously. This literature review will set a foundation for the objectives of this study -to identify the potential cause-and-effect relationship between consumers' service quality perceptions and the associated customer brand trust levels within Irish supermarkets.

2.2 Behavioural Economics

Prior to investigating the role of service quality perceptions on customer loyalty levels it is first important to address the classical economic theory of consumer decision making. This will then be compared to the more recent theories which accepts the importance of psychological factors and personal preferences in consumer decision making and choices.

Conventional price theory assumes that consumers will price maximise based on a number of available affordable options (Thaler 2017, Kahneman 1986). Here, the standard economic theory of homo economicus assumes that consumers will behave economically rationally and without bias when making decisions. Hinterhuber (2015) explains that rational choice models will have individuals act so as to maximise their expected utility. As such, rational choice theory posits that a problem will be presented to an individual and they will consistently optimize their decision making to allow for the best solution (Thaler, 2008). Kahneman (1986) speaks of the existence of normative principles in the original theories for predicting actual behavior as follows: consumers will be assumed to act in pursuit of their best interests and goals, competition prefer the existence of rational individuals and players in the market and finally, the intuitive appeal of rational choice behaviours should allow for a plausible account of consumer behavior.

Despite the original theories, the use of experimentation and behavioural analysis in the interceding years has proven that standard economic theory may need to be readdressed or at least revised to allow for behavioural elements and psychology in decision making- addressed as a new sub-branch of behavioural economics (Thaler 2017).

Qudrat-I Elahi (2015, citing Simon, 1947) criticizes the use of the "economic man" concept and "preposterously omniscient rationality". This is later developed to introduce the concept of bounded rationality whereby ordinary people are unable to conceivably maximise their own economic objectives due to levels of uncertainty, unpredictability and imperfect information (Qudrat-I

Elahi, 2015 citing Simon, 1972). This is seen in the existence of reference prices or benchmarks that consumers use to decide on expected prices for goods due to a lack of knowledge of exact price expectations (Richards et al, 2016). This is also seen in DellaVigna's (2009) review (citing Hirshleifer, Lim, and Teoh, Forthcoming) where it can be shown that customers will suffer from information overload and the effects of limited attention. In this case individuals may simplify complex problems and process a subset of the information presented to them (citing Conlisk, 1996).

Further to the effects of information overload, willingness to search is another factor which is addressed in the literature. Binkley and Chen (2016) raise this in their paper on consumer price search analysis where consumers' willingness to search will be determined by the relative value of their time and income levels. They also noted that Stigler's search model would be ineffective for conducting a price search across a basket of goods without attending a number of outlets, an activity that many customers are unwilling to do due to high time and opportunity costs.

Due to the above factors and the further work in development of behavioural economics, it is evident that many factors other than price and time play a part in deriving consumer purchase intention and long-term loyalty levels. Examples of this include convenience and preference (Binkley and Chen, 2016 citing Dickson and Sawyer, 1990 and Urbant et al, 2000). It has been shown that service quality is one of these factors. This will be discussed in the next section of this chapter.

2.3 Service Quality

The following section will address the definition, components and models used in assessing consumer service quality perceptions. It will also include an overview of service quality studies conducted witin supermarket chains.

2.3.1. What is a Service?

Prior to defining service quality it is important to first differentiate what a service is. Whilst the initial marketing literature focused on a more product based approach to selling, there has been a move towards a services focus in recent years. As Lovelock and Wirtz (2011) highlight, there are many companies that sell products which also include service elements within the selling process. Grönroos (1990) defines a service as "a process consisting of a series of more or less intangible activities that normally, but not necessarily always, take place in interactions between customer and service employees and/or physical resources or goods and/or systems of the service provider, which are provided as solutions to customer problems". As a result, any service encounter which could occur throughout the purchase of a product could also be included under this definition.

Similarly, Woodall (2001) points out that a from providing a 'service' could fall under one of the following brackets:

- **Service as an organisation-** The entire business resides within service sector e.g. restaurant or insurance company
- **Service as a core product-** Service is the key output of an organisation The key commercial outputs of a service organisation e.g. holiday as core output of a travel agent

- **Service as product augmentation-** Any peripheral activity used to improve the delivery of a core product e.g. complimentarv coffee as you wait
- **Service as product support-** Any act that takes place after the point of delivery such as repairing or updating the product
- **Service as an act-** Service as a mode of behaviour such as providing assistance or giving advice to customers.

It is clear from the above comprehensive list that all firms have at least some service component to their business activities.

2.3.2 What is Service Quality?

Service quality has been discussed in depth throughout marketing literature. To begin, service quality will be defined as how a company satisfies customer expectations or achieves a level of excellence or superiority (Zeithaml, 1988, Kitapci et al, 2013). However, customer service can refer to any element of the service process. It is a multifaceted view of how an organisation attempts to offer an exemplary service to its customers (Collins 2017). This in turn may help in encouraging them to return as a customer and become a loyal patron of their firm's products or services (Miao and Bassham 2006). It is important that firms focus on improving customer service levels where possible, despite the fact that there are some elements which will be out of their control. Examples include external economic conditions which affect all businesses. Despite this, there are many controllable elements which can be improved upon within a service encounter. These include any of the seven elements of the extended marketing mix as per Lovelock and Wirtz (2011) and Collins (2017):

- **Product -** offering products that deliver value to customers),
- **Place -** distribution channels through which a customer can consumer or purchase a product or service
- **Price -** offering products and services at a competitive price in line with the value derived from them
- **Promotion -** external communication regarding the product, brand, establishment
- **People –** personnel, management and other customers within the purchasing environment
- **Processes –** contact and communication with staff throughout the process of service delivery or steps through which a customer must engage with the firm in consumption or purchase of the product or service
- **Physical evidence -** the physical environment within which the service is delivered. This includes the atmospherics evident within the store or service environment such as sights, smells, layout etc.

Marketers will consider all of the above elements in delivery of a service to the final customer as these will ultimately determine the overall service quality levels of the firm in question. However, since service quality levels are such a subjective measure, service quality is generally measured from the consumer standpoint. Perceived service quality is a result of the comparison of perceptions about service delivery process and actual outcome of service (Grönroos, 1984; Lovelock and Wirtz, 2011).

It is worth noting that the extended marketing mix above can be differentiated from the initial marketing mix as developed by McCarthy (1960). This initial four spoke mix accounted for product, price, promotion and place and was developed in recognition of

product based marketing which did not include elements of service. It was only through understanding of how significantly service quality levels could affect customer satisfaction and customer loyalty and the ultimate development of the service marketing literature that the additional three components of service were added: people, process and physical evidence.

One model that addresses all elements of the retail or service environment is that of the servuction model as proposed by Langeard et al (1981). This is the place where customers interact with the organization in question under the broad components of inanimate environment, the behaviours and existence of contact personnel and how consumers interact with other consumers within the service environment. This will include the "front-stage" portion of the retail or service which is where the customers will interact with the product or service providers

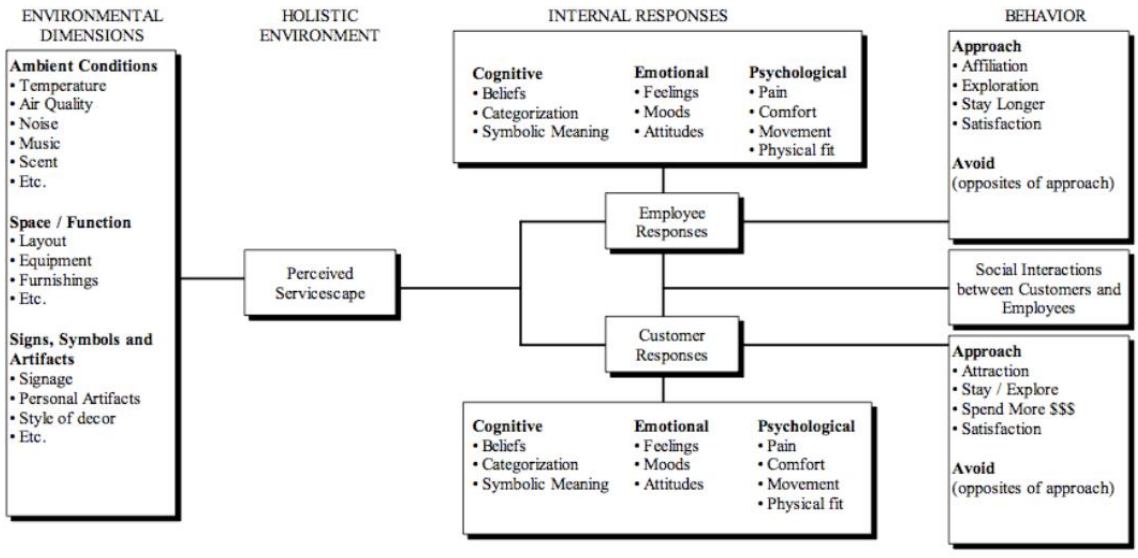
The role of physical environment is similarly described in the works of Bitner (1992) where she defines 'servicescape' as the built environment within which a service is delivered and the consumer interacts with the firm. Although accepting of the strong influence that pricing and advertising have within the service process, she also builds a model that attests to the importance of physical environment in finding ways to attract or satisfy the consumer in consumption of the service.

Bitner's model further discusses the physical environment within with the consumer (and employee) interacts as per Figure 1 below. She also notes the importance of environmental factors within service environments. This is shown through the perceived servicescape as

shown below in Figure 2.1 below. Here we see the role that underlying behaviours, attitudes and emotions of both employee and customers can and will play in driving service quality perception. These reactions and responses can be purely personal or common across either customers and/or employees but it is important that they are recognised as providing a contribution (Wilson et al 2016) to the overall service experience. For example a lack of ample signage within a store may drive increased frustration amongst customers which may ultimately negatively affect their perception of the firm.

The model shows that the existence of certain environment factors may in turn invoke certain cognitive, emotional or physiological responses from the observers, resulting in either positive or negative behaviours.

Figure 2.1: Servicescape model as developed by Bitner (1992)



Wu et al (2011) further discusses the importance of consumer perceptions resulting from attributes of a store. They also cite the work of Semeijn et al (2004), Collins-Dodd and Lindley (2003) and

Vahie and Paswan (2006) in illustrating the importance of store-level factors. For private label brands offered by the supermarkets in question, store image will play a role in the consumer's trust of a new "unknown" private label and act as a cue in purchase decision.

The role of atmospherics within a service context has also been shown to be significant. This term, as used by Kotler (1973) refers to the importance of the "total" product, a combination of both the tangible product and the other intangible elements which make up the buying experience such as services, packaging, advertising and other features that have additional, if not equal importance to the product itself. Kotler highlights the importance of the place within which the product is purchased or service is consumed with particular significance placed on the atmosphere within this environment. Manipulation of this environment can result in consumer responses and positive (or negative) effects on shopping outcomes by alteration of stimuli such as smell or music. This was discussed in depth by Roschk et al (2017) in their comprehensive review of the literature on atmospheric in-store stimuli.

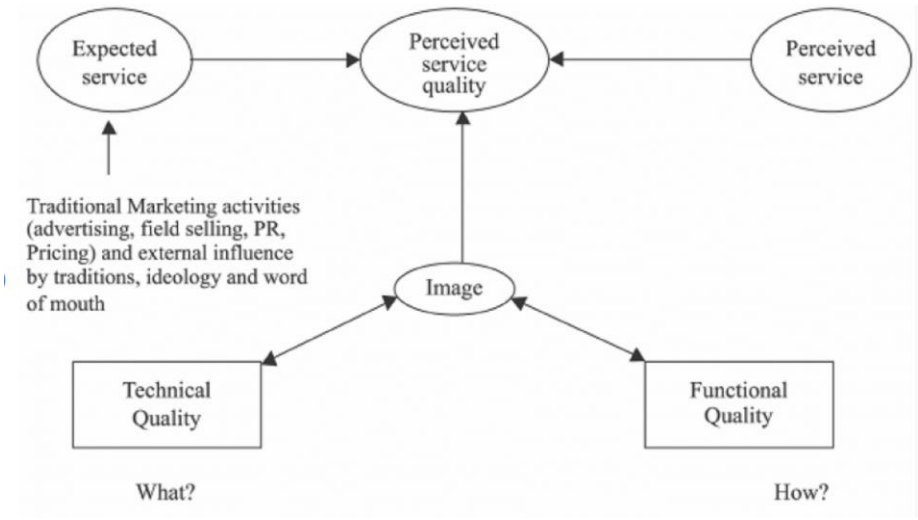
2.3.3. Models of Service Quality

A huge amount of service quality literature has been generated in the past thirty years which saw the development of a number of different service quality models. There are two key models which will be discussed here known as the Anglo-Saxon and Nordic models.

Grönroos (1984) developed the first service quality model (known as the Nordic school) and measured perceived service quality based on the dimensions of technical quality, functional quality and corporate image were used in the model as the dimensions of service quality (as

shown in Figure 2.2). Technical quality relates to what was delivered and the actual outcome of the service process. Conversely, functional quality relates to the manner in which the service was delivered and the interactions that occurred during the service encounter. It is important to note that this model shows equal weighting to the process and the outcome of service delivery (Wilson et al, 2016 citing Grönroos, 1984). Examples include all of the service elements within a restaurant such as staff manners and time waiting as well as the quality of food and surroundings within which it is delivered. In addition, corporate image has a positive impact on customer perceptions. Rust and Oliver (1994) developed these dimensions further into a three-component model of service product (service offering and outcome), service delivery (process of consuming the service) and service environment (internal culture and external physical environment of the firm). Whilst these measures provide an effective view of a service they are largely qualitative and cannot be measured.

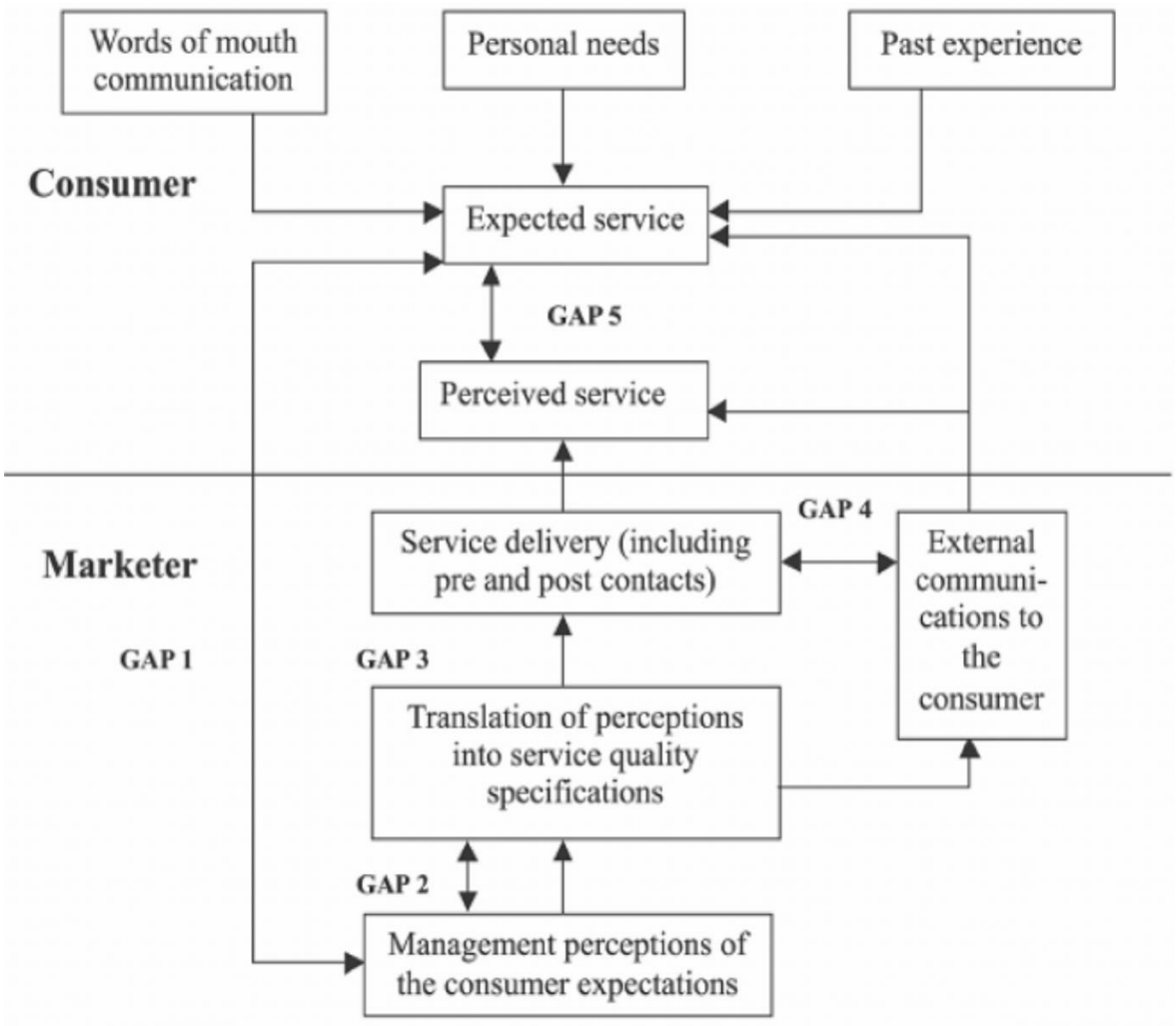
Figure 2.2: Service quality model as presented by Grönroos (1984)



Next, the Anglo-Saxon school refers to the traditional view of service quality as addressed across the vast majority of literature. Much of the service quality literature focuses on the gaps model of service quality as developed by Parasuraman (1985). This model helps in identifying five different gaps and areas of focus for companies in improving service quality levels. The five gaps are described as follows with a diagram of the framework shown in Figure 2.3:

- **Gap 1: Knowledge Gap:** Difference between the customer's expectations of the service and the company's understanding of those expectations.
- **Gap 2: The Policy Gap:** Difference between management's understanding of the customer needs and the translation of that understanding into service delivery policies and standards.
- **Gap 3: The Delivery Gap:** Difference between service delivery policies and standards and the actual delivery of the service.
- **Gap 4: The Communications Gap:** Gap between what gets promised to customers through advertising and what gets delivered.
- **Gap 5: The Service Quality Gap:** Difference between customer expectations and customer perceptions. This gap can occur as a direct result of another of the four gaps occurring or if customers misinterpret or misunderstand the service quality.

Figure 2.3: Gaps model as developed by Parasuraman (1985)`



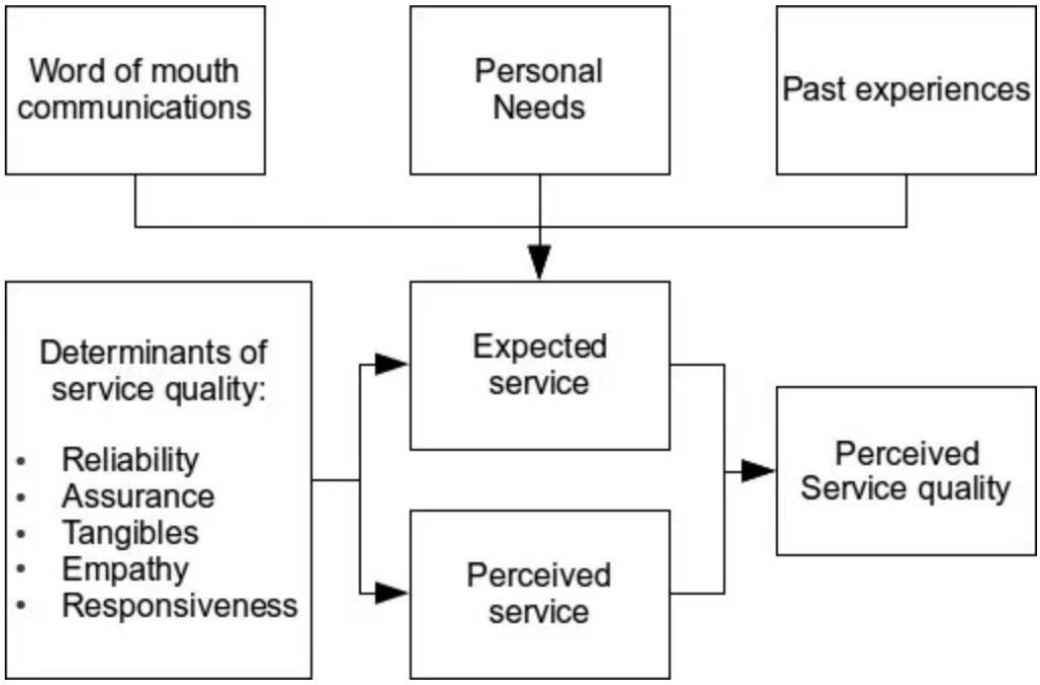
In this model, service quality is conceptualised as a gap between what the customer expects and their evaluation of the performance of a particular service provider as per Figure 5 below. Gap 5 of the gaps model was further developed in understanding the difference between customer expectations and perceptions of service in a later seminal paper by Parasuraman, Berry and Zeithaml in 1988. Through this an equation of service quality was calculated as follows: Q=P-E where P and E are the ratings of the corresponding perception and expectations scores. This paper further develops a scale and measure of service quality through the SERVQUAL dimensions of service

quality. Their research focused on five specific measurements of service quality as follows:

- **Reliability:** Firm's ability to perform the service dependably and accurately
- **Responsiveness:** Firm's haste and willingness to help customers
- **Assurance:** Employee knowledge and ability to inspire confidence and trust in their capabilities
- **Empathy:** Firm's ability to provide excellent care and attention to customers
- **Tangibles:** Appearance of physical facilities, equipment and personnel of the firm.

