Group context effects on consumers

An empirical study using eye-tracking data to explore consumer purchase behaviour.

Abstract

The research investigates how group context affects consumer behaviour and compares the results to individual shoppers whose behaviour so far have dominated the fields of marketing and consumer research. The extent of this research is further extended to exploring socio-demographic and situational moderators of individual and group shopping behaviour. A unique eye-tracking database has been used to document the behaviours of 420 individuals and their shopping parties. It avoids much of inaccuracies attributable to observers or the imagination of survey participants. Findings acknowledge the proposition of differing behaviours when shopping individually or as a member of a group. Differences are expressed in quantifiable and often financial measurements. Socio-demographic and situational variables have been found to moderate the effects of group context on the behavioural variables stated above. Shopping behaviour of groups have been found to be significantly different from those of individual shoppers; academic as well as managerial implications are proposed in addition to the group level analysis of existing research and as basis for marketing decisions. Knowledge and elevated consciousness of these effects also give consumers the opportunity to enhance resilience towards corporate efforts and manipulation.

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1. Introduction

1.1 Background

Burgeoning consumption characterizes global society. Spurred by a general and overarching strive for economic development ever growing consumption has been a primary point of attention. At the center of this development is the individual - a measurement unit, and analysis' focus. A view that has not gone unnoticed by economic understanding as measurements mostly reflect an unfettered search for more descriptives of individuals. Detailing information at the most basic level in an economy determines resource allocation intrinsically on an individual basis. These arbitrary units on which economies are construed upon, are a tacit foreground to understanding the individual nature of consumerism. An inherent but arbitrary need to disjoint the individual from group context is practiced to propagate economic development. In other words, a view of individuals as basic units of economic understanding is used to allocate resources optimally.

Individuals, especially in developed countries, are effectively placed into an environment in which resources are relatively accessible and encouraged to consume on an individual basis. Therefore, the individualistic nature of consumption becomes a natural effect, as readily available resources are a foundation on which self-expression stands.

The intrinsic need of people to reach a state of individual self-fulfilment has manifested itself through one´s self-expression. The self-expression is in turn partly constituted by individual characteristics as well as artefacts and objects one surround oneself with. Objects are thus a link between individuals and consumerism whereas purchase decisions are, in many cases, understood as a form of self-expression. This assumption is implicitly backed by research stating that congruence between self-image and store-image raises the level of satisfaction with store visits (Miranda, 2005). As self-expression is partly dependent on the context where it is reflected, there is a reason to investigate how different aspects of a context may influence an individual's choice. The presence of others when shopping is one of those contexts and is in need to be thoroughly investigated.

Also, during the past couple of decades, the reach of any single individual has increased drastically, partly because of development of new technologies such as social media. As a result materialisation of new behaviours has formed its users. This materialisation takes form in purchasing products and brands that are congruent with individualistic self-image and therefore is a propagating factor of consumerism. The sum of an individual's consumption helps construe self-expression that can be conveyed through easily accessible communication channels. In other words, it is not only a peripheral part of the populace such as influencers that are openly broadcasting their lives, what they ate, and what they bought but so is the average citizens. This practice indicates a broader social context for individual's consumer purchase behaviour.

As stated above, economic perspectives generally consider individuals as basic units. When coupling this individual unit with descriptive variables, one finds a precarious affiliation to group context units of measurement such as the household. Households have one inherent problem as to its usability in, for example, marketing; simplistically construed by the sum of its members, and infrequently taking in account the behavioural and cognitive processes affected by the number of people taking part in the purchasing. Because of its counter-intuitive nature, group context is seldom accounted for when investigating individual consumer behaviour.