The SERVQUAL scale is made up of 22 seven-point Likert scale questions over the five dimensions with paired questions for expectations and perceptions (Wilson et al 2016). The difference between the measured expectations and perceptions is commonly referred to as the gap score (Yarimoglu 2014). The overall view of gaps model and SERVQUAL can be seen in Figure 2.4 below:

Figure 2.4: Gaps Model shown in line with SERVQUAL model



Although both the Nordic model and gaps model have the same underpinnings and belief that service quality is related to 'disconfirmation of expectations' concept, they differ substantially regarding composition of 'service' itself (Woodall, 2001). While Gronroos focuses on both the 'hard' and 'soft' aspects of service delivery i.e. eventual result or product versus means to achieving this, the gaps model places all emphasis on the functional elements of the service rather than the end goal. This is common to Zeithaml and Bitner (2000, p. 12) where they note that services are "performances or actions rather than objects". Woodall (2001) notes this as a flaw within the assessment as the tangible elements of the service are left neglected in consideration of the real-time intangible elements of the service encounter. However much of the research has focused on SERVQUAL or similar metrics in determining service quality levels within a business.

Grapentine (1998) summarises the history and use over time following on from the tenth anniversary of the model's development. Whilst the SERVQUAL model has been used widely in service quality measurement, it has also received criticisms from many different authors (Asubonteng et al. 1996, Babakus and Boller 1992, Cronin and Taylor 1992). This is due to the existence of different scores during measurement and lack of repeatability over time, existence of and lack of validity of the model and the lack of link between customer satisfaction and service quality levels. Several studies also note the level of interdependence between the five main variables. In addition amendments to the original measures were developed in some cases such as SERVPERF in Cronin and Taylor (1992) which looked only at perception rather that a comparison versus expectation alone.

2.3.4 Previous Service Quality Studies in Supermarkets

A review of the literature in terms of service quality assessment was completed to understand the service quality components which were of most important in a supermarket context. A number of studies were analysed in deciding on an appropriate methodology for this study.

Much research has been done using the SERVQUAL instrument or a variant of same in a number of industries. An example included Kitapci (2013) which measures the five dimensions of reliability, responsiveness, tangibles, assurance and empathy. Kitapci at al (2013, citing Kassim and Abdullah, 2010) quotes SERVQUAL as being the most commonly used service quality instrument of the twenty-first century.

However, Venter (2014) addresses the incompatibility of SERVQUAL in assessing service quality in supermarkets as does Anselmsson and

Johansson (2014). Both studies use a different method. Sirohi et al (1998) revised a prior model (citing Dodds and Monroe 1985) to assess service quality and thus store loyalty intentions. The fundamental measures in determining service quality within this study are those of store operations (such as store hours, number of staff available), store appearance (such as store organisation and structure) and personnel service (such as how staff and management provide a service). All of these components are related to the front stage component of the servuction model as discussed in the previous section. However, the existence and interaction with other customers is one which is missing from Sirohi et al (1998) and Dodds and Monroe (1985). In fact, this is something which is missing from any studies considered and it could be a significant factor for a consumer in determining service quality perceptions and overall loyalty intentions.

Although much research in terms of service quality has focused on service encounters alone, it would be safe to assume that both product and service quality elements are in existence within the supermarket setting (Sirohi et al 1998).

The model of service quality measurement as defined by Powers et al (2018) was also considered. Although this provided a focus on both store satisfaction, price valie and quality of products it was more suited to a hardware type product rather than grocery shopping. Finding a model that measured components of price, product quality and service encounter quality was important in determining a best fit model.

Finally, a study by Hokey Min in 2010 showed a comprehensive measure of significant factors which customers considered to be

important in a supermarket context. This eleven scale measure was proposed to measure service quality levels of Irish supermarket with a paired test to determine how important this factor was to customers who carried out grocery shopping. This hierarchical approach could then be used as a weighted measure of the importance of different components of the model.

2.4 Customer Loyalty

The following section will address the definition and importance of customer loyalty throughout the research before discussing a number of metrics to measure customer loyalty levels.

Customer loyalty is a key driver of long-term profitability through retaining the right customers (Sirohi et al, 1998, Retnawati et al, 2018). Increased customer retention is shown to cause gradual increases in customer numbers in times of low sales growth and increased per customer spend over time (Sirohi et al, 1998).

Reichheld (2003) wrote of the significance of measuring customer loyalty through use of a single question over a scale of 0 to 10: “How likely is it that you would recommend [brand] to a friend or colleague?”. This single metric was shown to have correlation with actual customer behaviour and predict business growth. Reichheld defines customer loyalty as “the willingness of someone—a customer, an employee, a friend—to make an investment or personal sacrifice in order to strengthen a relationship”. The question is asked over a Likert scale where 10 means “extremely likely” to recommend, five means neutral, and zero means “not at all likely”. A strong NPS

performance was shown to be indicative of long-term satisfaction with the brand and thus, a decision to remain a customer.

Whilst in use across a number of prominent companies worldwide such as GE, American Express and Microsoft (Creamer, 2006; Keiningham et al., 2007), there has been widespread criticism placed against the NPS scale (Kristensen and Eskildsen, 2014). Examples of this include the over-simplification of a vast number of factors into a single metric (Brandt 2007). Brandt does not dispute the usefulness of calculating a customer's willingness to recommend (through NPS calculation) but does not grant it the same power with which Reichheld lauds it as the "single most reliable indicator of a company's ability to grow." He warns that it may cause managers to focus on the wrong issues when focusing on customer loyalty. Whilst providing an indication of expected loyalty, a more comprehensive view of service quality and overall satisfaction should instead be used.

2.5 Brand Trust (to add)

2.6 Research Gap (to edit)

In a number of studies service quality levels have been measured, often through different means of experimentation. To this effect the importance of the physical service environment and interpersonal relations between consumers-employees has been addressed in depth. The benefits of customer retention and loyalty levels have also been discussed.

A number of past studies were evaluated in the context of building a proposed research methodology for this study. Of particular importance were Sirohi et al (1998), Kitapci et al (2013), Wu et al (2011) and Anselmsson and Johansson (2014). The results of all four studies were based on empirical data from primary research conducted within a supermarket context. In addition, all four studies were based around measurement of any combination of service quality levels and customer loyalty levels. These were analysed using quantitative methods and statistical analysis, in some cases to denote a cause and effect relationship.

However, no research was found on applications of these analyses within an Irish supermarket context. Given the wide levels of competitiveness apparent in the market, it would be beneficial to establish associated service quality and customer loyalty levels to determine areas of improvement for management.

It is clear that many prior studies have focused on a quantitative approach to measuring brand trust and brand quality but there were no evident studies completed on either variable within Irish supermarkets. In addition, there are no studies that directly attempt to investigate the relationship between service quality and brand trust within Irish (or other) supermarkets. This study also includes an element of framing through the behavioural economics field and investigates the effect of a hypothetical scenario on underlying trust levels which has not been completed before. This study will add to the research for these multitude of reasons.

There is a potential that a further iteration of this study could allow for a mixed methods approach (both quantitative and qualitative) in

understanding additional insights from the sample of participants. However, in this case, the qualitative feedback may be more disparate and more difficult to determine patterns from so the research design may need to be quite structured in its approach.

Service Quality and Brand Trust Measurement:

A number of prior models of service quality and brand trust were investigated in preparation of this areas of the study. Whilst a number of prior studies had been completed on testing both service quality and brand trust, a number of issues arose in trying to find a valid measure of each dimension. To begin, there were a very low number that had been dedicated primarily to supermarkets. In addition, many of these studies had been conducted in non-English speaking countries where the English translation was unclear and difficult to understand. There was also no study found that had analysed both service quality and brand trust within supermarkets in the same study. Finally, many studies did not include the initial questionnaire and had only provided summaries of their results on an overall level. As a result two metrics of service quality and brand trust were included from Min (2010) and Delgado-Ballester and Munuera-Alemán (2003) to measure pre-existing service quality and brand trust levels.

Further Measure of Brand Trust:

As determined previously, this study is unique in that it combines elements of service quality, brand trust and behavioural economics within a supermarket. As a result the questions developed to re-test brand trust were the researcher's own which were developed in line

with the Food Safety Authority of Ireland's report following the horsemeat scandal of 2013. This scenario, although different, did have some congruence with the hypothetical scenario presented here i.e. related to food tampering within the supply chain prior to purchase and consumption. As a result, these further questions were tested through use of a pilot study.

CHAPTER THREE: DISSERTATION PURPOSE AND AIM

The researcher's core objective in this study was investigation of the service quality perceptions and corresponding brand trust levels within an Irish supermarket context. These were measured across a number of respondents in line with a number of demographic, socio-economic and lifestyle factors. Brand trust scores were measured at two stages, both before and after the introduction of a hypothetical food scandal. The population studied was all adults living in Ireland who are regular shoppers at one of five main supermarket chains: Aldi, Dunnes Stores, Lidl, Super Valu or Tesco.

This exploratory study and statistically driven discussion investigates the predictive capabilities of a number of independent variables (observed demographic, socioeconomic and lifestyle factors) on the respondent's service quality perception levels and initial and remeasured brand trust scores. The influence of underlying service quality levels on ultimate brand trust levels both before and after the introduction of the scandal were also investigated. Finally, an inferential relationship between initial brand trust scores and other factors (independent) and remeasured brand trust scores (dependent) was investigated.

The researcher concludes that this work will add value to the current literature by driving further understanding of service quality comparators across Irish supermarket chains with investigation of a link between service quality perceptions and customer loyalty in an Irish supermarket context. The following will provide a comprehensive comparison between supermarket chains in determining the

differences between core customer attributes , service quality and brand trust perceptions. In addition the insights gleaned from the demographic, socio-economic and lifestyle factors will be interesting to the reader. This will be of additional interest to the Irish market where both discount retailers Aldi and Lidl have grown their overall market share to circa 25% combined in the past number of years (see Appendix A). In addition, the behavioural component of testing brand trust versus the introduction of a hypothetical food scenario will provide additional insights.

This exploratory study contained five core objectives:

- **Demographic, Socio-economic and Lifestyle Factors:** Measurement of a number of personal attributes of the respondent
- **Service Quality:** Measurement of service quality perception levels across a number of dimensions
- **Initial brand trust levels:** Measurement of initial baseline brand trust levels across a number of dimensions
- **Remeasured brand trust levels:** Measurement of brand trust levels across following the introduction of a hypothetical food scenario
- **Investigation of any inferential statistically significant associations between the above independent and dependent variables**

CHAPTER FOUR: RESEARCH METHODOLOGY

4.1 Introduction

As per Saunders et al (2012), research can be described as an action undertaken by people which aims at finding out things in a systematic way to help in increasing their knowledge. Blumberg, Cooper and Schindler (2012) highlight the importance of a clear methodological framework to any research since it provides the researcher with ideas, instruments and models in order to obtain the knowledge and skills crucial to answer the research question.

The following chapter will address the method and approaches to be used in this research. The research onion framework will be introduced with all elements discussed in the context of the current study. The research philosophies and approaches which underly the study will be presented prior to description of the actual data collection and analytical methods used in investigation of the underlying research question. Sampling methods will also be discussed in depth. In addition the reasoning behind using an online questionnaire as a research instrument and using quantitative methods within the study will be discussed. Finally, research limitations and ethical considerations will also be discussed.

4.2 Research Framework

The following study has been framed under the commonly used "research onion" framework, as developed by Saunders, Lewis and Thornhill (2011) and shown below. The inner layers are concerned with data collection used to address the research question at hand. This will include the chosen methodological choice for the study, the

data gathering methods, the time horizon over which it is measured and finally the techniques which are used to analyse and develop results of the study. Conversely, the outer layers are more concerned about the underlying research philosophy and approaches that are taken in defining and guiding the initial research motivation and approach. By defining these initially and considering the most appropriate approach to investigating the research questions, it is only then that the guise of the study can be fully defined.

All of the above elements have been used in the development of this study and will be covered in some detail through the course of this chapter.

4.3 Research Philosophy

Prior to completing any study it is important that the underlying research philosophy be considered. This term refers to the "development of knowledge and the nature of that knowledge" (Saunders et al 2012). That is to say, that any new study will in turn be responsible for the production of new knowledge and so, the means and assumptions underpinning the development of this knowledge must be addressed and understood.

Crotty (1998) highlights the importance of understanding the assumptions of human knowledge and nature of reality prior to embarking on a given research study. This is turn will shape understanding of the research question, determine the most appropriate methods to use and influence how to interpret results and findings. As such there are multiple angles and directions that a chosen research question may take but the underlying research philosophy of the researcher will guide the means of answering it.

Quinlan (2011) adds that any research project must have a philosophical framework which underpins it and that the underlying worldview of the research itself must be evident throughout each step of the research process. Saunders et al (2012) argue that there is no "best" research philosophy when answering a research question and that there may be multiple research philosophies which are appropriate in doing so.

There are two major ways of discussing research philosophies: ontology and epistemology. Ontology relates to the nature of reality and investigates how the world operates whereas epistemology reflects on what is considered acceptable knowledge within a research field (Saunders et al 2012). Since this study investigates the relationship between supermarket service quality and brand trust it is more suited to the ontological view of the world.

Ontology is further sub-split into two aspects, known as objectivism and subjectivism. Objectivism (also known as positivism) reflects the position that social entities exist in a reality outside of social actors (Saunders et al 2012). As such this reflects that there in only one objective and external reality and that any theory of human behaviour should be determined only on observations that are felt to be absolutely certain (Goodwin, 2010). Objectivism is often associated with quantitative research and the objective investigation of relationships between variables through the guise of numbers and statistics (Quinlan, 2011).

Conversely, subjectivism (also known as constructionism or interpretivism) perceives that "social phenomena are created from the perceptions and consequent actions of social actors"(Saunders et

al, 2012). As such it argues that each social actor has their own individual meanings and values which will determine their behaviour and that there is no conclusive worldview of reality across individuals which can be defined by specific rules and defined relationships. As such the nature of reality is subjective and determined by the individuals which are being investigated (Saunders et al 2012). As a result, Quinlan (2011) associates subjectivism with a more qualitative approach to data gathering through methods such as interviews, oral histories and participant observation. Saunders et al (2012) refer to this reality as being socially constructed and subject to the individual interpretations and actions of the group rather than taking an absolutist approach. Quinlan (2011) reflects that subjectivists will instead perceive that reality is multiple across all stakeholders and individuals.

The following study will adopt the philosophy of ontology from an objectivist approach. This approach has been taken as a means to objectively investigating the relationship that exists between service quality and brand trust within Irish supermarket customers. In this study the methods used will be purely quantitative in keeping with the investigation of a singular reality (as discussed by Quinlan, 2011). This is not to say that a more subjectivist approach could also be taken in future studies to investigating the individual attitudes of customers to supermarket service quality and brand trust..

Prior to discussing the research methods used here it is important that the role of values be considered. The role that personal values play is integral to the research process if results are to be considered credible (Saunders et al 2012). It is important that one remains as objective and value-free as possible when researching a given research

question. However there must be awareness that the researcher's initial decision to conduct research in the area was driven by an underlying interest and understanding of the topic (Saunders et al 2012). As a result, it is important that all analysis is conducted from a neutral standpoint with all conclusions reached in a scientific manner. In this case where a relationship between service quality and brand trust is being measured it is wise that a research instruments such as questionnaire be used in the research process. This can reduce the potential for bias as can occur in a qualitative study (Quinlan, 2011).

4.4 Research Approach

The previous section discussed the positivist research philosophy which will be used to conduct this study. As is often the case with a quantitative study there are a number of hypothesis to be considered as part of the research questions and investigation. It is important at this point that the research approach be discussed. In this case the deductive approach will be most relevant to the study.

Deductive reasoning refers to a process whereby a set of premises being true implies that a specific conclusion will be reached (Ketokivi and Mantere, 2010). Deductive proof implies that future results can be predicted given a specific set of premises being fulfilled. Conversely, the process of induction is more based on a judgement based prediction of what *may* happen based on a number of premises i.e. the conclusion is 'judged' to be supported by the observations made. Induction is more common in a qualitative study where a more subjective form of analysis has been conducted (Ketokivi and Mantere, 2010).

In this case the existence of hypotheses and investigation of relationships between variables (service quality and brand trust) means that the process of deduction would be most appropriate to the study. Saunders et al (2012) describe deduction as a form of scientific research. In this case a theory is developed which is then exposed to a number of tests to investigate the truth of the given theory.

In this study, metrics of service quality and brand trust are developed and tested for an influencing relationship between service quality and brand trust before further investigation of the impact of a hypothetical food safety scenario on a consumer's brand trust levels. Both of these hypotheses are appropriate to the deductive research approach and Saunders et al (2012) suggest a number of steps that should be taken in investigating this relationship and "proof". These tests are completed using quantitative methods with the results then assessed to see if they are consistent with the initial hypotheses at which point the null hypothesis will be rejected or not rejected.

4.5 Methodological Choice

Prior to deciding on a research strategy and gathering data it is first important that the methodological choice for the study be considered. As discussed previously this study is most suited to a quantitative approach given the positivist research philosophy and deductive approach considered. Quantitative studies will relate to any data collection methods which result in the gathering of numerical data or data that can be easily converted into numerical form such as Likert scales (Quinlan, 2011). This study focuses on the population of Irish adult residents which regularly visit one of five main Irish supermarket

chains. The objectives within the study include measurement of their underlying service quality and brand trust levels in line with information on demographic, socio-economic and lifestyle. In addition there is an element within the study of re-evaluating their brand trust levels following the introduction of a hypothetical food safety scenario.

This study primarily focuses on the investigation of different statistical relationships and causations between variables through quantitative techniques. Gilstrap (2013) writes that quantitative models in the social and behavioural sciences can be used to confirm or explain phenomena or even to build theory. However, is important to note that since data is collected in a standard manner that it is important that questions are expressed clearly so ensure uniform understanding of what they mean across all participants as discussed by Saunders et al (2012). This will be discussed in further detail in the section on the pilot study.

4.6 Population and Sampling Technique

Prior to completing any study it is important to define the population for which it is relevant. By determining a population and selecting an appropriate sample from within, it is believed that insights received through this sample may infer that these insights are representative of the population as a whole.

The population of a study is all individuals, objects or items relevant to the study (Quinlan, 2011). The target population for this study is all Irish residents over eighteen who purchase groceries on a regular basis within one of five Irish supermarket chains: Aldi, Dunnes Stores, Lidl, Super Valu or Tesco. Given the infeasibility of contacting all valid

parties within the population in this case, sampling techniques are instead used. Sampling is defined by Merriam-Webster as “the act, process, or technique of selecting a representative part of a population for the purpose of determining parameters or characteristics of the whole population” (cited by Emerson, 2015). As a result, sampling is used to provide an indicative representation of how the larger population would behave in cases where practicality, cost and effort prevents the entire population being studied (Saunders et al 2012).

The two main types of sampling techniques are probability and non-probability. With probabilistic sampling, the chance of each member of the population being selected within the sample is known and usually equal to that of all others (Saunders et al 2012). In this case the findings of the study may be justified as being generalisable to the entire population, given the use of mathematical probability techniques (Quinlan, 2011). However, non-probabilistic techniques are also used in developing a sample. In this case the probability of each member of the population being selected is unknown but non-probabilistic techniques were used here given the time and cost constraints evident in this study.

In this research, a mix of both convenience and snowball non-probabilistic sampling techniques was employed. Convenience sampling relates to the use of subjects which are readily available and easy to access, potentially known to the person undertaking the study and happy to participate. Snowball sampling involves identifying possible participants through word-of-mouth recommendations where a group of respondents then identify additional participants in the study (Saunders et al 2012). Both convenience and snowball

techniques are used due to their ease of access to the researcher (Quinlan, 2011) and they can generally be implemented more easily, faster and with fewer resources (Shapiro et al, 1999).

Identifying an appropriate sample size for the indicative population is also important as shown by Saunders et al (2012). In this case it is important that the population size, required confidence interval level and margin of error be decided prior to commencing the study to guide the number of responses required for the study. Margin of error determines the amount of error you can tolerate in your results whereas the confidence interval is the amount of uncertainty you can tolerate. These are both in line with the expectation of natural distribution of a population as defined by the central limit theorem (Saunders et al 2012). The larger the sample size, the closer its distribution will be to the normal distribution and the more robust the results will be.

Saunders et al (2012) includes a table of sample sizes that should be reached for a given mix of confidence intervals and margins of error. This shows that a sample size of 384 would be required for a population of over 1 million (as expected here) to be within a 95% confidence interval and 5% margin of error. Using a Qualtrics online sample size calculator (Qualtrics[1]), helped to determine a scaling of sample sizes between 1% and 10% in line with a population of two million (approximation) and confidence interval of 95% as per Appendix B. As a result it was agreed that 6% was an adequate margin of error and a sample size of 267 was targeted for the study.

[1] Online Sample Size calculator https://www.qualtrics.com/blog/calculating-sample-size/

4.7 Time Horizon

The following study was conducted using a cross-sectional design. This is the study of a particular phenomenon or phenomena at a particular point in time as opposed to a longitudinal study which takes place over multiple time stamps and analyses any changes or developments that may occur between stages (Saunders et al 2012). In this case the cross-sectional approach is most appropriate and in keeping with the time constraints for this study.

4.8 Research Strategy and Data Collection

The following study will use two research strategies (survey and experiment) to find results to the proposed research questions in the previous chapter on research questions and aims.

Saunders et al (2012) discuss the importance of experiments in understanding potential relationships between variables. These have their underpinnings in the natural sciences but are often also used in the social sciences. In general their purpose is to determine the probability of a change in an independent variable causing a change in another dependent variable. In this case there are two experiments in place, the first to understand the proposed causation or correlation between service quality and brand trust and the second to analyse the impact of a proposed food safety scandal on the underlying brand trust levels of the supermarket customers.