1.2 Problem

The relationship between the individual and group context is quite complex not only to understand but also to measure. Group contexts are directly, or indirectly, plausible explanations of an individual's behaviour. Many researchers describe the social qualities of shopping (Woodside, 1976; Lou, 2005; Cheng et al., 2013; Chebat et al., 2014) and others even construe the social experience of shopping as inherent to the act itself (Borges et al., 2010). They continue by stating that the presence of a companion may either enhance the shopping experience by facilitating shared experiences or interfere in what would otherwise have been a pleasant shopping trip. Research on the topic of shopping companions provides some insights on the influence that an extra individual in the shopping party provides. Shopping with a friend or a family member produces different shopping behaviours (Chebat et al, 2010), shoppers are more likely to exhibit impulse purchase behaviour when shopping with an opposite gender companion (Cheng et al, 2013), or shoppers are more likely to exhibit impulse shopping behaviour when shopping with a friend than when shopping with a family member (Lou, 2005). Commonly used constructs mediating the effects of shopping companions are cohesiveness (i.e. the attractiveness of the group to its members) and susceptibility to social influence (i.e. the individual's willingness to accept information from other people about purchase decisions). Highly cohesive groups and individuals with high susceptibility to social influence enhance the economic effects of shopping with companions. Other social aspects of the shopping environment has also been shown to affect consumer behaviour, for example crowding may elicit different behaviours and evaluations of a shopping trip, store preferences are to some extent results of consumer identification with other consumers expected to patronise the same store (Borges et al., 2010). When shoppers are a part of a larger group they are less susceptible to third parties, such as floor-level staff members, however still exhibit a negative effect to in-store crowding (Zhang et al., 2014). These studies reflect the complexity of group context effects on purchasing behaviour and highlight the lack of understanding that group context has on financial results. This papers aims at shedding some light on this apparent gap.

Although relevance and importance of group behaviour in the understanding of purchase behaviour and its financial and emotional consequences have since long been recognised in social psychology (Kocher and Suttler, 2007; Beck et al., 2013), the same cannot be said

about the fields of economy and marketing. The academia of economics and marketing have struggled in presenting adequate analysis on the subject; partly because of, the often one sided, processing of the individual consumer as the unit of interest and partly because of difficulties in acquiring large scale, high qualitative empirical data. Many of the insights in previous research are acquired through in-store observations, which are heavily dependent on the observer, and through scenario-based surveys, which are heavily dependent on the cognitive abilities of the respondents. Despite the valuable insights presented by Zhang et al (2014) who used in-store video tracking to examine the social influence on shopping behaviour, there is a gap concerning social influence´s effects on the financial result.

Finally, consumers know that a shift in time and effort is present when going shopping alone compared to when shopping with others (Petterson, 2004). To a varying degree consumer are also aware that their purchases and consumption reflects on their persona, but few would argue in favour of, or against, shopping in groups based on its financial effects. Although this is not the intent of this paper, it might be useful to investigate the influence of behavioural effects on one's financial result when evaluating household expenditures.

The decision making unit appears to be what is binding the private, corporate and academic stakeholders together and the focus of this study will try to accommodate all three of them with insights on the effects of group context on in-store purchase behaviour.

1.3 Aim of study

The aim of this paper is to research consumer shopping behaviour and to inquire into observable differences of consumers shopping individually or in a group context. It will focus primarily into financial measurements as a mean to quantify the effects of the theorized group context. Additionally, it aims at discussing a possible disparity between existing consumer behaviour theories and measurable group context effects.

1.4 Definition of group context

The main focus of this study pertains to the issue of group context and therefore needs to be clearly defined. Group context is the setting of the individual consumer within the consumer's shopping party as well as interaction with its members. For the purpose of this study group context is limited by time and physical space as it will only be applicable during the consumers actual visit to the store. Group context differs from the shopping party as the latter is a simple measure of the quantity of members within a group whilst the former additionally takes behaviouristic effects into consideration. Group context also differs from social context as the former only takes its' own shopping party members into consideration whilst the latter broadens the scope of influence to include external parties and normative beliefs.

1.5 Research limitations

Since data is gathered from a retail environment this paper's area of concern is mainly restricted to investigations of habitual and limited problem solving. The paper aims at answering questions generated in buying processes framed by these two levels of engagement. It does not try to extrapolate equivalent answers given higher engagement processes, nor online-purchases, as they work on the basis of different logics.

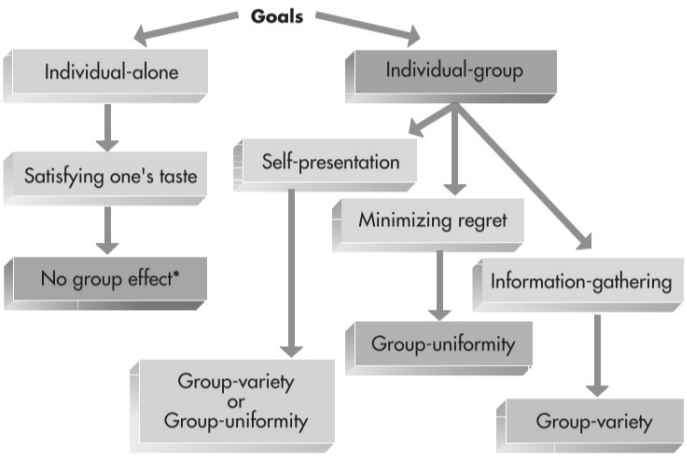
2. Theory

2.1 Theoretical framework

The aspect of consumer behaviour in groups is relatively unknown in economic thinking as there are no established references providing a theoretical base of understanding of why consumer behaviour should differ in individual and group settings.