A survey is a method of asking individuals questions through the guise of telephone, email, online, face to face or other means. In this way the answers to a multitude of questions can be collated easily (Adams and Khan, 2014). Such approaches are often used within marketing

and behavioural economics research and are often used effectively in exploratory and descriptive research (Saunders et al 2012). They are very useful in conducting quantitative research as it allows for both descriptive and inferential statistics which are both relevant in this study. In addition gathering data is more timely and economical in collecting standardised information from a large group rather than resorting to qualitative methods such as focus groups (Adams and Khan, 2014).

As already specified, an online survey was used to generate responses. As per Quinlan (2011), online surveys are an effective way of warranting responses in a quick and efficient way. In addition, given the relatively high number of responses required, paper copies were not a feasible solution for data gathering (Wright, 2006). Given the use of convenience and snowball methods, it was also easier to distribute and encourage participants to invite further responses from their contacts.

The survey was created using Qualtrics experience management software, a company that specialises in soliciting customer and employee feedback in a quick and easy way. It was developed to take under ten minutes to complete, with all feedback collected anonymously via anonymous survey link and ballot bot stuffing deactivated on the system[2]. The survey was promoted via social media through Whatsapp, Facebook and LinkedIn.

[2] No one IP address can provide multiple responses

4.9 Questionnaire Design and Data Cleaning

The survey questionnaire was developed to ensure that accurate results could be determined to the research question to hand. A copy of the final survey questionnaire is included in Appendix C.

In order to facilitate greater ease of interpretation of the results, a number of steps were undertaken to improve the scoring systems of some variables and a number of additional variables were also computed to drive further analysis. These are included below:

Deleted invalid variables: Automated variables were created by the Qualtrics software including timestamp, time to completion of the survey etc. These were removed as they did not add any additional insights to the study

Invalid or incomplete responses: Any respondents which did not meet the requirements of the study were removed from the results and analysis. In addition any respondents which did not complete the survey were removed. 11 of the original 280 respondents were removed for these reasons.

Rescaled variables: A number of variables in the service quality and brand trust category were reverse scaled so that higher scores represented a greater extent of the particular construct measured (service quality or brand trust).

Adjusted free text: Categorised any free text into its own or a relevant category for highest education level and employment status. This allowed for employment status categories like “self-employed” to be recognised. In addition the weekly grocery spend figure was adjusted to numerical format to allow for it to be used as a continuous variable

Computed additional variables: Fourteen new variables were calculated. The first was a dichotomised version of the gender variable to allow for removal of the "prefer not to say" category and only allow for either male or female respondents in the study ("gender (adj)"). Other responses were ignored in this case. In addition, five dichotomous variables for each supermarket choice were created. Computed variables for service quality, initial brand trust and remeasured brand trust were also developed using the component variables which they were based on. This was achieved by attaching a numerical value to each individual component and allowing for a maximum score for service quality and brand trust in line with these variables. These variables were then normalised to variables with mean 0 and standard deviation of 1 for comparative purposes. Finally, two new dichotomous variables were developed for the regression models: MeatorNot and PaidEmporNot. These reflected whether or not respondents were meat eaters and were in paid employment respectively which formed part of the regression study.

These changes have been reflected and are shown in the tables below. There were five core components of the study;

1. **Inclusion criteria:** Question clarifying assurance that respondent was willing to take part in the study, living in Ireland, over 18 and a regular customer in the five core Irish supermarket chains (shown in Table 4.1)
2. **Demographic, socio-economic and lifestyle factors:** Gender, age bracket, employment status, income level, area of Ireland in which they are resident, highest education level, supermarket attended most frequently, weekly grocery spend (cost and over how many people) and eating habits (shown in Table 4.1)

Table 4.1: Inclusion Criteria and Demogrpahic, Socio-economic and Lifestyle Factors for Respondents

Label	Values	Measure
Happy to partake in the study	1: "I am happy to take part in this study."; 2: "I am not happy to take part in this study"	Scale
Living in Ireland	1: "Yes"; 2: "No"	Scale
Gender	1: "Male"; 2: "Female"; 3: "Prefer not to say"; 4: "Other"	Scale
Gender (adj.)	1: "Male"; 2: "Female"	Scale
Age Bracket	1: "<18"; 2:"18-24"; 3: "25-34"; 4: "35-44"; 5: "45-54"; 6:"55-64"; 7: "65+"	Ordinal
Employment Status	1: "Full-time student"; 2: "In paid employment"; 3: "Not in paid employment"; 4: "Retired"; 5: "Other (please specify)"	Nominal
Employment Status (free text)	None	Nominal
PaidEmporNot	0: "Not in pad employment"; 1: "In paid employment"	Nominal
Income Level	1: "<€30,000"; 2: "€30,001-45,000"; 3: "€45,001-60,000"; 4: "€60,001-75,000"; 5: "€75,001-90,000"; 6: "€90,000+"; 7: "Not currently in paid employment"; 8: "Prefer not to say"	Ordinal
Area of Ireland	1: "Dublin"; 2: "Munster"; 3: "Ulster"; 4: "Leinster (outside Dublin)"; 5: "Connaught"	Nominal
Highest Education Level	1: "Primary education"; 2: "Secondary education"; 3: "Third Level education (certificate, diploma, degree)"; 4: "Masters Level education"; 5: "PhD or Doctorate"; 6: "Other (please specify)"	Ordinal

Highest Education Level (free text)	None	Nominal
Supermarket Visit	1: "Yes"; 2: "No"	Scale
Choice of Supermarket	1: "Lidl"; 2: "Aldi"; 3: "Super Valu"; 4: "Dunnes"; 5: "Tesco"	Nominal
Supermarket Choice: Aldi	0: "Not Aldi"; 1: "Aldi"	Nominal
Supermarket Choice: Dunnes Stores	0: "Not Dunnes Stores"; 1: "Dunnes Stores"	Nominal
Supermarket Choice: Lidl	0: "Not Lidl"; 1: "Lidl"	Nominal
Supermarket Choice: Super Valu	0: "Not Super Valu"; 1: "Super Valu"	Nominal
Supermarket Choice: Tesco	0: "Not Tesco"; 1: "Tesco"	Nominal
Weekly spend	None	Nominal
Weekly spend over how many people	1: "1"; 2: "2"; 3: "3"; 4: "4"; 5: "4+"	Ordinal
Eating Habits	1: "Wide range diet including meat and fish"; 2: "Mainly vegetarian but eat some meat/fish"; 3: "Exclusively vegetarian"; 4: "Vegan"; 5: "Other (please specify)"	Nominal
MeatorNot	1: "Meat eater"; 2: "Not a meat eater"	Nominal

3. **Determining service quality levels:** Measure the respondent's underlying service quality rating and importance across 11 dimensions. The service quality metrics were obtained from Min (2010) with a measurement of rating and importance of each factor conducted. As shown each of these dimensions were calculated using a 5 point Likert scale to determine the respondent's perception of both rating and importance. The core advantage of such Likert scales is the ability to equate responses to a numerical equivalent within a scale which can then be used within quantitative analysis and for

comparative purposes between specific service quality dimensions (Gravetter and Forzano, 2012).

Table 4.2: Service quality ratings and importance levels as per Min (2010)

Label	Values	Measure
Product Quality rating	1: "Very Bad"; 2: "Bad"; 3: "Neither good nor bad"; 4: "Good"; 5: "Very good"	Scale
Cleanliness of the store rating		Scale
Competitive price rating		Scale
Product variety rating		Scale
Fast checkout rating		Scale
Convenience of store location rating		Scale
Clear price labelling rating		Scale
Easy payment rating		Scale
Employee courtesy rating		Scale
Store opening hours rating		Scale
Availability of special departments rating		Scale
ServQual	Continuous numerical value	Scale
ServQualN	Continuous numerical value	Scale
Product Quality importance	1: "Very Unimportant"; 2: "Unimportant"; 3: "Neither important nor unimportant"; 4: "Important"; 5: "Very Important"	Scale
Cleanliness of the store importance		Scale
Competitive price importance		Scale
Product variety importance		Scale
Fast checkout importance		Scale
Convenience of store location importance		Scale
Clear price labelling importance		Scale
Easy payment importance		Scale
Employee courtesy importance		Scale
Store opening hours importance		Scale
Availability of special departments importance		Scale

4. **Determining initial brand trust levels:** Measure initial brand trust scores (8 questions) of the respondent in Table 4.3. As shown each of these dimensions were calculated using a 5 point Likert scale to determine brand trust across a number of dimensions. These questions were as developed by Delgado-Ballester and Munuera-Alemán (2003) in determining brand trust levels.

Table 4.3: Initial brand trust scores as per Delgado-Ballester and Munuera-Alemán (2003)

Label	Values	Measure
Brand meets expectations		Scale
Brand confidence		Scale
Brand never disappoints me		Scale
Brand guarantees satisfaction	1: "Definitely not"; 2: "Potentially	Scale
Brand would be honest and sincere in addressing my concerns	not"; 3: "Maybe"; 4: "Potentially"; 5:	Scale
Could rely on brand to solve the problem	"Definitely"	Scale
Brand would make any effort to satisfy me		Scale
Brand would compensate me in some way for any problem with their products		Scale
Trust1 (sum of 8 previous questions)	Continuous numerical value	Scale
Trust1N (Trust1 Normalised to mean 0 and variance 1)	Continuous numerical value	Scale

5. **Remeasuring brand trust levels:** Introduction of a hypothetical food scandal to the respondent and measurement of their resultant brand trust levels following this in Table 4.4 (9 questions). These questions measure the aftermath of a customer's reaction to the hypothetical food scandal and retest their loyalty to the brand.

Table 4.4: Remeasured brand trust scores

Label	Values	Measure
The above situation is the fault of the company.		Scale
Company should be held accountable for this situation		Scale
Trust that the company will take necessary action to rectify the above situation		Scale
Trust company will take the necessary measures to prevent a repeat		Scale
Likelihood of continuing to purchase the company meat products	1: "Strongly agree"; 2: "Agree"; 3: "Neither agree nor disagree"; 4:	Scale
Likelihood of continuing to purchase the companys other non meat products	"Disagree"; 5: "Strongly disagree"	Scale
Likelihood of continuing to purchase companys products		Scale
Likely of switching to alternative company products		Scale
Likelihood of switching		Scale
Trust2 (Computed variable - sum of previous 9 questions)	Continuous numerical value	Scale
Trust2N (Trust2 Normalised to mean 0 and variance 1)	Continuous numerical value	Scale

4.10 Pilot Study

Prior to distributing the survey and gathering feedback from the relevant parties, a pilot study was undertaken. Quinlan (2011) states that a pilot study is a small preliminary study undertaken before the main study to ensure that the data collection method works as it should for the study. Here, the researcher tests the instrument to ensure that it works. Having generated feedback the instrument can then be amended to ensure that it is fit for purpose and the quality of the data produced is improved. Saunders et al (2012) highlight the dangers of questionnaires in this respect and warn that any survey questionnaire must be defined precisely prior to data collection. On this occasion the researcher will not be available to the participant to ask questions and explain content in real-time as would be the case with some qualitative methods such as a focus group where further clarification questions can be asked by the participant. This provides further requirement for a pilot study.

The aim of the pilot in this case was to obtain feedback from willing participants on the survey questions and answers and highlight any misunderstandings or queries that they encountered throughout. An alternative version of the survey questionnaire was developed to allow real-time text feedback and comments at regular intervals with specific queries related to the type of content that had been introduced. The pilot was distributed to five of the researcher's acquaintances which were within the population requirements for the study and asked to provide honest feedback on the clarity of the survey design and content, time to undertake and attractiveness of the layout.

Two pilot studies were undertaken, the first with multiple responses suggesting that the measure of brand trust was unclear and that many of the questions within the proposed model were excessively similar in nature. As a result this model was revised and changed to a more suitable model with a higher number of questions and dimension of the participant's brand trust. The second pilot was more successful with some minor suggestions on the naming of Likert scale labelling and agreement that the survey was easy to use and maintained the respondent's interest levels.

4.11 Data Analysis

All questionnaire data was generated on Qualtrics cloud software and then stored on and analysed through the Statistical Packages for Social Sciences (SPSS) statistical package. Any incomplete or erroneous respondent submissions were excluded from the study. SPSS is commonly used within quantitative analysis due to its ability to analyse large data sets and identify patterns and correlations between variables from a statistical perspective (Quinlan, 2011). It is a commonplace tool which is clearly used throughout the literature.

A codebook was developed with a full index of all metrics, data type, description, potential values or scales for input variables. This was stored in SPSS as a guidebook to the specific questions and answer options which were being analysed (as per section 3.9). This provided clear clarity to the researcher in development of their data analysis as to the content of each variable.

All information from participants was gathered on a strictly confidential basis with a code number used as primary key. The data analysis involved two elements: the first was generation of clear

demographics and trends across the sample with measures such as age, gender, average grocery spend, overall service quality and brand trust levels measured and the second covering the statistic and exploratory analysis which was conducted. Results of the above analysis will be shown in the next chapter.

There were a number of statistical tests conducted within this study. These will be explained below with an overview of the tests used, underlying assumptions in applying them and a clear view of how they were used in this analysis.

4.12 Ethical Considerations

Ethics refers to “the standards of behavior that guide your conduct in relation to the rights of those who have become the subject of your work, or are affected by it” (Saunders et al 2012, page 239). In other words, consideration must be placed to all participants that may engage in the following research study and the researcher must remain honest and respectful to their needs throughout the entire research process.

In addition to ethical considerations it is important that the researcher stays in line with GDPR requirements and ensures that all information is gathered and stored in a legally compliant way. As a result the respondent was provided with an opportunity to decide to take part in the study or discontinue at any stage throughout. All information was gathered on an anonymous and voluntary basis and will be deleted upon grading of this dissertation.

Each respondent was provided with a broad introduction to the study containing time taken to complete, underlying content of the questions and the reason behind why the survey was being undertaken. At this point the generic requirements of qualification for the study were also provided. All of the above were provided prior to the survey completion to ensure informed content was in place. Informed content ensures that the researcher has provided all necessary information to the participant to allow them make a decision on whether they would like to participate in the study (Wright, 2006). Saunders et al (2012) also recommend that the participants are given full information on the nature of the research and how the information will be analysed.

Finally, ensuring anonymity to all participants is core to this study, particularly given the fact that salary levels and spending levels are part of the study. Saunders et al (2012) highlight that information must be only shared with those with whom you have disclosed to your participants. In this case, data is accessible only to the researcher and supervisor.

The researcher is confident that there should be no ethical concerns evident within this study and that care has been taken to follow all ethical guidelines as provided by NCI in the gathering of primary research.

4.13 Limitations

The proposed analysis is purely quantitative and will not include any qualitative analysis such as interviews which may allow for a deeper understanding of customers' service quality perceptions and brand trust levels. It was thought that a purely quantitative analysis would

be more appropriate given the time considerations for this study. In addition, this will allow for increased scalability of results in determining patterns across the sample.

The study is also limited by the use of non-probabilistic sampling methods which will affect its statistical significance. In general, the optimal approach to collecting a sample which is representative of the population is by engaging in probabilistic sampling, or quota sampling to allow for a sample which is more representative of the population. However this was not feasible within the time and budget constraints in this study. As a result it is accepted that all statistical inferences which are deduced from the sample may not be representative of the entire population for this reason (Saunders et al, 2012).

A further limitation which has been highlighted here is the use of only online survey questionnaires in testing these hypotheses. It is possible that by only distributing via online means that there is a risk of non-response bias since any participants who do not have access to the internet or do not have the ability to use it will not be included in this study (Wright, 2006). In addition, it is possible that using this approach could mean that the sample is not representative of the population and that it is a selective view of service quality and brand trust levels rather than directly transferrable insights to be translated to the population in question.

As explained in the questionnaire design section there was no prior questionnaire to use which tested a customer's brand trust both before and after a supposed food scandal. As a result the researcher developed their own metrics of brand trust following the hypothetical food scandal. Although these questions were altered during the pilot

process, should more time be available, the researcher may have developed these further in tandem with researchers which were more established in this field.

Finally, the introduction of a hypothetical scenario is subject to its own limitations as it is difficult and sometimes impossible to understand how a participant would react in real time to the given scenario. Even Thaler (2015) notes the limitations of hypothetical research and its application to real life. However, this is just an exploratory study investigating the potential changes in brand trust resulting from such a situation. Actually carrying out such a scenario in practice would be unethical and highly dangerous and so, a hypothetical situation is best to consider here.

In addition, Kahneman (1979) maintains that the use of hypothetical questions or scenarios and providing choice criteria as a result of this is simplest in investigating a given scenario. However, it is noted that in reality a person may behave differently subject to the given situation and circumstances in real-time, level of food safety scandal etc.

Using a hypothetical situation or scenario is commonplace in behavioural economics research where controlled trials are used in place of a field study where an alternative approach was not feasible (Thaler 2016). It is impossible to replicate such a scenario in actuality outside of directly observing the impact of such a scenario on the entire population. He also considers that without using hypothetical situations within experiments, that behavioural economics as a whole would not have reached such a level of advancement.

Finally, it is clear that the following studies may have minor flaws given the hypothetical nature of the situations and potential mental accounting issues that a participant may feel in filling in the survey. Without being confronted with the situation in real time there is a potential that results may be slightly skewed versus their reaction in a real life situation. In addition, media coverage of the scenario in real terms may also be seen to positively or negatively affect their mistrust of the brand or chain in question as was seen during the 2013 horsemeat scandal (Falkheimer and Heide 2015). This scenario, though different in terms of the source of the food scandal, does have some congruence with the proposed scenario in this study and thus may require further considerations in future research.

CHAPTER FIVE: RESULTS

5.1 Introduction

The following chapter consists of descriptive and explanatory statistics of the results of the survey. An initial overview of the sample characteristics will be included in terms of demographic, socio-economic and lifestyle factors. This will be followed by an overview on the results of the specific components of service quality and brand trust that were seen within the sample. In terms of explanatory statistics, normality tests suggested that all analysis should be conducted using non-parametric tests. As a result, univariate analysis of all potential independent variables which could affect brand trust was conducted using a mix of the Mann-Whitney U test, Krustal-Wallis H test and Spearman's correlation test. Following this, two potential multivariate regression models will be developed and compared for the strength of their relationship between dependent and independent variables.

5.2 Descriptive Statistics

There were 280 original respondents to the survey. As identified in previous sections, the core criterion of any respondent that wished to participant in the study was that they must be resident in Ireland, over 18 years of age and conduct grocery shopping regularly in one of the five main supermarket chains: Aldi, Dunnes Stores, Lidl, Super Valu or Tesco. Of the original respondents, 11 of these did not meet any three criterion and were unable to complete the survey. Any of these invalid

responses were removed from the data set to begin. Thus the following analysis will be a descriptor of this sample size of 269.

Prior to commencing this analysis, it is important to call out the different types of variables within this study. Firstly, data will be either numerical and relate to numbers and counting or categorical and relate to descriptions and groups (Mayers 2013). This was covered in the previous section on methodology. Categorical variables will cover descriptives of the data set whereas numerical data will relate to some form of measurable response e.g. Likert scale or continuous variable. In the following section, it will be split with categorical variable results first covered and then numerical variable results. For Likert scales with subjective measurables attached to them (e.g. happy, happy, unhappy, very unhappy), it can be hard to necessarily quantify the differences between these results. However, in this study spacing between all numerical scales are considered to be an interval type variable with equal spacing between each option. As a result the descriptive count of each of the ranks are described for these Likert variables but numerical descriptives such as mean, variance and median scores are also included. In addition, the elements of the service quality and brand trust measurements were used to compute three new variables for service quality (ServQual), brand trust before (Trust1) and brand trust after (Trust2).

Table 5.1 shows the demographic characteristics of the sample of respondents. The sample was largely female (67.3%) with 181 respondents. In addition most respondents were in age brackets 25-34 (54.3%) and 35-44 (23.8%). Table 5.2 shows a further split of respondent data, which shows that 37.9% of the sample are female

and in the age bracket 25-34. Males in this age bracket make up the remaining 16%.

The majority of the sample live in Dublin (61.3%), followed by Munster (20.1%) and Leinster (13.8%). Connaught and Ulster show a lower proportion, with Connaught having 13 respondents and no respondents from Ulster (although this may relate to the use of Republic of Ireland supermarket chains only).

56 of the 269 respondents (21%) were aged 25-34, female and living in Dublin.

Table 5.1: Table of Demographic Characteristics of Sample

	Count	Percentage
Gender		
Male	87	32.3%
Female	181	67.3%
Prefer not to say	1	0.4%
Age Bracket		
18 - 24	16	5.9%
25 - 34	146	54.3%
35 - 44	64	23.8%
45 - 54	24	8.9%
55 - 64	14	5.2%
65+	5	1.9%
Region of Ireland		
Dublin	165	61.3%
Munster	54	20.1%
Leinster (outside Dublin)	37	13.8%
Connaught	13	4.8%
Ulster	0	0.0%

Table 5.2: Sub-split of Age Bracket and Gender

	Female	Male	Prefer not to Say	Total
18 - 24	3.7%	2.2%	0.0%	5.9%
25 - 34	37.9%	16.0%	0.4%	54.3%
35 - 44	14.5%	9.3%	0.0%	23.8%
45 - 54	4.8%	4.1%	0.0%	8.9%
55 - 64	4.8%	0.4%	0.0%	5.2%
65+	1.5%	0.4%	0.0%	1.9%
Total	***67.3%***	***32.3%***	***0.4%***	***100.0%***

Socio-economic variables were also measured and are shown in Table 5.3 below. It can be seen that 90.9% of respondents are in paid employment with a further 4.9% in full time education. The remainder were split across those that were retired, not in paid employment, self-employed or stay at home parents.

There was a broad mix of income levels evident across those that were in paid employment and were willing to provide their income levels. The highest proportion is those in the €45,001-60,000 income bracket at 24.2%, followed by 20.4% in the €30,001-45,000 income bracket. On the upper end, 10.8% earned in excess of €90,000 and on the lower end, 12.3% earned less than €30,000.

135 respondents identified third-level as their highest education level (50.2%), with a further 38.7% progressing to Masters education and 3.7% to PhD level education. The remaining outliers were split between those whose highest level of education was primary (1), secondary (14) or professional qualifications (14) such as accountancy certification or engineering chartership (captured via free-text in "other" field).

Table 5.3: Table of Socio-economic Characteristics of Sample

	Count	Percentage
Employment Status		
Full time student	13	4.9%
In paid employment	240	90.9%
Not in paid employment	5	1.9%
Retired	5	1.9%
Other		0.0%
Stay at home parent	1	0.4%
Self employed	5	1.9%
Income Level		
<€30,000	33	12.3%
€30,001-45,000	55	20.4%
€45,001-60,000	65	24.2%
€60,001-75,000	35	13.0%
€75,001-90,000	22	8.2%
€90,000+	29	10.8%
Not currently in paid employment	6	2.2%
Prefer not to say	24	8.9%
Education Level		
Primary education	1	0.4%
Secondary education	14	5.2%
Third Level education (certificate, diploma, degree)	135	50.2%
Masters Level education	104	38.7%
PhD or Doctorate	10	3.7%
Other (please specify)		0.0%
Professional Qualification	5	1.9%

Finally, a number of lifestyle factors such as dietary factors and grocery spend were examined (shown in Table 5.4 below). A determination of the supermarket chain choices of respondents showed a relatively even mix of preferences. Tesco was highest at 21.6% and Super Valu was lowest at 18.2%.

The respondents were asked to quantify their weekly grocery spend and the results were later banded. 34.6% of these spent €31-60 weekly. The next highest bracket was the €91-120 band with 52 respondents (19.3%) of respondent appearing here. On the upper end, 16 respondents (5.9%) spent in excess of €240 weekly whereas 19 respondents (7.1%) spent €30 or less weekly on the lower end.

The number of people that the respondent is shopping for is also tracked. The vast majority were buying for themselves alone (29.7%) or themselves and one other (34.9%) with 64.6% combined.

Finally, dietary habits of participants and their relevant respondents was tracked. The vast majority ate a wide range diet including meat and fish at 85.6% with others reporting partial vegetarian (11.2%), vegetarian (2.2%) or vegan (0.7%).

Table 5.4: Table of Lifestyle Factors for the Sample

	Count	Percentage
Supermarket Choice		
Lidl	55	20.4%
Aldi	56	20.8%
Super Valu	49	18.2%
Dunnes Stores	51	19.0%
Tesco	58	21.6%
Average Spend		
<=€30	19	7.1%
€31-60	93	34.6%
€61-90	43	16.0%
€91-120	52	19.3%
€121-150	27	10.0%
€151-180	6	2.2%
€181-210	10	3.7%
€211-240	3	1.1%
€240+	16	5.9%
Number of People Respondent is Shopping For		
1	80	29.7%
2	94	34.9%
3	39	14.5%
4	38	14.1%
4+	18	6.7%
Eating Habits		
Wide range diet including meat and fish	231	85.9%
Mainly vegetarian but eat some meat/fish	30	11.2%
Exclusively vegetarian	6	2.2%
Vegan	2	0.7%

Table 5.5 below shows the arithmetic mean and standard deviation of all service quality and brand trust variables – both original and computed aggregates- on an overall and per supermarket chain level.

Table 5.5: Descriptive Statistics for Service Quality and Brand Trust

	Total N=269		Lidl N=55		Aldi N=56		Super Valu N=49		Dunnes Stores N=51		Tesco N=58	
	Mean	Std. Dev	Mean	Std. Dev	Mean	Std. Dev	Mean	Std. Dev	Mean	Std. Dev	Mean	Std. Dev
ServQual (combined maximum score of 55)	**46.22**	**4.74**	**47.05**	**3.92**	**46.95**	**4.11**	**46.88**	**5.53**	**45.75**	**4.28**	**44.59**	**5.34**
Product Quality rating	4.4	0.582	4.38	0.527	4.55	0.57	4.55	0.58	4.45	0.541	4.1	0.583
Cleanliness of the store rating	4.41	0.661	4.53	0.539	4.57	0.599	4.47	0.649	4.51	0.579	4.02	0.761
Competitive price rating	4.13	0.914	4.78	0.417	4.8	0.519	3.31	0.871	3.65	0.868	3.97	0.725
Product variety rating	4.09	0.855	3.98	0.933	4.04	0.852	4.04	0.865	4.33	0.589	4.07	0.953
Fast checkout rating	4.03	1.002	3.82	1.073	4.05	1.119	4.22	1.046	3.92	0.891	4.12	0.839
Convenience of store location rating	4.45	0.724	4.55	0.662	4.55	0.658	4.53	0.71	4.31	0.678	4.31	0.863
Clear price labelling rating	4.12	0.785	4.25	0.645	4.27	0.674	4.04	0.935	4.04	0.824	4	0.816
Easy payment rating	4.46	0.631	4.53	0.573	4.59	0.565	4.47	0.68	4.35	0.594	4.36	0.718
Employee courtesy rating	3.97	0.891	4.16	0.739	4.07	0.85	4.24	0.925	3.82	0.793	3.6	0.99
Store opening hours rating	4.5	0.656	4.71	0.458	4.63	0.59	4.51	0.739	4.12	0.791	4.5	0.538
Availability of special departments rating	3.66	1.107	3.36	0.969	2.82	1.064	4.49	0.649	4.24	0.79	3.53	1.096
Trust1 (combined maximum score of 40)	**30.82**	**5.64**	**31.84**	**4.58**	**30.89**	**5.30**	**32.88**	**4.95**	**30.65**	**6.26**	**28.19**	**6.01**
Brand meets expectations	4.44	0.708	4.67	0.511	4.64	0.554	4.41	0.762	4.45	0.808	4.05	0.711
Confidence in brand	4.39	0.801	4.58	0.658	4.45	0.761	4.57	0.736	4.43	0.9	3.97	0.794
Brand never disappoints me	3.62	1.01	3.82	0.796	3.79	0.868	3.86	0.935	3.51	1.155	3.17	1.11
Brand guarantees satisfaction	3.87	0.911	4	0.72	3.91	0.793	4.12	0.832	3.94	1.121	3.43	0.92
Brand would be honest and sincere in addressing my concerns	3.73	0.964	3.87	0.883	3.62	0.983	4.04	0.789	3.75	0.997	3.41	1.044
Could rely on brand to solve the problem	3.64	0.981	3.69	0.92	3.52	1.062	4.08	0.909	3.59	0.853	3.38	1.023
Brand would make any effort to satisfy me	3.41	1.035	3.45	1.051	3.27	0.963	3.92	0.909	3.31	0.948	3.14	1.131
Brand would compensate me in some way for any problem with their products	3.72	0.978	3.75	1.022	3.7	1.008	3.88	0.904	3.67	0.841	3.64	1.087
Trust2 (combined maximum score of 45)	**25.35**	**4.97**	**25.82**	**4.80**	**25.52**	**4.78**	**25.86**	**4.58**	**25.12**	**4.66**	**24.53**	**5.85**
The above situation is the fault of the company.	1.43	0.768	1.49	0.858	1.41	0.757	1.35	0.723	1.35	0.594	1.53	0.863
Should company be held accountable for this situation	1.16	0.489	1.15	0.356	1.14	0.444	1.1	0.368	1.18	0.518	1.22	0.677
Trust that the company will take necessary action to rectify the above situation	4.04	0.795	4.25	0.751	4.02	0.82	4.1	0.823	4.02	0.678	3.84	0.854
Trust company will take the necessary measures to prevent a repeat	4.14	0.815	4.2	0.826	4.13	0.81	4.29	0.707	4.14	0.849	3.97	0.858
Likelihood of continuing to purchase the company meat products	2.55	1.134	2.51	1.12	2.54	1.128	2.76	1.09	2.51	1.155	2.45	1.187
Likelihood of continuing to purchase the companys other non meat products	3.41	1.088	3.49	1.169	3.46	1.111	3.47	1.002	3.37	1.019	3.26	1.133
Likelihood of continuing to purchase company's products	3.59	1.042	3.6	1.18	3.7	1.008	3.59	0.934	3.55	1.006	3.5	1.08
Likely of switching to alternative company products	2.52	1.031	2.65	1.126	2.61	1.09	2.59	0.998	2.45	0.966	2.31	0.959
Likelihood of switching	2.52	0.991	2.47	0.94	2.52	1.044	2.61	0.975	2.55	1.006	2.45	1.012

Lidl has the highest mean for combined service quality mean at 47.05, followed by Aldi at 46.95, Super Valu at 46.88, Dunnes Stores at 45.75 and finally Tesco at 44.59.

By contrast, Super Valu has the highest mean for brand trust initially (prior to introduction of food scandal) at 21.88, followed by Lidl at 31.84, Aldi at 30.89, Dunnes Stores at 30.65 and Tesco lowest at 28.19.

Brand trust following the introduction of the scandal follows the same pattern as before with Super Valu at 25.86, Lidl at 25.82, Aldi at 25.52, Dunnes Stores at 25.12 and Tesco lowest at 24.53.

Further descriptive tables and graphs on both service quality ratings, initial brand trust and remeasured brand trust levels are provided in Appendix D. As explained previously, there were 11 components of service quality ratings which were later equated to compute an overall service quality metric (ServQual). There were also measures to

determine the importance of these factors to the consumer. These are shown below in Table 5.6. However, the level of importance which respondents place on service quality elements are not analysed further beyond this point as it is not a comparable measure to brand trust measurement i.e. service quality rating and brand trust are directly related to the given supermarket chain.

Table 5.6: Arithmetic Means of Service Quality Importance Factors

	Mean
Product Quality importance	4.61
Competitive price importance	4.49
Cleanliness of the store importance	4.43
Convenience of store location importance	4.39
Product variety importance	4.37
Store opening hours importance	4.29
Clear price labelling importance	4.1
Easy payment importance	4.09
Employee courtesy importance	4.06
Fast checkout importance	3.95
Availability of special departments importance	3.75

Appendix E shows a number of descriptive statistics for all measurable scale and continuous variables with information such as mean, confidence intervals, median, variance, standard deviation, minimum, maximum, range, IQ range, skewness, kurtosis and the Shapiro Wilk test for normality. The truncated version in Table 5.7 below shows the skewness, kurtosis and Shapiro-Walk statistics.

Table 5.7: Normality Tests for Continuous and Scale Variables

	Skewness			Kurtosis			Shapiro-Wilk		
	Statistic	Std Error	z value	Statistic	Std Error	z value	Statistic	df	Sig.
Product Quality rating	-0.47	0.149	-3.15	-0.004	0.296	-0.01	0.725	269	0.000
Cleanliness of the store rating	-0.923	0.149	-6.19	0.73	0.296	2.47	0.743	269	0.000
Competitive price rating	-0.756	0.149	-5.07	-0.361	0.296	-1.22	0.813	269	0.000
Product variety rating	-1.003	0.149	-6.73	1.053	0.296	3.56	0.807	269	0.000
Fast checkout rating	-1.04	0.149	-6.98	0.641	0.296	2.17	0.817	269	0.000
Convenience of store location rating	-1.338	0.149	-8.98	1.689	0.296	5.71	0.714	269	0.000
Clear price labelling rating	-0.687	0.149	-4.61	0.162	0.296	0.55	0.817	269	0.000
Easy payment rating	-1.017	0.149	-6.83	1.221	0.296	4.13	0.718	269	0.000
Employee courtesy rating	-0.682	0.149	-4.58	0.13	0.296	0.44	0.849	269	0.000
Store opening hours rating	-1.353	0.149	-9.08	2.25	0.296	7.60	0.693	269	0.000
Availability of special departments rating	-0.538	0.149	-3.61	-0.555	0.296	-1.88	0.88	269	0.000
Product Quality importance	-0.544	0.149	-3.65	-1.476	0.296	-4.99	0.633	269	0.000
Cleanliness of the store importance	-0.837	0.149	-5.62	-0.132	0.296	-0.45	0.744	269	0.000
Competitive price importance	-1.226	0.149	-8.23	1.993	0.296	6.73	0.697	269	0.000
Product variety importance	-0.811	0.149	-5.44	0.588	0.296	1.99	0.754	269	0.000
Fast checkout importance	-0.393	0.149	-2.64	-0.339	0.296	-1.15	0.847	269	0.000
Convenience of store location importance	-0.898	0.149	-6.03	0.299	0.296	1.01	0.757	269	0.000
Clear price labelling importance	-0.793	0.149	-5.32	0.9	0.296	3.04	0.821	269	0.000
Easy payment importance	-0.457	0.149	-3.07	-0.306	0.296	-1.03	0.828	269	0.000
Employee courtesy importance	-0.598	0.149	-4.01	-0.165	0.296	-0.56	0.833	269	0.000
Store opening hours importance	-0.732	0.149	-4.91	0.322	0.296	1.09	0.781	269	0.000
Availability of special departments importance	-0.53	0.149	-3.56	0.108	0.296	0.36	0.874	269	0.000
Brand meets expectations	-1.447	0.149	-9.71	2.927	0.296	9.89	0.713	269	0.000
Brand confidence	-1.348	0.149	-9.05	1.648	0.296	5.57	0.733	269	0.000
Brand never disappoints me	-0.651	0.149	-4.37	0.063	0.296	0.21	0.876	269	0.000
Brand guarantees satisfaction	-0.813	0.149	-5.46	0.684	0.296	2.31	0.848	269	0.000
Brand would be honest and sincere in addressing my concerns	-0.414	0.149	-2.78	-0.429	0.296	-1.45	0.882	269	0.000
Could rely on brand to solve the problem	-0.228	0.149	-1.53	-0.644	0.296	-2.18	0.889	269	0.000
Brand would make any effort to satisfy me	-0.345	0.149	-2.32	-0.43	0.296	-1.45	0.902	269	0.000
Brand would compensate me in some way for any problem with their products	-0.503	0.149	-3.38	-0.207	0.296	-0.70	0.881	269	0.000
The above situation is the fault of the company.	2.177	0.149	14.61	5.163	0.296	17.44	0.606	269	0.000
Company be held accountable for this situation	3.827	0.149	25.68	18.347	0.296	61.98	0.368	269	0.000
Trust that the company will take necessary action to rectify the above situation	-0.484	0.149	-3.25	-0.29	0.296	-0.98	0.836	269	0.000
Trust company will take the necessary measures to prevent a repeat	-0.675	0.149	-4.53	-0.123	0.296	-0.42	0.821	269	0.000
Likelihood of continuing to purchase the company's meat products	0.34	0.149	2.28	-0.794	0.296	-2.68	0.897	269	0.000
Likelihood of continuing to purchase the companys other non meat products	-0.395	0.149	-2.65	-0.597	0.296	-2.02	0.897	269	0.000
Likelihood of continuing to purchase companys products	-0.623	0.149	-4.18	-0.054	0.296	-0.18	0.882	269	0.000
Likely of switching to alternative company products	0.489	0.149	3.28	-0.13	0.296	-0.44	0.893	269	0.000
Likelihood of switching	0.185	0.149	1.24	-0.473	0.296	-1.60	0.899	269	0.000
ServQual	-0.633	0.149	-4.25	0.677	0.296	2.29	0.971	269	0.000
Trust1	-0.602	0.149	-4.04	0.372	0.296	1.26	0.967	269	0.000
Trust2	0.049	0.149	0.33	-0.183	0.296	-0.62	0.994	269	0.315
ServQualN	-0.633	0.149	-4.25	0.677	0.296	2.29	0.971	269	0.000
Trust1N	-0.602	0.149	-4.04	0.372	0.296	1.26	0.967	269	0.000
Trust2N	0.049	0.149	0.33	-0.183	0.296	-0.62	0.994	269	0.315

Table 5.7 shows that the significance value of all variables excepting Trust2 and Trust2N is 0.000. As a result it can be concluded that none of the above variables apart from Trust2/Trust2N are normally distributed as the Shapiro-Wilk's significance value $p < .05$. However, Trust2/Trust2N scores are normally distributed as the significance value as assessed by Shapiro-Wilk's test is 0.315 and thus $p > .05$.

Trust2/Trust2N scores are measured with a skewness of -0.049 (SE = 0.149) and kurtosis of -0.183 (SE= 0.296). As a result z values for both skewness and kurtosis are between -2.58 and +2.58 and are thus normally distributed (Mayers 2013). Whilst others variables such as 'Likelihood of switching', 'Could rely on brand to solve the problem' and 'Brand would make any effort to satisfy me' also show z values

which are in range for normal distribution, it can be seen that their p values are not statistically significant and thus do not suggest normal distribution.

In addition, a review of the Normal and detrended Q-Q plots of ServQual, Trust1 and Trust2 in Appendix F show that only Trust2 suggests normal distribution. As a result we can conclude based on Shapiro Wilk tests, skewness/kurtosis values and Q-Q plots that the Trust2 variable is normally distributed whereas service quality (ServQual) and initial trust measures (Trust1) are not. As a result, any tests using ServQual or Trust1 as the dependent variable will require non-parametric methods (Sheskin 2011). Where Trust2 is the dependent variable, normal distribution tests have already shown that all potential independent variables are non-normally distributed and so non-parametric tests will also be completed in these cases.

5.3 Exploratory Statistics

The following section will include some exploratory statistical analysis on the variables that have been defined and measured. Exploratory Data Analysis refers to the process of performing initial investigation on data. This is done in order to discover patterns between variables, help in spotting anomalies in variables, testing hypotheses and checking assumptions using summary statistics and graphical representations. As explained in the methodology section, there will be three main components to this:

- **Reliability of constructs**

- **Univariate Analysis-** Non-parametric tests of all Independent Variables versus brand Trist as dependent variable using Mann-Whitney U test, Krustal Wallis H test and Spearman correlation test
- **Multi-variate Regression Models –** test of best fit, testing residuals for normality, correlation, collinearity

Reliability of Constructs

The following section looks at the three main constructs of the analysis: service quality (ServQual), initial brand trust (Trust1) and remeasured brand trust (Trust2). Cronbach's alpha is a measure of internal consistency, that is, how closely related a set of items are as a group. It is considered to be a measure of scale reliability with a value above 0.7 upwards considered optimal (Mayers 2013).

ServQual

The 11 factors produced for ServQual were tested for reliability using Cronbach's alpha (α) and calculated as 0.741 and shown in Table 5.8. Generally a value of 0.7 or higher is considered high and constitutes a good level of internal consistency (DeVillis, 2003; Kline, 2005). The 'contribution' or 'fit' of each item to the scale can also be examined as shown below. The final column entitled "Alpha if Item Deleted" highlights how the calculated Cronbach's alpha value would change as each specific item is removed from the scale. It can be seen that removal of either the competitive price rating and availability of special departments rating would increase the internal consistency. In addition these show scores of lower than 0.3 for total correlation. However, these are key determinants which define the particular supermarket chain versus competitors. In particular price

competitiveness is an important topic to consider across the literature.

Table 5.8: Cronbach Alpha Measures for Service Quality Rating

	Scale Mean if Item Deleted	Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Alpha if Item Deleted
Product Quality rating	41.82	19.657	0.48	0.388	0.716
Cleanliness of the store rating	41.81	18.813	0.561	0.444	0.704
Competitive price rating	42.09	20.182	0.177	0.223	0.753
Product variety rating	42.13	18.36	0.461	0.32	0.712
Fast checkout rating	42.19	18.5	0.344	0.184	0.731
Convenience of store location rating	41.77	19.641	0.359	0.22	0.726
Clear price labelling rating	42.1	18.767	0.454	0.31	0.713
Easy payment rating	41.76	19.318	0.496	0.333	0.712
Employee courtesy rating	42.25	17.828	0.511	0.321	0.704
Store opening hours rating	41.72	19.403	0.456	0.326	0.716
Availability of special departments rating	42.56	19.098	0.222	0.235	0.756

Trust1

The 8 factors produced for Trust1 were tested for reliability using Cronbach's alpha (α) and calculated as 0.896, again considered as achieving a high level of internal consistency and shown in Table 5.9. The 'fit' of each item to the scale is very strong for all variables with total correlation figures greater than 0.3 for all. The "Alpha if Item Deleted" columns shows that the overall Cronbach's alpha figure would drop with the removal of any of the variables, indicating that all variables are internally consistent in determining brand trust levels.

Table 5.9: Cronbach Alpha Measures for Initial Brand Trust

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Brand meets expectations	26.38	27.109	0.575	0.555	0.891
Brand confidence	26.43	25.835	0.66	0.58	0.884
Brand never disappoints me	27.2	23.875	0.705	0.643	0.879
Brand guarantees satisfaction	26.95	24.773	0.689	0.599	0.88
Brand would be honest and sincere in addressing my concerns	27.09	23.783	0.759	0.705	0.873
Could rely on brand to solve the problem	27.18	23.625	0.762	0.753	0.873
Brand would make any effort to satisfy me	27.41	23.736	0.699	0.572	0.88
Brand would compensate me in some way for any problem with their products	27.1	25.282	0.571	0.422	0.892

Trust2

The 9 factors produced for Trust2 were tested for reliability using Cronbach's alpha (α) and calculated as 0.773, again considered as achieving a high level of internal consistency and shown in Table 5.10. The 'fit' of each item to the scale is very strong for most variables. However total correlation figures are less than 0.3 for 'The above situation is the fault of the company', 'Company be held accountable for this situation' and 'Likelihood of switching to alternative company products'. In addition the "Alpha if Item Deleted" columns shows that the overall Cronbach's alpha figure would increase with the removal of any of these variables, indicating that all variables are not internally consistent in determining brand trust levels. In particular, 'Likelihood of switching to alternative company products' shows the strongest variance and should have perhaps have been removed from the model.