There are however, implicit structural theories derived from individual consumer research and the theories enveloping this paper are directly linked or associated to consumer behaviour. A staple of consumer behaviour is the consumers' decision process as modelled by Blackwell et al. (2001) that will act as a background structure to the hypotheses researched in this paper. Although the model has undergone numerous iterations, it has always retained its main structure of the consumer decision process. The research aims at connecting the available data to the aforementioned steps in the consumer decision process in order to contextualise the findings in a congruent manner.

As a commentary, it is worth mentioning how Hoyer et al. (2008), based on the works of Ariely & Levav (2000), distinguishes between *self-presentation, minimizing regret,* and *information-gathering* as aspects of individual decision making that are influenced by group context. This tripartite differentiation readily puts the tested hypotheses into categories that motivate the outcome of the consumer's purchase. Hence, it should give perspective to the raw data that has been provided in the study and a base of understanding of group behaviour.



The topic of self-presentation in the group context is closely related to normative beliefs held by the individual consumer. Mangleburg et al. (2004) studied teen's susceptibility to social influence and considered the mediating factor of a peer in a normative context. They discern between informative and normative influence and the latter is relevant to this paper. The normative influence is further divided into what Mangleburg et al. (2004) describe as utilitarian and value-expressive where one focuses on complying with group expectations and the other on the relevance of others to the consumer's own self-concept.

This value-expressive influence is connected with the need of an individual's self-presentation because it describes the process in which individuals identify and try to associate their persona with positively defined characteristics and try to avoid negatively defined characteristics. This process manifests itself through the acquisition of artefacts that the individual associates to the positively defined characteristics in order to produce a self-image or enhance it. These artefacts can be brands or products that the individual consumer feels are necessary to present a self-image to significant others or peers. This self-presentation is either as a risk averse response, an effort to differentiate oneself from negative characteristics or a willingness to conform to a positive characteristic.

Bearden et al. (1982) touch on the aspect of minimizing regret by describing utilitarian influences where the individual tries to adhere to group norms in order to avoid punishment or to be rewarded. This assumption is based on the notion that the individual will be motivated enough to meet the expectations of others, important to the individual person. This is congruent with minimizing regret as described by Hoyer et al. (2008) and should be treated as a way of construing group uniformity by individuals. The uniformity that Hoyer et al. (2008) describes is based mainly on avoiding disappointment and generalizes individual actions as risk averse to negative group evaluations.

Furthermore, the last social influence that affects individuals in a group context is about information gathering. Mangleburg et al. (2004) define informational influence as the individual's acceptance of reality as presented by another whereas Bearden et al. (1982) see it in terms of the individual's willingness to inform oneself before making a decision in order mitigate perceived risks. These perspectives are referring to the same aspect as presented by Ariely and Levav (2000) who state that the individuals diversify their choices in order to gain more information through interaction with other group members. This mediated decision making results in variety as group presence facilitates the exchange of information.

Another relevant context is given by *An Examination of Social Influence on Shopper Behavior Using Video Tracking Data* where an indication of how shopper groups would influence the individual consumer purchases is researched. Zhang et al. (2014), researching social factors on consumer behaviour, note that prior research has primarily been focused on individual sources rather than their social interaction whilst measuring perceptual and behavioural outcomes rather than the shopping process. Albeit focusing on the consumers' social context whilst shopping, the research also provides insights on groups' sizes. One of

the main indications relevant to this paper is the finding of Zhang et al. (2014) that consumer groups spend more than individual shoppers. On the basis of the aforementioned study we have developed a set of research's hypotheses about purchase behaviour and time spent in the store by consumers.

2.2 Behavioural hypotheses

2.2.1 The buying process

The following generic and generally accepted consumer purchase process is derived from the Engel-Blackwell model.

The theoretical framework of this paper will loosely follow a chronological path through the process in an effort to categorise its findings into a greater context. A set of hypotheses have been defined for most of the sub steps of the consumer purchase process in order to allow for a logical connection between the structural perspective and the details of the paper's research. This implicit conjecture is created in an effort to further the academical connection between a widely accepted theoretical framework and a topic with relatively insofar shallow insights.