Table 5.10: Cronbach Alpha Measures for Remeasured Brand Trust

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
The above situation is the fault of the company.	23.92	22.229	0.256	0.363	0.776
Company should be held accountable for this situation	24.19	23.127	0.277	0.383	0.773
Trust that the company will take necessary action to rectify the above situation	21.31	20.595	0.477	0.46	0.749
Trust company will take the necessary measures to prevent a repeat	21.22	20.64	0.455	0.452	0.752
Likelihood of continuing to purchase the company meat products	22.81	17.343	0.639	0.462	0.718
Likelihood of continuing to purchase the companys other non meat products	21.94	17.269	0.688	0.705	0.71
Likelihood of continuing to purchase companys products	21.77	17.292	0.726	0.739	0.704
Likelihood of switching to alternative company products	22.83	23.759	-0.015	0.036	0.822
Likelihood of switching supermarket chain	22.84	18.16	0.655	0.507	0.718

Univariate Testing

Univariate testing was completed on all categorical and numerical variables versus their corresponding ServQualN, Trust1N and Trust2N. An overview of the tests used are also shown. For both Mann-Whitney and Krustal-Wallis, these compared differences between groups for nominal or ordinal independent variables, Mann-Whitney for two

groups and Krustal-Wallis for greater than 2 groups. Results are displayed in Table 5.11 below. Pearson's effect size is also shown. Spearman's correlation tests are also used to measure the strength and direction of the association/relationship between two continuous or ordinal variables. These will be discussed in more detail below.

Table 5.11: Univariate Testing of ServQualN, Trust1N and Trust2N

Independent Variables	Type of Variable	Dependent Scale Variable	ServQualN			Trust1N			Trust2N		
			Z	sig.	Effect Size	Z	sig.	Effect Size	Z	sig.	Effect Size
Gender (adjusted)	***Nominal***	Mann-Whitney	-0.706	0.48	0.0	-0.233	0.816	0.0	2.236	0.025	0.1
MeatorNot	***Nominal***		-0.957	0.339	-0.1	-1.296	0.195	-0.1	-0.529	0.597	0.0
Age Bracket	***Ordinal***	Krustal-Wallis	4.857	0.434	0.3	7.657	0.176	0.5	6.313	0.277	0.4
Employment Status	***Nominal***		8.061	0.089	0.5	11.373	0.023	0.7	5.788	0.216	0.4
Income Level	***Nominal***		7.526	0.376	0.5	7.104	0.418	0.4	10.224	0.176	0.6
Area of Ireland	***Nominal***		4.096	0.251	0.2	1.463	0.691	0.1	10.452	0.015	0.6
Highest Education Level	***Nominal***		9.663	0.085	0.6	3.637	0.603	0.2	9.978	0.076	0.6
Choice of Supermarket	***Nominal***		11.954	0.018	0.7	21.697	0	1.3	2.926	0.57	0.2
Weekly Spend over how many people	***Nominal***		2.119	0.714	0.1	6.336	0.175	0.4	1.419	0.841	0.1
Eating Habits	***Nominal***		2.000	0.572	0.1	3.899	0.273	0.2	1.399	0.706	0.1

It can be shown that there are differences between groups for supermarket choice on a service quality scale as $p<0.05$. Pairwise comparisons were performed using Dunn's (1964) procedure with a Bonferroni correction for multiple comparisons. Adjusted *p*-values are presented. This post hoc analysis revealed statistically significant differences in ServQual scores between Tesco and SuperValu scores ($p=0.047$), but not between any other group combinations (Table 5.12). All remaining variables that were compared on a ServQualN scale did not shown any statistically significant differences between groups. However, it can be seen that "Highest Education level", "Choice of Supermarket", "Weekly spend over how many people" and "Eating Habits" show large effect sizes (>0.5 as per Mayers 2013).

Table 5.12: Mean Comparison for ServQual across Supermarket Chains

Sample1-Sample2	Test Statistic	Std. Error	Std. Test Statistic	Sig.	Adj.Sig.
Tesco-Dunnes Stores	15.499	14.901	1.040	.298	1.000
Tesco-Aldi	36.473	14.543	2.508	.012	.121
Tesco-Lidl	37.800	14.610	2.587	.010	.097
Tesco-Super Valu	42.539	15.062	2.824	.005	.047
Dunnes Stores-Aldi	20.974	15.025	1.396	.163	1.000
Dunnes Stores-Lidl	22.301	15.090	1.478	.139	1.000
Dunnes Stores-Super Valu	27.040	15.528	1.741	.082	.816
Aldi-Lidl	1.327	14.737	.090	.928	1.000
Aldi-Super Valu	-6.066	15.185	-.399	.690	1.000
Lidl-Super Valu	-4.740	15.249	-.311	.756	1.000

For Trust1N it can be seen that there is a statistically significant difference between groups for employment status ($p=0.023<0.05$). However, a Pairwise comparisons of the between variable groups shows no evident difference between any two variables as shown below in Table 5.13. All remaining variables that were compared on a Trust1N scale did not shown any statistically significant differences between groups. However, it can be seen that “Age Bracket”, “Employment Status” and “Choice of Supermarket” show large effect sizes (Pearson’s r effect size>0.5 as per Mayers 2013).

Table 5.13: Mean Comparison for Trust1N across Employment Status

Each node shows the sample average rank of Employment Status.

Sample1-Sample2	Test Statistic	Std. Error	Std. Test Statistic	Sig.	Adj.Sig.
Not in paid employent-In paid employment	56.484	35.098	1.609	.108	1.000
Not in paid employent-Full-time student	99.800	40.874	2.442	.015	.146
Not in paid employent-Retired	-104.200	49.125	-2.121	.034	.339
Not in paid employent-Other (please specify)	-109.729	45.481	-2.413	.016	.158
In paid employment-Full-time student	43.316	22.121	1.958	.050	.502
In paid employment-Retired	-47.716	35.098	-1.360	.174	1.000
In paid employment-Other (please specify)	-53.244	29.785	-1.788	.074	.738
Full-time student-Retired	-4.400	40.874	-.108	.914	1.000
Full-time student-Other (please specify)	-9.929	36.414	-.273	.785	1.000
Retired-Other (please specify)	-5.529	45.481	-.122	.903	1.000

Each row tests the null hypothesis that the Sample 1 and Sample 2 distributions are the same.
Asymptotic significances (2-sided tests) are displayed. The significance level is .05.
Significance values have been adjusted by the Bonferroni correction for multiple tests.

It can be shown that there are differences between groups for supermarket choice on a Trust1N scale as $p<0.05$. Pairwise comparisons were performed using Dunn's (1964) procedure with a Bonferroni correction for multiple comparisons (as per Table 5.14). Adjusted *p*-values are presented. This post hoc analysis revealed statistically significant differences in Trust1N scores between the Tesco and Lidl scores ($p=0.010$) and Tesco and SuperValu scores (p shown to be 0.000 but in reality $p<0.005$), but not between any other group combinations. All remaining variables that were compared on a Trust1N scale did not shown any statistically significant differences between groups. However, it can be seen that “Income level”, “Area of Ireland” and “Highest Education Level” show large effect sizes (Pearson’s r effect size>0.5 as per Mayers 2013).

Table 5.14: Mean Comparison for Trust1N across Supermarket Chains

Sample1-Sample2	Test Statistic	Std. Error	Std. Test Statistic	Sig.	Adj.Sig.
Tesco-Aldi	34.389	14.552	2.363	.018	.181
Tesco-Dunnes Stores	37.589	14.910	2.521	.012	.117
Tesco-Lidl	48.163	14.619	3.295	.001	.010
Tesco-Super Valu	67.088	15.071	4.451	.000	.000
Aldi-Dunnes Stores	-3.200	15.034	-.213	.831	1.000
Aldi-Lidl	13.773	14.745	.934	.350	1.000
Aldi-Super Valu	-32.699	15.194	-2.152	.031	.314
Dunnes Stores-Lidl	10.574	15.099	.700	.484	1.000
Dunnes Stores-Super Valu	29.499	15.538	1.899	.058	.576
Lidl-Super Valu	-18.926	15.258	-1.240	.215	1.000

There are also differences between groups for gender on a Trust2N scale as $p<0.05$. Finally, differences between groups for "area of Ireland" also show differences between groups. Pairwise comparisons were performed using Dunn's (1964) procedure with a Bonferroni correction for multiple comparisons (in Table 5.15). Adjusted *p*-values are presented. This post hoc analysis revealed statistically significant differences in Trust2N scores between the Dublin and Munster scores ($p=0.008$), but not between any other group combinations. All remaining variables that were compared on a Trust2N scale did not shown any statistically significant differences between groups.

Table 5.15: Mean Comparison for Trust2N across Area of Ireland

Sample1-Sample2	Test Statistic	Std. Error	Std. Test Statistic	Sig.	Adj.Sig.
Munster-Leinster (outside Dublin)	-27.496	16.571	-1.659	.097	.582
Munster-Connaught	-36.729	23.988	-1.531	.126	.754
Munster-Dublin	39.095	12.173	3.212	.001	.008
Leinster (outside Dublin)-Connaught	-9.233	25.034	-.369	.712	1.000
Leinster (outside Dublin)-Dublin	11.598	14.124	.821	.412	1.000
Connaught-Dublin	2.365	22.367	.106	.916	1.000

Next a Spearman's rank-order correlation was run to assess the relationship between a number of continuous variables as shown in Figure 5.16 below.

Table 5.16: Spearman's Correlation for Continuous Variables[3]

Variable 1	Variable 2	Correlation Coefficient	Sig Value	Correlation Significant
Weekly Spend	ServQual	0.02	0.743	No
Weekly Spend	Trust1N	0.016	0.797	No
Weekly Spend	Trust2N	-0.013	0.832	No
ServQual	Trust1N	0.606	0**	Yes
ServQual	Trust2N	0.302	0**	Yes
Trust1N	Trust2N	0.343	0**	Yes

Preliminary analysis showed the significance value between Weekly Spend and all three dependent variables to be non-monotonic (as assessed by visual inspection of scatterplots below) and significance values to be greater than 0.05 i.e. no statistically significant correlation between weekly spend and any of the variable ServQualN,

[3] Whilst SPSS displays the level of statistical significance (p-value) of the correlation coefficient in this example as .000, this actually indicates that $p < .0005$ and thus $p < .05$. This concludes that the correlation coefficient is statistically significantly different from zero and there is a statistically significant, strong positive correlation between variables.

Trust1N or Trust2N. Scatter plots of each of these dependent variables versus Weekly spend are shown in Appendix G.

Having established that there was no linear correlation between weekly spend and any of the three dependent variables, each of these dependent variables were tested against each other. There was a monotonic relationship (as assessed by visual inspection of scatterplots below) and a statistically significant relationship between ServQualN/Trust1N, Trust1N/Trust2N and ServQualN/Trust2N with $p<0.005$ in all cases. Therefore, we can reject the null hypothesis that there is no statistically significant relationship between variables.

The strong positive correlation between ServQual and Trust1N was highest at 0.606, followed by the relationship between Trust1N and Trust2N (0.343) and lastly the relationship between ServQual and Trust2N (0.302). These relationships are also shown in the monotonic scatter plots shown in Appendix H.

It can be assumed that service quality will be a determinant in brand trust levels both before and after the introduction of the food scandal and it will thus be introduced as an element of the regression model for Trust1N and Trust2N in the next section. In addition, choice of supermarket chain may have an impact as this showed differences between groups in determining service quality levels and will thus be included in the regression model for both Trust1N and Trust2N. As there was a difference between groups for “employment status” and “spend over how many people”, these too will be included in the initial brand trust regression model (Trust1N). Finally, gender and area of Ireland will also be included in the regression model for trust after the introduction of the food scandal (Trust2N), along with the other

variables called out above. In addition to this forced entry method, backward entry, forward entry and stepwise entry will also be completed (Boslaugh and Watters, 2008).

Multiple Linear Regression

Table 5.17 below shows all regression models which were developed throughout the analysis for each of the three dependent variables: ServQualN, Trust1N and Trust2N.

Table 5.17: Overview of all Regression Models

						95.0% CI		Pearson	Collinearity Statistics	
	β	p	t	B	SE	Lower	Upper	correlation	Tolerance	VIF
ServQualN as dependent variable										
Model 1:										
(Constant)		0.003	1.164	0.153	0.132	-0.106	0.413			
Supermarket Choice: Lidl	0.009	0.000	0.122	0.023	0.187	-0.346	0.391	0.089	0.634	1.577
Supermarket Choice: Super Valu	-0.006	0.147	-0.075	-0.015	0.193	-0.394	0.365	0.066	0.652	1.533
Supermarket Choice: Dunnes Stores	-0.1	0.008	-1.328	-0.253	0.191	-0.629	0.122	-0.048	0.646	1.548
Supermarket Choice: Tesco	-0.205	0.151	-2.696	-0.498	0.185	-0.862	-0.134	-0.181	0.626	1.597
Supermarket Choice: Aldi					Excluded from model by SPSS					
r^2=0.042, Adjusted r^2=0.028, Durbin-Watson=1.696, p=0.022										
Trust1N as dependent variable										
Model 1:										
(Constant)		0.865	0.171	0.028	0.166	-0.298	0.355			
Q6=In paid employment	-0.096	0.037	-2.098	-0.305	0.145	-0.592	-0.019	-0.106	0.981	1.019
Supermarket Choice: Lidl	0.125	0.031	2.17	0.308	0.142	0.029	0.588	0.092	0.625	1.599
Supermarket Choice: Aldi	0.059	0.306	1.026	0.145	0.142	-0.134	0.424	0.007	0.621	1.609
Supermarket Choice: Super Valu	0.198	0.001	3.497	0.512	0.146	0.223	0.8	0.173	0.645	1.55
Supermarket Choice: Dunnes Stores	0.117	0.039	2.072	0.297	0.143	0.015	0.579	-0.015	0.651	1.536
Supermarket Choice: Tesco					Excluded from model by SPSS					
ServQualN	0.624	0.000	13.450	0.624	0.046	0.533	0.716	0.648	0.957	1.044
r^2=0.459, Adjusted r^2=0.447, Durbin-Watson=2.007, p<0.0005										
Model 2:										
(Constant)		1	0	3.552E-06	0.047	-0.092	0.092			
ServQualN	0.648	0.000	13.916	0.648	0.047	0.557	0.74	0.648	1.000	1.000
r^2=0.42, Adjusted r^2=0.418, Durbin-Watson=1.999, p<0.0005										
Trust2N as dependent variable										
Model 1:										
(Constant)		0.495	0.683	0.056	0.082	-0.106	0.218			
ServQualN	0.109	0.135	1.498	0.108	0.072	-0.034	0.251	0.292	0.576	1.737
Trust1N	0.308	0.000	4.25	0.307	0.072	0.165	0.449	0.37	0.579	1.726
Gender (adj.)	0.13	0.020	2.348	0.277	0.118	0.045	0.51	0.137	0.985	1.016
Area of Ireland: Munster	-0.215	0.000	-3.777	-0.534	0.141	-0.812	-0.256	-0.2	0.937	1.067
Area of Ireland: Leinster (outside Dublin)	-0.076	0.185	-1.33	-0.221	0.166	-0.549	0.106	-0.008	0.937	1.068
Area of Ireland: Connaught	-0.01	0.857	-0.18	-0.047	0.26	-0.56	0.466	0.018	0.963	1.038
Area of Ireland: Dublin					Excluded from model by SPSS					
r^2=0.207, Adjusted r^2=0.189, Durbin-Watson=2.047, p<0.0005										
Model 2:										
(Constant)		1.000	0.000	-1.10E-05	0.057	-0.112	0.112			
ServQualN	0.091	0.224	1.22	0.091	0.075	-0.056	0.239	0.289	0.580	1.725
Trust1N	0.304	0.000	4.069	0.304	0.075	0.157	0.452	0.364	0.580	1.725
r^2=0.137, Adjusted r^2=0.131, Durbin-Watson=2.116, p<0.0005										
Model 3:										
(Constant)		1.000	0	-1.09E-05	0.057	-0.112	0.112			
Trust1N	0.364	0.000	6.377	0.364	0.057	0.251	0.476	0.364	1.000	1.000
r^2=0.132, Adjusted r^2=0.129, Durbin-Watson=2.107, p<0.0005										

Model 1 for ServQualN in Table 4.5 above uses purely supermarket choices (dichotomised variables) as a predictor of service quality levels. This was the only variable with differences between means in the univariate testing, thus it was the only one to be used in the regression analysis. Consistent with the hypotheses from the univariate analysis, choice of supermarket is a statistically significant predictor of service quality levels i.e. the ANOVA f-test shows that the model is significantly better at predicting the outcome than using the means as a best guess. This was seen through the p-value of 0.022 and thus less than 0.05.However, using purely supermarket choices explained only 4% of the variance in service quality scores (p=0.022) with an adjusted R-square value of 0.028. The beta co-efficients do not provide a strong predictor effect on the dependent variable with values of +0.009, -0.006, -0.1 and -0.205 for Lidl, Super Valu, Dunnes Stores and Tesco respectively. That is to say that one unit variable change in Lidl would result in a 0.009 increase in service quality etc. In addition, only Lidl and Dunnes Stores added statistically significantly to the prediction with $p < .05$. Aldi was excluded from the SPSS model as a predictor of service quality levels.

Next, the regression model for initial brand trust measure Trust1N was developed using a mix of those variables which had a statistically significant difference in means between groups in the univariate testing above.

Model 1: This model will be assessed to see which variables are adding a benefit to the model in terms of understanding the multivariate linear relationship between variables. The input variables were the dichotomous supermarket choice options and service quality scores (ServQualN) as per Table 5.17. Model 1 shows 46% of the variance in

initial brand trust scores with an adjusted r squared value 0.447. The model as a whole was statistically significant with a p-value of <0.0005. However it can be seen that service quality is the strongest contributing predictor within our data with $\beta = 0.624$ and $p<0.0005$ (shown as 0.000)). In this case, for every one unit change in service quality, initial trust score will increase by 0.624. Thus, service quality is a statistically significant predictor for initial brand, after adjusting for other factors. So too are Lidl and Super Valu as supermarket choice options with p-values of less than 0.05. However, their predictor effects are quite low with beta values of 0.125 and 0.198 respectively. Tesco was excluded from the model as it did not provide any additional statistical impact.

Model 2: Conversely, only including service quality as a variable in the regression model (Model 2), accounts for 42% of the variation in initial brand trust scores (p shown as 0 means $p<0.0005$). This model was thus statistically significant since $p<0.05$. This model will be used given its very similar predictive capabilities to Model 1 (42% versus 46% of variance explained). In addition, it is a more parsimonious model. A parsimonious model is a model that accomplishes a desired level of explanation or prediction with as few predictor variables as possible (Mayers 2013).

Finally, a regression model was developed for remeasured brand trust scores (Trust2N) using a mix of those variables which had a statistically significant difference in means between groups in the univariate testing above. This model was then assessed to see which variables were adding a benefit to the model to understand the multiple linear relationship between variables.

Model 1: The results of the initial multiple linear regression analysis are displayed in Table 5.17. Gender (adj), Trust1N, ServQualN and area of Ireland variables were used in Model 1 which explained 20.7% of the variance in initial brand trust scores with a significance value of 0 (this is $p<0.0005$). The model as a whole was thus statistically significant with a p-value<0.05. However, it can be seen that service quality, gender and living in Munster are all statistically significant variables within our model with $p<0.05$ in all cases i.e. gender, Munster residency and Trust1N are statistically significant predictors for remeasured brand trust scores, after adjusting for other factors. Trust1N is the strongest predictor of Trust2N with a beta value of 0.308 i.e. for every one change in Trust1N, Trust2N will increase by 0.308 units.

Model 2: Conversely, only including service quality and Trust1N as variables in the regression model (Model 2), still accounts for 13.7% of the variation in initial brand trust scores (p shown as 0 means $p<0.0005$). This model was thus statistically significant since $p<0.05$.

Model 3: Finally, initial brand trust scores (Trust1N) alone accounts for 13.2% of the variation with a Durbin-Watson score of 2.107. The Durbin-Watson statistic shows that there was independence of residuals in this case as the score is close to 2 (Mayers 2013). In this case a one unit change in Trust1N will predict a 0.364 unit increase in Trust2N (beta=0.364).

CHAPTER SIX: DISCUSSION

This chapter will present a discussion of key findings from the study. This will be split into a number of discussion sections covering key aspects of univariate analysis and regression analysis. Interesting trends and results will be presented with contrasting or colluding evidence from the literature provided where appropriate.

6.1 Demographic, Socio-economic and Lifestyle Factors

A number of key insights were gleaned from the descriptive statistics results. Firstly, 37.9% of the respondents were in the age category 25 to 34 and female. The remaining respondents in the age bracket 25-34 and male make up 16% of the entire sample. This is likely attributable to the distribution to the researcher's direct peer group (convenience sampling) combined with snowball sampling. In total, the 25-34 age bracket accounts for 54% of all observations. This is in contrast to nationally representative sampling techniques which may aim to provide a demographic, age and regional representation of the population as a whole, for example through pre-qualifying questions and quota sampling methods. Therefore the limitations of the following conclusions must be understood in terms of their applicability to a nationally representative sample of the population.

Next, the split of supermarket choice across respondents was quite interesting. Whilst the sample presented quite an even split across choices (Lidl 20.4%, Aldi 20.8%, Super Valu 18.2%, Dunnes Stores 19.0% and Tesco 21.6%), this was in contrast to the most recent figures as prepared by Kantar's 12-week rolling market figures are shown below in Table 6.1 and in Appendix A. By redistributing the data

to only include the top five supermarket chains, it is clear that this sample shows a higher inclination towards shopping in Aldi and Lidl than the overall population.

Table 6.1: Market Share of Supermarket Chains

	Actual % of Population	Redistributed	Current Study
Super Valu	21.1%	23.7%	18.2%
Tesco	21.6%	24.2%	21.6%
Dunnes Stores	21.8%	24.4%	19.0%
Aldi	12.5%	14.0%	20.8%
Lidl	12.2%	13.7%	20.4%
Other Outlets	10.8%	n/a	n/a

It is possible that this may be reflective of the age demographic of the group and potential price elasticity traits. As can be seen in Cleeren et al (2010), Aldi and Lidl are considered discount retailers and are thus perceived as being a lower price option. The measurement of the importance of price competitiveness is shown in Table 5.6 where 55.4% of respondents cited this factor as very important and a further 40.1% considered it as important. This is notable given that 56% earn in excess of €45,000 which is 25% higher than the 2018 average annual earnings of €38,879 (as provided by the CSO 2019). No reliable median figure could be found.

A further aspect which could be considered is the relatively low basket size where 34.6% spent in the €31-60 price bracket. This may relate to the demographic of the sample where their age and urban profile results in a lower expenditure on groceries and a higher than nationally representative spend on non-grocery food i.e. restaurants and in home delivery. This may indicate that the dominant cohort of the sample is price conscious to grocery spend and this results in a

higher attribution of significance towards this factor i.e. higher proportion of Aldi and Lidl weighting across this peer group.

In addition, this sample had a relatively low proportion of vegetarians and vegans in comparison to the national average as computed by Bord Bia (2018). Bord Bia computed that 4.2% of the population were vegetarian and a further 4.1% vegan versus 2.2.% (vegetarian) and 0.7% (vegan) in this sample. However this sample contained a proportionally higher number of respondents (11.2%) which had chosen the rebalancer approach as highlighted by Bord Bia. This category includes those who eat "some meat and/or dairy but in a fairly limited fashion with an effort made to reduce meat and/or dairy" (8.2%). Whilst it is difficult to understand the exact motivations of those who did not eat a primarily meat and fish based diet, it is a good relative comparison. In general the fact that the vast proportion eat a wide range of foods including meat and fish (85.9%) might indicate that this would sway their remeasured brand trust levels further.

6.2 Service Quality Levels Comparison across Supermarket Chains

Next the trends across service quality and brand trust are discussed. As reflected in Table 5.5, service quality levels remain strong across all stores. From an overall total possible score of 55, average service quality levels across all supermarkets was 46.22. Interestingly, Aldi and Lidl had the highest scores in this case by a small margin (though not statistically significant), followed by Super Valu, Dunnes Stores and Tesco. This is interesting considering that Aldi and Lidl are

considered the discount retailers. Min (2010) also showed in his analytic hierarchical process that price was considered third in levels of importance versus remaining ten items of the construct. Despite this, it would seem that customers perceive that their service is still of a higher quality than respondents who shopped in alternative stores. This may be explained by the Parasuraman, Berry and Zeithaml (1988) model which contrast a customer expectations versus perceptions. In this case service quality perceptions are baselined versus the business or store with which the customer is dealing. As a result, each customer is comparing to an expectation of the service quality they may expect from the chosen store versus what they perceive as the end result of their retail experience. Wilson et al (2016) quote this as the zone of tolerance which a customer has between what they expect and what they perceive to receive from a service experience. Different stores may have different service level expectations attached to them due to having a higher expected price point i.e. discount versus non-discount retailer. In this case an exemplary customer service experience in a discount retailer may inflate the service quality perceptions reported.

Components of service delivery process and actual outcome of service (as proposed by Grönroos, 1984) are measured in the survey. Adding a third component -price- facilitates a holistic review of each supermarket chain. Supermarket chain is considered as a sole input to the service quality regression model but does not display much predictive power (4.2%). Service quality experiences will vary across all retailers and each respondent's biases, personal preferences and expectations will determine their aggregate view of service quality levels. Only by having each respondent judge service quality across a number of supermarket chains using uniform metrics could the

researcher provide a comparable view of service quality across supermarket chains.

6.3 Initial Brand Trust Levels

The following section will comment on the interesting characteristics and results which came out of this study relating to initial brand trust. Initially univariate analysis was conducted which showed that there was some differences between means for employment status, supermarket choice and service quality levels. As established previously, supermarket choice is a predictor of service quality so this is thus a factor within initial brand trust levels as a result. This initial model which uses supermarket choice, paid employment and service quality accounts for 46% of the variance in initial brand trust trusts. However, removing supermarket choice and employment status and leaving service quality as a single variable can predict for 42% of initial brand trust levels and is thus used as the most parsimonious model in predicting initial brand trust levels.

Conversely, Ikramuddin (2017) brings forward a model where service quality and brand trust are both contributing determinants of brand loyalty. In addition, Chi et al (2009) explore the effects between brand awareness, perceived quality, brand loyalty/trust and customer purchase intention. The results showed strong relationships between brand awareness, perceived quality, brand loyalty and ultimate purchase intention are significant and positive effect. In addition, perceived quality has a positive effect on brand loyalty and trust levels. Despite the use of several demographic and socio-economic factors in the model and their effect on initial brand trust when tested on a univariate level, it can be shown that service quality is in fact the

key driver of initial brand trust levels. However, it is clear that there are other determinants which will decide this. Examples include corporate image and advertising campaigns which will impact customer decision making and trust levels (Lovelock and Wirtz, 2011 and Wilson et al, 2016). Other determinants are not captured for within this study.

Finally, being in paid employment appears to have an impact on initial brand trust levels. This is not a topic which appears in the literature but it was evident through both differences in means within univariate analysis and through use within the regression model. However, it has a very low tempering effect on initial brand trust levels with a beta value of -0.096 and r square value of 0.011 i.e. being in paid employment explains 1.1% of the variation in initial brand trust levels and being in paid employment results in a 0.096 drop in service quality levels. As discussed above, this is not considered particularly relevant and it is removed in the second regression model for initial brand trust levels.

Initial brand trust levels is computed based on the respondents answers to eight component questions with a max score of 40. Average figures show an arithmetic mean of 30.82 (77% rating). Interestingly, Super Valu brand trust has the highest average in this case at 32.88, followed by Lidl (31.84), Aldi (30.89), Dunnes Stores (30.65) and Tesco (28.19). In both cases of service quality and initial brand trust score, Tesco scored lowest in the group although there was not a strong statistical difference between all five supermarket chains. Interestingly, Tesco have launched a discount retailer in the UK called Jack's which will rival discount retailers Aldi and Lidl and provide a low cost alternative to the traditional Tesco stores (Butler and

Wood, 2018). It is noted that they are following this approach to win-back more price sensitive customers as they are targeting Aldi and Lidl within their competitive strategy but this study suggests that there may be a more worrying service quality and brand trust in place, however marginal. It is clear that this has a low effect with all beta values explaining at most 3% of the variation in initial brand trust levels (Super Valu r square value of 0.029).

6.4 Remeasured Brand Trust Levels

Table 5.5 shows the remeasured brand trust levels following the introduction of the hypothetical food scandal. This was completed in an attempt to introduce a lever based on safety to assess whether it would undermine the underlying brand trust levels.

Computing a new brand trust variable using the nine component questions covering behaviour intention and loyalty levels, this new variable has a maximum score of 45. The average score is 25.35 across all retailers (56%) with respondents being requested to reanalyse their views following introduction of a hypothetical food safety scandal. This was subjected to reliability testing using Cronbach's alpha where a value over 0.7 was shown, thus implying strong internal consistency across the construct. This implies a 21% drop in trust levels versus previous. This type of analysis would be useful to compare actual and hypothetical scandals and to better gauge the magnitude in brand trust scoring. This is an angle which is often left unexplored in the literature.

In actuality, there are a number of corporate scandals and controversies which can be compared against in analysing these results. One example include that by Wang and Alexander (2018)

which focuses on the infant milk formula scandal of 2008. Firstly, they highlight the research gap within the literature which shows there is no reliable framework to help rebuild consumer confidence after food safety scandals. However, examples such as the BSE crisis resulted in a number of government led initiatives to strengthen food safety and assurance across the supply chain. An example of this is the quality assurance labelling introduced after the egg salmonella scandal (Trinity 2003).

Whilst marketing campaigns may be implemented in the wake of a corporate scandal announcement, they are rarely successful in addressing this problem (Falkheimer and Heide, 2015). However, Guckian et al (2017) determine that the role of corporate culture and the "blame" culture is important in determining ultimate consumer loyalty levels. Where the number of parties responsible for the scandal being low (or "bad apples"), rather than a prevalence and contagion of wrongdoing across the organisation, this can somewhat protect the firm's reputation. In the case of Volkswagen for example, communication of the fact that a small subset of the organisation had been involved in the wrongdoing meant that customers reported higher expectations of future ethical action by the brand, less anger towards what had happened and more likelihood to repurchase in the future.

Finally, a further interesting finding here was that whether the respondent ate meat or not had no statistical impact on their retested brand score. It had been assumed that not eating meat would create an oblivion effect as to the impact of the hypothetical scenario. However, this did not show any statistical relation to the remeasured brand score or mediate it in any way i.e. their brand trust dropped at

a level comparable to that of those who ate meat. Studies such as Wang and Alexander (2018) highlight the magnitude of food safety scandals in determining drop in trust across consumers. The evident food tampering in this case has caused this blanket drop in brand trust levels. Li et al (2017) also address the role of government regulation (as referenced above), corporate crisis management, and media coverage following the announcement which determine ultimate customer purchase intention.

6.5 Managerial Implications and Conclusions

As established within the marketing literature, underlying service quality levels (inclusive of product and price elements) play a core role in consumer decision making and purchase intention (Wilson et al, 2016, Lovelock and Wirtz, 2011). In addition, service quality plays a core role in driving long term customer loyalty and driving up customer lifetime value. This is covered in depth through Gupta and Zeithaml (2006) where a review was conducted on the link between customer satisfaction, service quality and firm performance. Through this review it was shown that customer satisfaction has a positive impact on firm performance and the link between customer satisfaction and firm performance is asymmetric (i.e. increases in customer satisfaction will not have the same impact on firm performance as decreases). As a result it is important to maintain customer satisfaction levels to ensure long-term performance. This can be achieved in part by ensure high service quality levels. As shown through this study, service quality also plays a core role in predicting brand trust levels. Given the clear links between brand trust, customer

satisfaction and ultimate purchase intentions, it is important that service quality levels are maintained or in fact raised where possible.

Mañez et al (2016) note that implementing service strategies can give retailers a competitive advantage. Whilst all supermarket chains are targeting a similar target audience and offer relatively homogenous product ranges, there are many service based components which will yield consumer benefits which could provide a focus to management. Examples include a focus on store characteristics and atmospherics in store (Gonzalez-Benito, Munoz-Gallego and Kopalle, 2005 and Gijsbrechts, Campo and Nisol, 2008) and price competitiveness (Cleeren et al, 2010). For example, Aldi have implemented changes to their checkouts to allow for packing of groceries at the point of checkout which in turn results in higher levels of consumer satisfaction. The results from Mañez et al (2016) show that stores of higher service quality can offer the sambrands at higher prices. Examples of those that may have been perceived as having "lower" service quality levels include Aldi or Lidl, where the quantity of floor staff is lower, the number of cash registers is lower and queues are longer and more frequent. However this is not apparent within this study where respondents have baselined their service quality perceptions versus initial expectations. However, Dunnes, Super Valu and Tesco can charge higher premiums for their products as they have these intangible benefits in place.

An example of this is an Irish Times interview (Pope 2019), where the consumer insights agency Kantar notes a positive uplift in Tesco and Super Valu's revenue share in 2018: "Shoppers swayed towards shorter and more frequent grocery trips during last year's good weather to the benefit of Tesco and SuperValu, which typically boast

higher levels of shopper frequency". Time and convenience will often remain a key factor for customers in their decision making and purchase intention.

In summary, service quality, product quality and price will always play a part in ultimate customer satisfaction and loyalty levels (Wilson et al, 2016). As a result these are always important considerations from a supermarket managerial context. Finally, there are a number of other intangible decisions that a customer will make when choosing a supermarket. This is explained through the value function as proposed by Kahneman and Tversky (1979), which contrasts to the traditional utility function from economic theory which focuses primarily on the absolute wealth or consumption of the subject. In this case the perceived gains and losses of attending a certain supermarket relative to another natural reference point (your usual supermarket) is important. In this case, the reference point can use framing effects to affect their choice e.g. perceive that queuing time is longer in Aldi than Tesco and choose not to move despite a perceived cost saving. Other assumptions such as the contrast between perceived gains and losses where losses are perceived as larger than gains is important in that a customer may be less likely to accept the loss in time over a potential increase in savings (by switching).

CHAPTER SEVEN: CONCLUSIONS AND FURTHER RESEARCH CONSIDERATIONS

7.1 Conclusions

The following study was rewarding to the researcher for many reasons. Firstly, it was a successful study of consumer behaviour and public opinions across Irish supermarket chains. Despite the fact that these five core supermarket chains accounted for a combined grocery revenue of €10.85bn in 2018 (an increase of 2.8% from 2017 as per Quinn, 2019), no other academic study has been conducted on service quality and brand trust levels across Irish supermarket chains. This fact was established in the literature review and throughout the study and the study chosen due to the gap evident throughout the literature. Whilst adding to the marketing literature, it also combines this with a behavioural economics framing problem and reassesses the effects of this on the respondent through use of a hypothetical construct to "sway" brand trust levels.

The Irish supermarket marketplace is an oligopolistic one where there are a small number of large sellers which sell relatively homogeneous products. Such markets often result in highly competitive retail environments with all competitors vying for market share. This is evidenced by the arrival of Aldi and Lidl to the supermarket space, clear price discounters relative to alternative options. Whilst Kantar Worldpanel has maintained a longitudinal record and analysis of market share across supermarket chains this does not account for the underlying behavioural constructs and consumer preferences which are evident within these choices. This study is successful in doing so.

The following study provided a strong analysis of service quality and brand trust levels in the context of a hypothetical food scandal. The reactions of 269 respondents were analysed in determining patterns and insights from the underlying data. As a whole, relative service quality across all supermarket chains did not change drastically and supermarket choice could only account for 4.2% of the variance in service quality levels. This is interesting as it highlights that consumers will determine a subset of components which they deem as important to them and choose a supermarket in accordance with this. Relative to this individual importance level, the group's service quality is generally quite consistent across all supermarket chains. This is an interesting observation.

As discussed in the literature review, marketing and behavioural economics contrast with the traditional economic view that consumers will choose based on elements other than price and that service quality and customer satisfaction will provide more of an impact in decision making. Despite this, relatively more of this sample are shown to choose discount retailers than the general population and as a whole the sample indicate that product quality and price competitiveness are the most important factors in choosing a supermarket option (Table 5.6). It is clear that most act economically rationally rather than the more intangible elements such as availability of special departments and fast checkout in keeping with the economic mindset.

It is also worth noting that there is a high proportion of customers who have a relatively low basket size. As a result it may be difficult to determine the levels of importance they place of grocery shopping versus other spending needs given the low relative cost. Despite this,

it has been shown that this sample has a higher than average salary level but will still place high value on price competitiveness which is interesting to note.

This study also determines that service quality and initial brand trust levels have the highest statistically significant relationship in terms of predictive power. Other components such as supermarket choice had a slight influence but as a whole the service quality component explained 42% of the variance in initial brand trust versus 46% of variance including supermarket choice and employment status (in paid employment or not). This shows key learnings for supermarket chains as to the influence of continued focus and improvements in service quality levels to boost overall brand trust and increase customer loyalty. This will in turn increase long term spend and longterm customer lifetime value.

It is interesting to note that the service quality levels of the Irish supermarket chain (Super Valu) is no higher than others, despite continued investment in promoting local produce and suppliers. A study investigating this component may be interesting in the future.

Finally, it is interesting to note that brand trust levels fell at a similar amount across all supermarket chains. Again, service quality levels are a key determinant in driving remeasured brand trust levels as well as initial brand trust levels. Since service quality levels are consistent across chains and product quality and price most important, it is understandable that the likelihood of switching relatively uniform should the consumer receive news of a brand scandal. In this case if the product quality is at risk their likelihood of switching increases drastically, particularly given that other chains show relatively

consistent service quality perceptions across the sample. Again it was interesting to note that the drop in brand trust was relatively consistent across all retailers, probably consistent with their initial service quality costs. At this point it may be worth investigating the role of perceptions versus expectations as per Parasuraman (1985). A suggestion would be to use Marks and Spencer as a supermarket chain option in a future study. Marks and Spencer is a smaller player in the market which has consistently focussed on marketing higher quality (and as a result higher price goods) in the market. It may be interesting to note if their service quality levels were higher to start (increased perception in line with inflated expectations) and if this is the case that their brand trust levels drop at a higher proportional level than competitors i.e. increasing spend to match product quality and a later betrayal of this trust will have a higher relative impact that other relatively homogeneous suppliers with similar service quality levels.

7.2 Limitations and Further Research

The following section will be split between potential limitations to the study and suggested changes that could be made in future studies in addressing these.

The first is in relation to the **sampling techniques** which were used in this study. As discussed in the methodology section, non-probabilistic sampling (snowball and convenience) was chosen due to time and cost pressures which the researcher faced. However, it was seen in the results section that this resulted in a very uniform sample with 54% of respondents in age bracket 25-34 and 67% of the sample being female. As a whole any results gleaned from this study may not be generalisable to the whole population. A suggested future approach

could be to use quota sampling and the use of pre-qualifying questions to achieve a more reflective sample for the population studied. Whilst this would cost more in terms of time it would likely result in more accurate and generalisable results for the population.

The next limitation which was exposed was in **methodological choice** and the use of purely quantitative methods. This study could be bolstered with additional qualitative methods such as interviews and/or focus groups to add to the insights and reasonings behind consumer decision making. In addition the **research design** approach included the use of online survey only. This was beneficial in terms of time and cost efficiency but thus excluded any respondents without access to internet, perhaps resulting in the younger age demographic of the group. Future studies could perhaps include paper surveys in addition.

Another limitation which was evident was the use of a **hypothetical food scandal** as opposed to the impact of a "real-life" exposure and resultant reaction to the scenario provided. In effect, the respondent is "guessing" what their actual response would be in this situation. This is a common approach taken within marketing and behavioural economics where the use of experimentation and field study commonplace in determining respondent reactions (Thaler 2016). The following study had a number of possible limitations due to this. Firstly, the introduction of the food scandal was quite brief and did not expose a huge amount of detail or background. In actuality a press release documenting the details of a "real world" food scandal will be made available to the customer through omnichannel means e.g. newspaper clippings, online news channel, social media updates, peer-to-peer communications, government actions and commercial

reaction of the company as large (as per Li et al, 2017, Falkheimer and Heide, 2017 and Guckian et al, 2017). Introduction of a more interactive approach to introducing the scandal such as multiple newspaper clippings, providing a short video or customer reactions may boost the impact of the scandal on the respondent and increase the credibility of the scenario. This could also be boosted within a proposed qualitative study where focus groups discuss the impact of the scandal in a group setting. Use of this approach could be useful to policy makers in determining more realistic reactions to how they would reaction following the scandal.

Finally, expected reaction of the consumer may not be what transpires in reality. For example the discovery of nitro furan in the output from forty-six poultry producers in Portugal resulted in a certain producer reducing the produce drastically, resulting in huge sales (Trinity, 2003). This discovery is in keeping with the traditional view of supply and demand and price correlation as addressed in the economic literature i.e. company reaction to the crisis and potential promotions in light of their produce may have little to no impact on demand levels, in fact it may inflate them. This would of course depend on the magnitude of the scandal and whether or not it is safe to continue to sell the produce.

An additional limitation is in terms of having the respondent choose a **single supermarket choice** in this study. It is difficult to understand the number of supermarkets which they may attend as only the primary choice has been studied. In many cases convenience and ease of access may determine their choices on a case-by-case basis so they may have additional supermarket choices that they choose on an equal or similar basis to their primary choice. Certain product

preferences or promotions may also drive visits to alternative supermarket options. As a whole, a future iteration of this study could address multiple supermarket options and understand their motivations for choosing multiple. In addition a comparison of service quality and brand trust levels for a specific respondent across multiple chains may prove interesting.

Finally, the **low basket size** of customers may be a limitation of this study in that it is difficult to determine the relative importance that they place on grocery shopping versus restaurant dining, convenience foods or in home delivery options. It is difficult to know what proportion of disposable income is spent across each of these categories and the relative importance of cost and quality throughout these categories. These may be an interesting addition to future studies.