Information search. The consumer has two general channels whilst gathering information and is divided as either external or internal sources. A supposition is made that based on the consumers' internal information structure the consumer will generally adjust the expected sum of expenditures, subconsciously or cognitively, to the number of people in the consumers setting. This is because the group members will generally have a predisposition of trying to reach group homogeneity (Schulz-Hardt, 2000) as supporting the group is preferred to confrontation.

$$H_1: Planned\ expenditures\ will\ be\ greater\ for\ individuals\ shopping\ in\ group\ constellations\ than\ for\ those\ shopping\ alone.$$

Evaluation of alternatives. After information has been gathered through a plethora of different sources the consumer will assign worth to the presented choices. The information gathered will help the consumer evaluate and define the different alternatives value in relation

to each other; as a result the consumer will be able to define a preference of the alternatives. Watson et al. (1991) remarks that group evaluations will initially be characterized by an indirect judgement dominance of those members that are understood to be the most competent. This evaluation will usually subside into that of consensus seeking as the group interaction matures over time. A possible group effect on the evaluation of choices will present itself to the consumer and may be explained by Hoyer et al. (2008) consumer goal of self-presentation or minimizing regret. These aspects which all relate to group conformity will probably influence the consumers evaluation of alternatives in an effort by the consumer to abide by perceived group rules.

H_2: *The number of bought SKUs (stock keeping units) will will be greater for individuals shopping in group constellations than for those shopping alone.*

Purchase. The decision to purchase by the consumer is the end result of defining a preference among available alternatives, consumer motivation, ability and opportunity at a given time. The aspect of motivation is a defining characteristic of the consumer's involvement in the purchase decision and gives an overarching outlook on the consumers purchase decision. According to research conducted by Granbois (1968) a clear differentiation in the number of purchased articles should be present between individual and group shoppers. Although Granbois (1968) does not discuss on possible explanations, the number of articles should partly vary as a result of consumers' willingness to conform to group rules. This should lead to an increase in the consumers' purchase involvement relative to an individual purchase decision.

H_3: The number of bought articles will be greater for individuals shopping in group constellations than for those shopping alone.

The amount spent on a purchase is possibly tied to an increased consumers purchase involvement when a subconscious or cognitive effort is activated to include other members of the shopping party.

H_4: *Sum of expenditures will be greater for indivuduals shopping in group constellations than for those shopping alone.*

Post-purchase evaluation. The general model describes the evaluation of purchases in terms of expectations and the purchase performance. When a negative or positive discontinuity is associated with expectations and the performance, an emotional response is produced. This response is relevant for the chronological step in the process as it can only be elicited after a decision and never before. Satisfaction is partly an emotional state as a result of an experience and therefore needs to be assessed in post-purchase phase. It is possible that the group context may influence consumers' emotional evaluations of a purchase. According Levine and

Moreland (1990) participation in decision making affects how group members perceive their actions after conducting a joint behaviour. They also state how previous group behaviour influence subsequent decisions made in similar settings. One could therefor argue that the evaluation of a shopping trip would be affected by previous and similar experiences. However, if evaluations of previous individual shopping behaviour is taken into consideration when evaluating the subsequent group purchases, no significant differences will appear, but as group context is hypothesised to be a salient attribute of any experience, experiences of shopping by oneself or together with others are thought to be internally separated.

H_5: *Customer satisfaction will be greater for individuals shopping in group constellations than for those shopping alone.*

2.2.2 Time

A general indication of differences between consumers in individual and group settings should be supported by time. This paper describes a specific part of the consumer purchase process as an independent effect of the consumer's hopping constellation. Granbois (1968) has already given a logical indication in his study of 'in-store behaviour' that there should be longer time spent in-store for shoppers purchasing more articles, than those who shop fewer ones. Becker (1965) provides for a theoretical base that describes the utility maximization of individuals when allocating time to activities outside of work. Combining this theory with the findings of Park et al. (1989) on time pressure effects on consumers provides for a comment on the in-store impact of time for individual consumers. This observation along with a supposition that group shopping constellations purchase more than individuals, should provide for a time differentiation between the two. By conjecture individual consumers will spend less time in-store relative to a consumer within a group setting.

H_6: *Duration of store visit will be longer for indivudals shopping in group constellations than those shopping alone.*

Within a group setting there will be a probable increase in the expected time duration of a store visit and should therefore be a closer to the actual time spent in a store. The opposite could hold true for individual consumers who underestimate the time they spend in a store.