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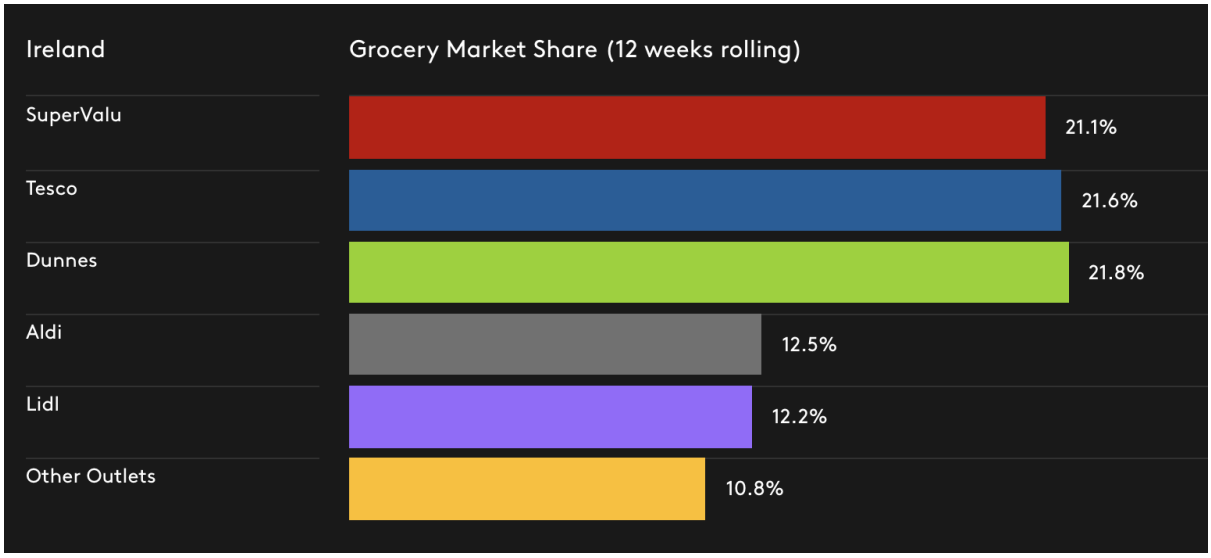
APPENDIX A: GROCERY MARKET SHARE IN IRISH SUPERMARKETS



Source: https://www.kantarworldpanel.com/ie/grocery-market-share/ireland

	Actual % of Population	Redistributed	Current Study
Super Valu	21.1%	23.7%	18.2%
Tesco	21.6%	24.2%	21.6%
Dunnes Stores	21.8%	24.4%	19.0%
Aldi	12.5%	14.0%	20.8%
Lidl	12.2%	13.7%	20.4%
Other Outlets	10.8%	n/a	n/a

APPENDIX B: QUALTRICS SAMPLE SIZE CALCULATOR

Population Size	2,000,000
Confidence Interval	95%

Margin of Error	**Required Sample Size**
1%	9,558
2%	2,398
3%	1,067
4%	601
5%	385
6%	267
7%	196
8%	151
9%	119
10%	97

APPENDIX C: SUPERMARKET SURVEY - FINAL

Start of Block: Block 1

Q1 **Participant Information Sheet**

An explanatory study of the variables which impact service quality and brand trust levels for consumers shopping in Irish supermarket chains

This page provides you with detailed information regarding the present study. Please read it fully prior to completing the questionnaire. Please note that this questionnaire should only be completed by those who regularly conduct their grocery shopping in a well-known Irish supermarket chain in the Republic of Ireland.

Who is conducting this study?

My name is Niamh Delaney and I am a final year student in the National College of Ireland's MBA program. I am completing this study in part fulfilment of my dissertation study.

What is the purpose of the study? The aim of this study is to analyse the impact of food safety scandals on an Irish supermarket customers' brand loyalty and trust levels.

Do I have to take part?

The completion of this questionnaire is entirely voluntary. If you chose to withdraw from the study while completing the questionnaire, please close your browser window. If you do wish to withdraw, the questions you have already answered will not be recorded. However, if you are happy to

complete this questionnaire, that all responses will be kept anonymous and confidential and will be stored in a secure, password protected file.

What does the questionnaire involve?

This questionnaire will take less than ten minutes of your time to complete. It involves two parts; the first to determine your supermarket chain of choice and assessment of your perceived price and service quality levels within the given chain; the second to test your trust levels of this supermarket chain and a re-assessment of these trust levels following the introduction of a hypothetical food safety scandal.

What will happen to the results of the research study?

The results will be analysed and used as part of my postgraduate dissertation for my Masters in Business Administration qualification. As explained previously, all information will be gathered anonymously and will not be linked to the candidate in any way.

Please feel free to contact me via email if you need additional information or have any questions at the following email address: niamh.delaney@student.ncirl.ie.

Page Break

Q2 This questionnaire has been sent to you by Niamh Delaney in part fulfilment of her dissertation study. The data collected will be used to understand the impact of food safety scandals on Irish supermarket customers' brand loyalty and trust levels. Do you agree to take part in this study?

- ○ I am happy to take part in this study.
- ○ I do not want to take part in this study.

Skip To: End of Block If This questionnaire has been sent to you by Niamh Delaney in part fulfilment of her dissertation s... = I do not want to take part in this study.

Q3 Do you live in Ireland?

- ○ Yes
- ○ No

Skip To: End of Block If Do you live in Ireland? = No

Q4 What is your gender?

- ○ Male
- ○ Female
- ○ Other
- ○ Prefer not to say

Q5 What is your age bracket?

- ○ <18
- ○ 18 - 24
- ○ 25 - 34
- ○ 35 - 44
- ○ 45 - 54
- ○ 55 - 64
- ○ 65+

Skip To: End of Block If What is your age bracket? = <18

Q6 What is your current employment status?

- ○ Full-time student
- ○ In paid employment
- ○ Not in paid employment
- ○ Retired
- ○ Other (please specify)

Q7 What is your current income level?

- ○ <€30,000
- ○ €30,001-45,000
- ○ €45,001-60,000
- ○ €60,001-75,000
- ○ €75,001-90,000
- ○ €90,000+
- ○ Not currently in paid employment
- ○ Prefer not to say

Q8 What area of Ireland do you live in?

- ○ Dublin
- ○ Munster
- ○ Ulster
- ○ Leinster (outside Dublin)
- ○ Connaught

Q9 What is your highest education level?

- ○ Primary education
- ○ Secondary education
- ○ Third Level education (certificate, diploma, degree)
- ○ Masters Level education
- ○ PhD or Doctorate
- ○ Other (please specify)

_____

End of Block: Block 1

Start of Block: Spending Habits

Q10 Do you regularly visit one of the following supermarket chains: Dunnes, Super Valu, Tesco, Aldi, Lidl?

- ○ Yes
- ○ No

Skip To: End of Block If Do you regularly visit one of the following supermarket chains: Dunnes, Super Valu, Tesco, Aldi,... = No

---

Q11 Which of the following Irish supermarket chains do you visit most often?

- ○ Aldi
- ○ Dunnes Stores
- ○ Lidl
- ○ Super Valu
- ○ Tesco

Q12
What is your average weekly spend in ${Q11/ChoiceGroup/SelectedChoices} (in euros)?

_____

Q13 How many people do you buy groceries for on a weekly basis? (yourself plus spouse, children etc. if applicable)

- ○ 1
- ○ 2
- ○ 3
- ○ 4
- ○ 4+

Q14 Best description of eating habits of those for which you buy groceries

- ○ Wide range diet including meat and fish
- ○ Mainly vegetarian but eat some meat/fish
- ○ Exclusively vegetarian
- ○ Vegan
- ○ Other (specify)

End of Block: Spending Habits

Start of Block: Measuring Service Quality Perception

Q15 How would you rate the following factors for ${Q11/ChoiceGroup/SelectedChoices}?

Rating of following factors for given supermarket choice

	Very Good	Good	Neither good nor bad	Bad	Very Bad
Product Quality	○	○	○	○	○
Cleanliness of the store	○	○	○	○	○
Competitive Price	○	○	○	○	○
Product Variety	○	○	○	○	○
Fast Checkout	○	○	○	○	○
Convenience of store location	○	○	○	○	○
Clear price labelling	○	○	○	○	○
Easy payment	○	○	○	○	○
Employee courtesy	○	○	○	○	○
Store Opening Hours	○	○	○	○	○
Availability of special departments (meat counter, fish counter, in-store bakery)	○	○	○	○	○

Q16 How important would you rate the following factors when choosing a supermarket option?

	Very Important	Important	Neither Important nor Unimportant	Unimportant	Very Unimportant
Product Quality	○	○	○	○	○
Cleanliness of the store	○	○	○	○	○
Competitive Price	○	○	○	○	○
Product Variety	○	○	○	○	○
Fast Checkout	○	○	○	○	○
Convenience of store location	○	○	○	○	○
Clear price labelling	○	○	○	○	○
Easy payment	○	○	○	○	○
Employee courtesy	○	○	○	○	○
Store Opening Hours	○	○	○	○	○
Availability of special departments (meat counter, fish counter, in-store bakery)	○	○	○	○	○

End of Block: Measuring Service Quality Perception

Start of Block: Trust Levels

Q17 **${Q11/ChoiceGroup/SelectedChoices}** is a brand name that meets my expectations.

- ○ Definitely
- ○ Potentially
- ○ Maybe
- ○ Potentially not
- ○ Definitely not

Q18 I feel confidence in ${Q11/ChoiceGroup/SelectedChoices} as a brand.

- ○ Definitely
- ○ Potentially
- ○ Maybe
- ○ Potentially not
- ○ Definitely not

Q19 ${Q11/ChoiceGroup/SelectedChoices} is a brand that never disappoints me.

- ○ Definitely
- ○ Potentially
- ○ Maybe
- ○ Potentially not
- ○ Definitely not

Q20 ${Q11/ChoiceGroup/SelectedChoices}'s brand guarantees satisfaction.

- ○ Definitely
- ○ Potentially
- ○ Maybe
- ○ Potentially not
- ○ Definitely not

Q21 ${Q11/ChoiceGroup/SelectedChoices} brand would be honest and sincere in addressing my concerns.

- ○ Definitely
- ○ Potentially
- ○ Maybe
- ○ Potentially not
- ○ Definitely not

Q22 I could rely on ${Q11/ChoiceGroup/SelectedChoices} to solve the problem.

- ○ Definitely
- ○ Potentially
- ○ Maybe
- ○ Potentially not
- ○ Definitely not

Q23 ${Q11/ChoiceGroup/SelectedChoices} would make any effort to satisfy me.

- ○ Definitely
- ○ Potentially
- ○ Maybe
- ○ Potentially not
- ○ Definitely not

Q24 ${Q11/ChoiceGroup/SelectedChoices} would compensate me in some way for any problem with their products.

- ○ Definitely
- ○ Potentially
- ○ Maybe
- ○ Potentially not
- ○ Definitely not

Q25 ***Consider the following hypothetical scenario and consider its impact in answering the questions that follow:***
Prosecutors have launched a criminal investigation into four stores in the ${Q11/ChoiceGroup/SelectedChoices} supermarket chain, after a television documentary revealed that they had repackaged out-of-date mince meat and put it back on the shelves in four of their stores in Ireland. ${Q11/ChoiceGroup/SelectedChoices} apologised, suspended all of its commercials and summoned all store managers to an emergency meeting in Dublin.

Q26 The above situation is the fault of the company.

- ○ Strongly agree
- ○ Agree
- ○ Neither agree nor disagree
- ○ Disagree
- ○ Strongly disagree

Q27 In your opinion, should ${Q11/ChoiceGroup/SelectedChoices} be held accountable for this situation?

- ○ Definitely
- ○ Probably
- ○ Unsure
- ○ Probably not
- ○ Definitely not

Q28 Do you trust that ${Q11/ChoiceGroup/SelectedChoices} will take necessary action to rectify the above situation?

- ○ Definitely
- ○ Probably
- ○ Unsure
- ○ Probably not
- ○ Definitely not

Q29 Do you trust that ${Q11/ChoiceGroup/SelectedChoices} will take the necessary measures to prevent a repeat of this scandal?

- ○ Definitely
- ○ Probably
- ○ Unsure
- ○ Probably not
- ○ Definitely not

Q30 Given the re-packaging situation, what is your likelihood of continuing to purchase ${Q11/ChoiceGroup/SelectedChoices}'s meat products?

- ○ Very Strong
- ○ Strong
- ○ Neither strong nor weak
- ○ Weak
- ○ Very weak

Q31 Given the re-packaging scenario, what is your likelihood of continuing to purchase ${Q11/ChoiceGroup/SelectedChoices}'s other (non-meat) products?

- ○ Very Strong
- ○ Strong
- ○ Neither strong nor weak
- ○ Weak
- ○ Very weak

Q32 Given the re-packaging scenario, what is your likelihood of continuing to purchase ${Q11/ChoiceGroup/SelectedChoices}'s products?

- ○ Definitely purchase
- ○ Probably purchase
- ○ Unsure if I would purchase
- ○ Probably not purchase
- ○ Definitely not purchase

Q33 How likely would you be to switch to alternative ${Q11/ChoiceGroup/SelectedChoices} products following the above situation?

- ○ Very likely
- ○ Likely
- ○ Neither likely nor unlikely
- ○ Not likely
- ○ Very unlikely

Q34 How likely would you be to switch your choice of supermarket chain following the above situation?

- ○ Very likely
- ○ Likely
- ○ Neither likely nor unlikely
- ○ Not likely
- ○ Very unlikely

End of Block: Trust Levels

APPENDIX D: GRAPHICAL/TABULAR ANALYSIS OF SERVICE QUALITY AND BRAND TRUST

How would you rate the following factors for your supermarket choice?

%	Store Opening Hours	Convenience of store location	Easy payment	Cleanliness of the store	Product Quality	Competitive Price	Fast Checkout	Clear price labelling	Product Variety	Employee courtesy	Availability of special depts (meat counter, fish counter, in-store bakery)
Very Good	56.9%	56.1%	52.4%	49.8%	44.6%	42.4%	37.2%	33.8%	33.5%	30.5%	25.3%
Good	37.9%	35.3%	42.4%	42.8%	51.3%	34.2%	40.1%	48.3%	49.1%	43.5%	36.4%
Neither good nor bad	3.3%	5.9%	4.1%	6.3%	3.7%	17.1%	13.0%	14.1%	11.2%	19.7%	20.4%
Bad	1.9%	2.6%	1.1%	1.1%	0.4%	6.3%	7.4%	3.7%	5.6%	5.6%	14.5%
Very Bad	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.2%	0.0%	0.7%	0.7%	3.3%
	100%	***100%***	***100%***	***100%***	***100%***	***100%***	***100%***	***100%***	***100%***	***100%***	***100%***

Count	Store Opening Hours	Convenience of store location	Easy payment	Cleanliness of the store	Product Quality	Competitive Price	Fast Checkout	Clear price labelling	Product Variety	Employee courtesy	Availability of special depts (meat counter, fish counter, in-store bakery)
Very Good	153	151	141	134	120	114	100	91	90	82	68
Good	102	95	114	115	138	92	108	130	132	117	98
Neither good nor bad	9	16	11	17	10	46	35	38	30	53	55
Bad	5	7	3	3	1	17	20	10	15	15	39
Very Bad	0	0	0	0	0	0	6	0	2	2	9
	269	***269***	***269***	***269***	***269***	***269***	***269***	***269***	***269***	***269***	***269***

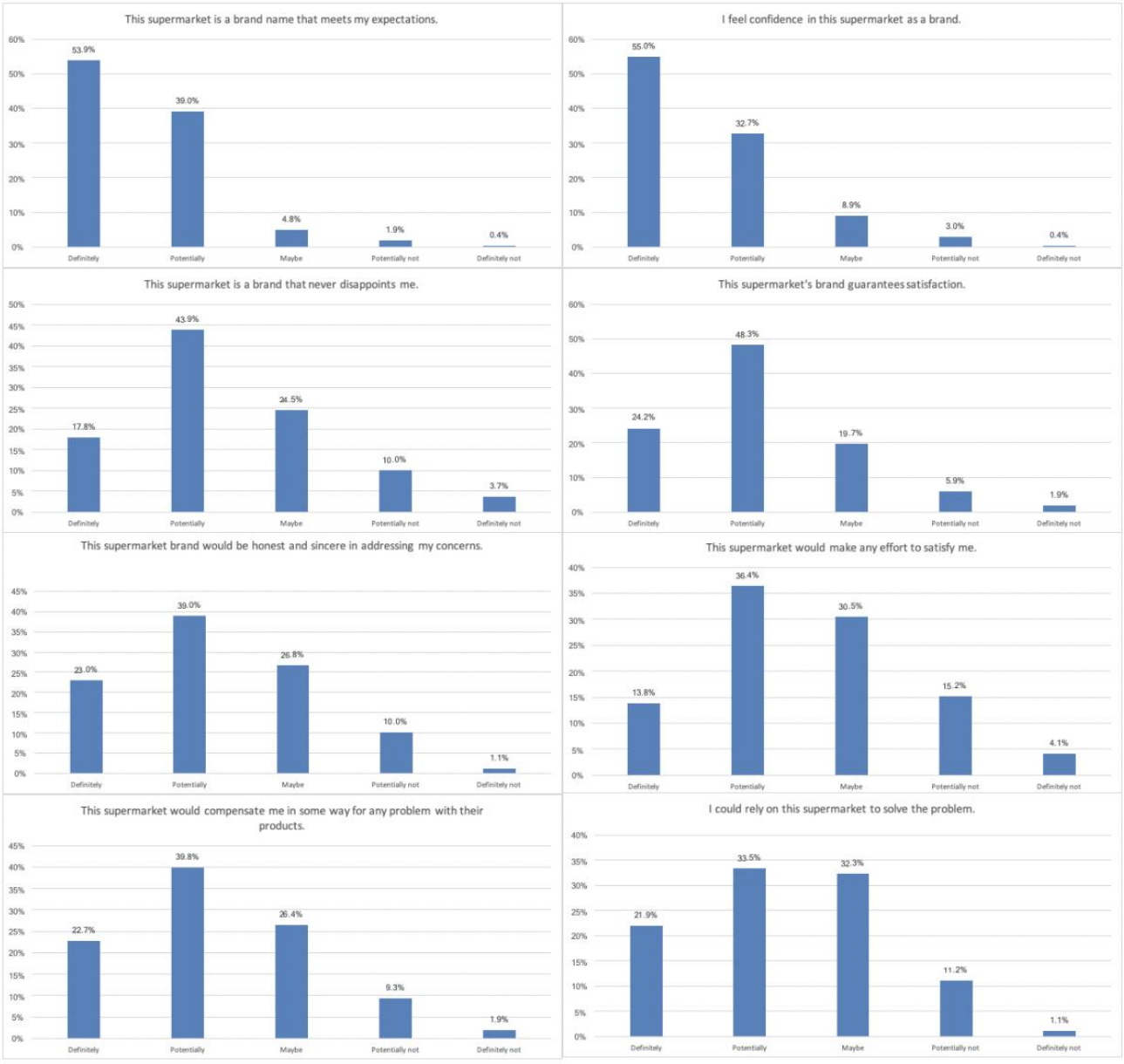
How important are the following factors to you in choosing a supermarket option?

%	Product Quality	Competitive Price	Cleanliness of the store	Convenience of store location	Product Variety	Store Opening Hours	Clear price labelling	Employee courtesy	Easy payment	Fast Checkout	Availability of special depts (meat counter, fish counter, in-store bakery)
Very Important	61.3%	55.4%	52.8%	50.2%	46.1%	41.6%	32.7%	32.3%	31.6%	25.7%	21.9%
Important	38.3%	40.1%	37.5%	39.4%	46.1%	47.2%	48.0%	45.7%	48.0%	48.0%	41.6%
Unimportant	0.4%	3.0%	9.3%	9.3%	6.7%	9.7%	16.4%	17.5%	18.2%	22.3%	28.3%
Unimportant	0.0%	1.5%	0.4%	1.1%	1.1%	1.5%	2.2%	4.5%	2.2%	4.1%	6.3%
Very Unimportant	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.7%	0.0%	0.0%	0.0%	1.9%
	100%	***100%***	***100%***	***100%***	***100%***	***100%***	***100%***	***100%***	***100%***	***100%***	***100%***

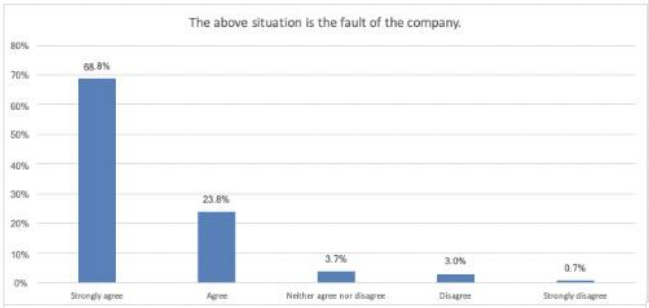
Count	Product Quality	Competitive Price	Cleanliness of the store	Convenience of store location	Product Variety	Store Opening Hours	Clear price labelling	Employee courtesy	Easy payment	Fast Checkout	Availability of special depts (meat counter, fish counter, in-store bakery)
Very Important	165	149	142	135	124	112	88	87	85	69	59
Important	103	108	101	106	124	127	129	123	129	129	112
Unimportant	1	8	25	25	18	26	44	47	49	60	76
Unimportant	0	4	1	3	3	4	6	12	6	11	17
Very Unimportant	0	0	0	0	0	0	2	0	0	0	5
	269	***269***	***269***	***269***	***269***	***269***	***269***	***269***	***269***	***269***	***269***

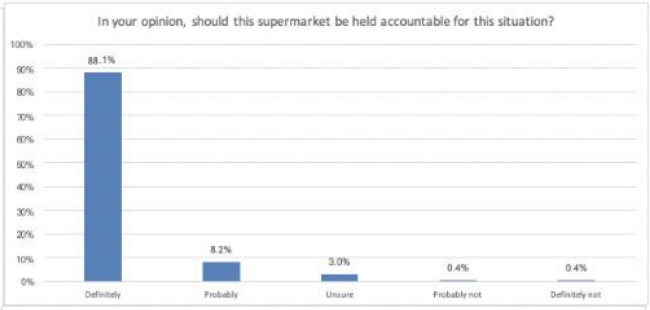
The tables on the previous and following pages show full written/graphical representations of service quality rating and importance, brand trust initially and brand trust following introduction of food scandal. As explained previously, there were 11 components of service quality ratings which were later equated to compute an overall service quality metric (ServQual). There were also measures to determine the importance of these factors to the consumer (shown above).

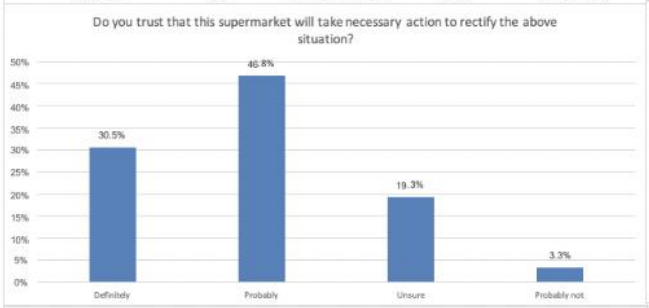
Further questions on general brand trust were equated to achieve an overall brand trust score. The results of these 8 questions are shown in graphical format below. The aggregated brand trust measure (Trust1) will be used in all exploratory statistics.

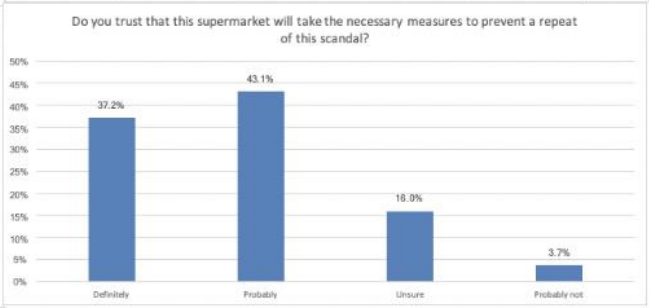


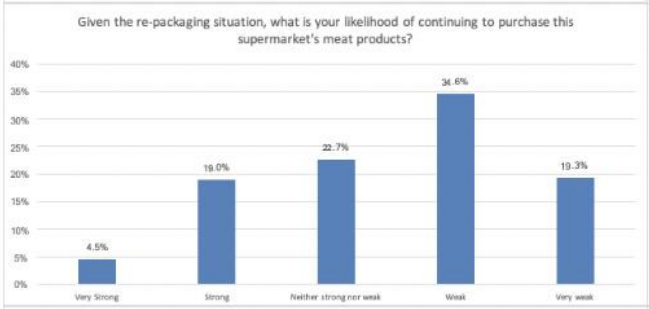
After the introduction of a hypothetical food repackaging scandal in their supermarket of choice the survey again tested the respondent's trust. All nine questions were then collated into one BrandTrust2 variable which can be used for comparison. The results of each of the nine questions across respondents are shown in the bar charts below.

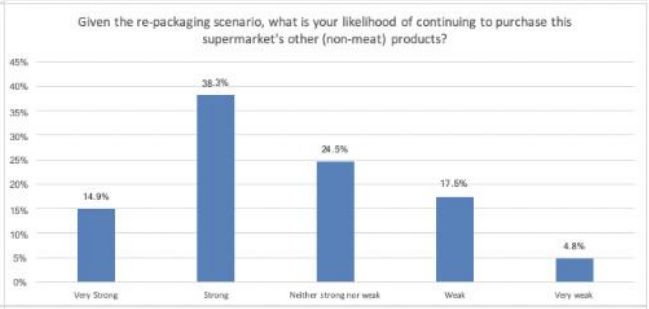


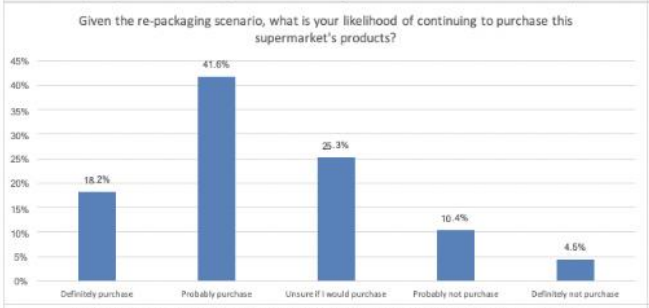


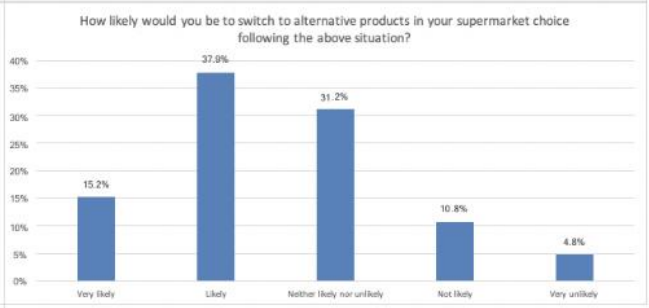


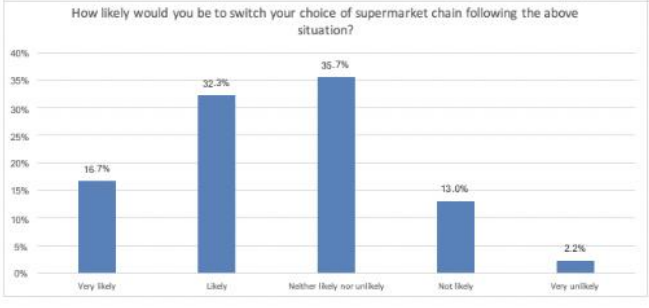








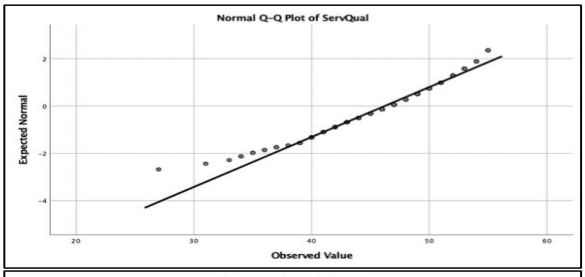


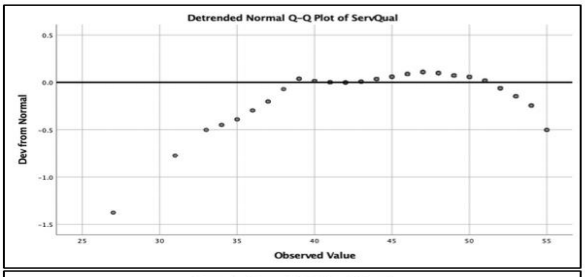


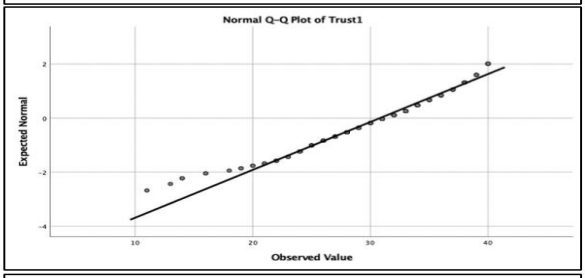
APPENDIX E: DESCRIPTIVE STATISTICS OVER ALL SCALE AND CONTINUOUS VARIABLES

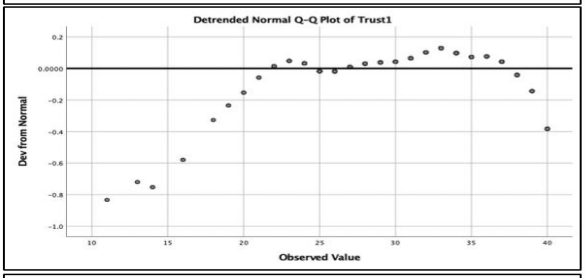
	Mean		95% CI for Mean		Trimmed	Median	Variance	Std. Deviation	Minimum	Maximum	Range		Skewness			Kurtosis			Shapiro-Wilk		
	Statistic	Std Error	Lower Bound	Upper Bound	Mean							Interquartile Range	Statistic	Std Error	z value	Statistic	Std Error	z value	Statistic	df	Sig.
Product Quality rating	4.4	0.035	4.33	4.47	4.44	4	0.338	0.582	2	5	3	1	-0.47	0.149	-3.15	-0.004	0.296	-0.01	0.725	269	0.000
Cleanliness of the store rating	4.41	0.04	4.33	4.49	4.47	4	0.437	0.661	2	5	3	1	-0.923	0.149	-6.19	0.73	0.296	2.47	0.743	269	0.000
Competitive price rating	4.13	0.056	4.02	4.24	4.2	4	0.835	0.914	2	5	3	1	-0.756	0.149	-5.07	-0.361	0.296	-1.22	0.813	269	0.000
Product variety rating	4.09	0.052	3.99	4.19	4.16	4	0.731	0.855	1	5	4	1	-1.003	0.149	-6.73	1.053	0.296	3.56	0.807	269	0.000
Fast checkout rating	4.03	0.061	3.91	4.15	4.11	4	1.003	1.002	1	5	4	1	-1.04	0.149	-6.98	0.641	0.296	2.17	0.817	269	0.000
Convenience of store location rating	4.45	0.044	4.36	4.54	4.53	5	0.525	0.724	2	5	3	1	-1.338	0.149	-8.98	1.689	0.296	5.71	0.714	269	0.000
Clear price labelling rating	4.12	0.048	4.03	4.22	4.18	4	0.615	0.785	2	5	3	1	-0.687	0.149	-4.61	0.162	0.296	0.55	0.817	269	0.000
Easy payment rating	4.46	0.038	4.39	4.54	4.52	5	0.399	0.631	2	5	3	1	-1.017	0.149	-6.83	1.221	0.296	4.13	0.718	269	0.000
Employee courtesy rating	3.97	0.054	3.87	4.08	4.03	4	0.794	0.891	1	5	4	2	-0.682	0.149	-4.58	0.13	0.296	0.44	0.849	269	0.000
Store opening hours rating	4.5	0.04	4.42	4.58	4.57	5	0.43	0.656	2	5	3	1	-1.353	0.149	-9.08	2.25	0.296	7.60	0.693	269	0.000
Availability of special departments rating	3.66	0.068	3.53	3.79	3.71	4	1.226	1.107	1	5	4	2	-0.538	0.149	-3.61	-0.555	0.296	-1.88	0.88	269	0.000
Product Quality importance	4.61	0.03	4.55	4.67	4.63	5	0.246	0.496	3	5	2	1	-0.544	0.149	-3.65	-1.476	0.296	-4.99	0.633	269	0.000
Cleanliness of the store importance	4.43	0.041	4.35	4.51	4.48	5	0.455	0.674	2	5	3	1	-0.837	0.149	-5.62	-0.132	0.296	-0.45	0.744	269	0.000
Competitive price importance	4.49	0.039	4.42	4.57	4.56	5	0.4	0.633	2	5	3	1	-1.226	0.149	-8.23	1.993	0.296	6.73	0.697	269	0.000
Product variety importance	4.37	0.04	4.29	4.45	4.43	4	0.436	0.66	2	5	3	1	-0.811	0.149	-5.44	0.588	0.296	1.99	0.754	269	0.000
Fast checkout importance	3.95	0.049	3.86	4.05	3.99	4	0.643	0.802	2	5	3	2	-0.393	0.149	-2.64	-0.339	0.296	-1.15	0.847	269	0.000
Convenience of store location importance	4.39	0.043	4.3	4.47	4.44	5	0.492	0.701	2	5	3	1	-0.898	0.149	-6.03	0.299	0.296	1.01	0.757	269	0.000
Clear price labelling importance	4.1	0.049	4	4.19	4.15	4	0.64	0.8	1	5	4	1	-0.793	0.149	-5.32	0.9	0.296	3.04	0.821	269	0.000
Easy payment importance	4.09	0.046	4	4.18	4.12	4	0.582	0.763	2	5	3	1	-0.457	0.149	-3.07	-0.306	0.296	-1.03	0.828	269	0.000
Employee courtesy importance	4.06	0.05	3.96	4.16	4.12	4	0.676	0.822	2	5	3	1	-0.598	0.149	-4.01	-0.165	0.296	-0.56	0.833	269	0.000
Store opening hours importance	4.29	0.043	4.21	4.37	4.34	4	0.49	0.7	2	5	3	1	-0.732	0.149	-4.91	0.322	0.296	1.09	0.781	269	0.000
Availability of special departments importance	3.75	0.057	3.64	3.87	3.8	4	0.865	0.93	1	5	4	1	-0.53	0.149	-3.56	0.108	0.296	0.36	0.874	269	0.000
Brand meets expectations	4.44	0.043	4.36	4.53	4.52	5	0.501	0.708	1	5	4	1	-1.447	0.149	-9.71	2.927	0.296	9.89	0.713	269	0.000
Brand confidence	4.39	0.049	4.29	4.49	4.48	5	0.642	0.801	1	5	4	1	-1.348	0.149	-9.05	1.648	0.296	5.57	0.733	269	0.000
Brand never disappoints me	3.62	0.062	3.5	3.74	3.68	4	1.02	1.01	1	5	4	1	-0.651	0.149	-4.37	0.063	0.296	0.21	0.876	269	0.000
Brand guarantees satisfaction	3.87	0.056	3.76	3.98	3.93	4	0.83	0.911	1	5	4	1	-0.813	0.149	-5.46	0.684	0.296	2.31	0.848	269	0.000
Brand would be honest and sincere in addressing my concerns	3.73	0.059	3.61	3.84	3.77	4	0.93	0.964	1	5	4	1	-0.414	0.149	-2.78	-0.429	0.296	-1.45	0.882	269	0.000
Could rely on brand to solve the problem	3.64	0.06	3.52	3.76	3.67	4	0.963	0.981	1	5	4	1	-0.228	0.149	-1.53	-0.644	0.296	-2.18	0.889	269	0.000
Brand would make any effort to satisfy me	3.41	0.063	3.28	3.53	3.44	4	1.07	1.035	1	5	4	1	-0.345	0.149	-2.32	-0.43	0.296	-1.45	0.902	269	0.000
Brand would compensate me in some way for any problem with their products	3.72	0.06	3.6	3.84	3.77	4	0.956	0.978	1	5	4	1	-0.503	0.149	-3.38	-0.207	0.296	-0.70	0.881	269	0.000
The above situation is the fault of the company.	1.43	0.047	1.34	1.52	1.32	1	0.589	0.768	1	5	4	1	2.177	0.149	14.61	5.163	0.296	17.44	0.606	269	0.000
Company be held accountable for this situation	1.16	0.03	1.1	1.22	1.08	1	0.239	0.489	1	5	4	0	3.827	0.149	25.68	18.347	0.296	61.98	0.368	269	0.000
Trust that the company will take necessary action to rectify the above situation	4.04	0.048	3.95	4.14	4.09	4	0.632	0.795	2	5	3	1	-0.484	0.149	-3.25	-0.29	0.296	-0.98	0.836	269	0.000
Trust company will take the necessary measures to prevent a repeat	4.14	0.05	4.04	4.24	4.19	4	0.664	0.815	2	5	3	1	-0.675	0.149	-4.53	-0.123	0.296	-0.42	0.821	269	0.000
Likelihood of continuing to purchase the company's meat products	2.55	0.069	2.41	2.68	2.5	2	1.286	1.134	1	5	4	1	0.34	0.149	2.28	-0.794	0.296	-2.68	0.897	269	0.000
Likelihood of continuing to purchase the companys other non meat products	3.41	0.066	3.28	3.54	3.45	4	1.183	1.088	1	5	4	1	-0.395	0.149	-2.65	-0.597	0.296	-2.02	0.897	269	0.000
Likelihood of continuing to purchase companys products	3.59	0.064	3.46	3.71	3.65	4	1.087	1.042	1	5	4	1	-0.623	0.149	-4.18	-0.054	0.296	-0.18	0.882	269	0.000
Likely of switching to alternative company products	2.52	0.063	2.4	2.64	2.47	2	1.064	1.031	1	5	4	1	0.489	0.149	3.28	-0.13	0.296	-0.44	0.893	269	0.000
Likelihood of switching	2.52	0.06	2.4	2.64	2.49	3	0.982	0.991	1	5	4	1	0.185	0.149	1.24	-0.473	0.296	-1.60	0.899	269	0.000
ServQual	46.22	0.29	45.7	46.79	46.42	47	22.47	4.7403	27	55	28	7	-0.633	0.149	-4.25	0.677	0.296	2.29	0.971	269	0.000
Trust1	30.82	0.34	30.1	31.50	31.07	31	31.85	5.6437	11	40	29	8	-0.602	0.149	-4.04	0.372	0.296	1.26	0.967	269	0.000
Trust2	25.35	0.30	24.8	25.95	25.34	25	24.67	4.9669	12	41	29	7	0.049	0.149	0.33	-0.183	0.296	-0.62	0.994	269	0.315
ServQualN	0.00	0.06	-0.1	0.12	0.04	0.1647	1	1	-4.05	1.85	5.91	1.48	-0.633	0.149	-4.25	0.677	0.296	2.29	0.971	269	0.000
Trust1N	0.00	0.06	-0.1	0.12	0.05	0.0323	1	1	-3.51	1.63	5.14	1.42	-0.602	0.149	-4.04	0.372	0.296	1.26	0.967	269	0.000
Trust2N	0.00	0.06	-0.1	0.12	0.00	-0.0711	1	1	-2.69	3.15	5.84	1.41	0.049	0.149	0.33	-0.183	0.296	-0.62	0.994	269	0.315

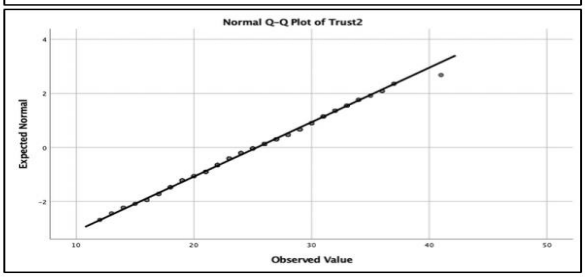
APPENDIX F: Q-Q PLOTS AND DETRENDED NORMAL Q-Q PLOT FOR SERVQUAL, TRUST1 AND TRUST2

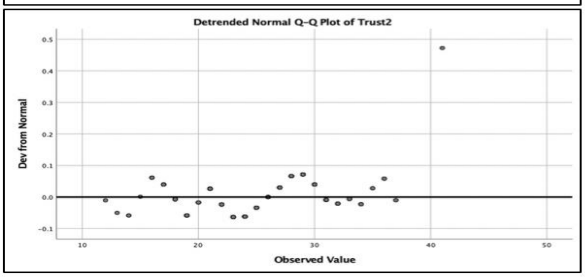




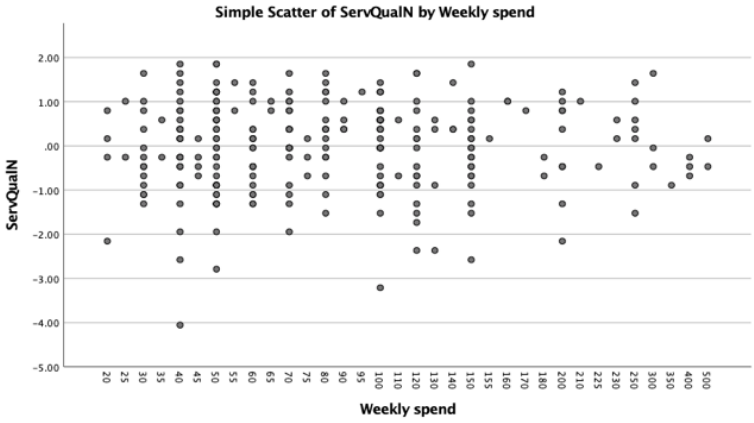


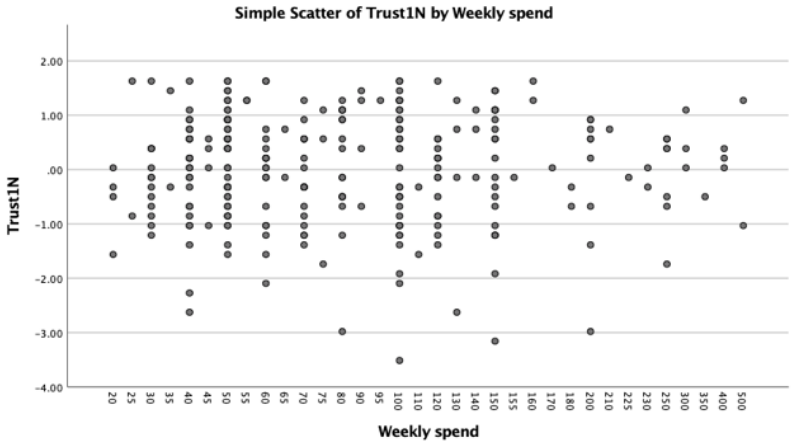


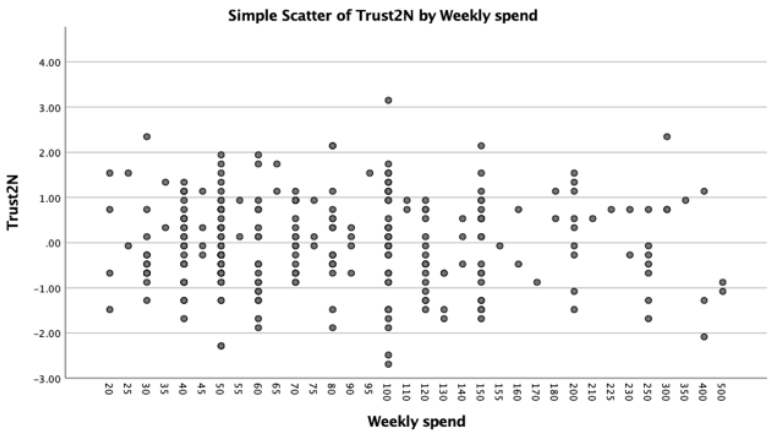




APPENDIX G: SCATTER PLOT OF WEEKLY SPEND VERSUS SERVQUALN, TRUST1N AND TRUST2N







APPENDIX H: SCATTER PLOT OF SERVICE QUALITY, INITIAL BRAND TRUST AND REMEASURED BRAND TRUST LEVELS