H_7: *Planned duration minus actual duration of store visit will be greater for individuals shopping alone than for those shopping in group constellations.*

2.3 Moderators and group comparisons

In the previous chapter constructs related to the in-store purchase situation, as well as time effects, are discussed in relation to differences between individual and group shopping behaviour. This chapter furthers that reasoning to explore the potential moderating influences of demographic and situational variables.

2.3.1 Sociodemographic moderators

2.3.1.1 Household size

According to Bawa and Gosh (1999) households have since long been regarded as rational decision making units. They also state that households, as units, are more interested in price and promotions when growing in size. However, previous studies have not investigating the consequences a member of a household shopping by herself or with others. Only when presenting respondents with written scenarios one has been able to show the effects on impulsive shopping behavior (Lou, 2005). Shopping with family supposedly decreases shopping impulses, while shopping with peers increases them. Thus, there is a reason to believe that individual and group shopping behaviour should differ and perhaps even more so when household sizes are smaller.

H_{8a}: *Household size is moderating the effects of shopping behavior* when shopping individually or as a member of a group.*

H_{8b}: *When comparing shopping individually with shopping as a member of a group mean differences of shopping behavior* will decrease as households size grows larger.*

2.3.1.2 Age

Young consumers is considered an important consumer group as they constitute the future potential customer base of any given company. Teens, in particular, are the objects of examination, not only because of their customer life-span value but also as a result of strong and growing spending power (Mangleburg et al, 2004, Setlow, 2000). Mangleburg et al. (2004) show that the age of teenagers affects both shopping frequency and sum of expenditures. Bawa and Gosh (1999) explain how the age of the head of household is an indicator of the family life cycle and thus likely to be related to household shopping behaviour. They also present the idea that consumers older than 55 years are likely to shop more frequently than younger consumers. Middle-aged consumers are more likely to live with other family members and thus act more as a unit than teens and elders whose children have moved out. Thus, there is a reason to believe that individual and group shopping behaviour would differ depending on the age of the consumers.

H_{9a}: *Age is moderating the effects of shopping behavior* when shopping individually or as a member of a group.*

H_{9b}: *When comparing shopping individually with shopping as a member of a group*

$mean\ differences\ of\ shopping\ behavior^*\ are\ higher\ for\ consumers\ younger\ than\ 26\ than\ those\ 26-50\ years\ old.$

H_{9c}: $When\ comparing\ shopping\ individually\ with\ shopping\ as\ a\ member\ of\ a\ group\ mean\ differences\ of\ shopping\ behavior^*\ are\ higher\ for\ consumers\ older\ than\ 50\ than\ those\ 26-50\ years\ old.$

2.3.1.3 Gender

At shopping malls, shopping is not significantly gender-related (Chebat et al, 2013). As grocery shopping constitutes one of the most basic kinds of purchases one would think gender would not affect the way one is shopping food either, but according to Pettersson et al (2004) management of food is a gender issue where females typically manage the planning, buying and preparation of food eaten at home. The effects of shopping companions moderated by gender are scarce facts. As an example fathers have been shown to consult older children to a greater extent than women (Pettersson et al, 2004). Evans et al (1996) express how women are pre-supposed to regard shopping in retail environments to be a social activity while men only during the last few decades have been starting to bear the role of family shopper. Finally, when shopping with someone of the opposite sex it has been shown to stimulate impulse shopping behaviour (Cheng et al, 2013). However, the sample size of that study is verging towards insufficiency and the result is therefore less reliable. Backing this suspiciousness is Kollat and Willet (1967) confirm this doubt when they state that if the number of purchases is held constant, there is no gender-dependent effect regarding unplanned purchasing behaviour. Based on the above there is a reason to believe that individual and group shopping behaviour would differ depending on the gender of the consumers, nonetheless it is possible that different moderating effects will diminish or fully eliminate the impact of gender.

H_{10a}: $Gender\ is\ moderating\ the\ effect\ of\ shopping\ behavior^*\ when\ shopping\ individually\ or\ as\ a\ member\ of\ a\ group.$

H_{10b}: $When\ comparing\ shopping\ individually\ with\ shopping\ as\ a\ member\ of\ a\ group\ mean\ differences\ of\ shopping\ behavior^*\ are\ larger\ for\ men\ than\ for\ women.$

2.3.1.4 Household Income

Since members of households are to be regarded as units (Petterson et al, 2004), one can expect households´ disposable income to affect the sum of expenditures positively, and differences between household members shopping by themselves or with others can be expected to diminish, as households grow larger. These repercussions could also be explained by high disposable income households´ greater propensity to consume as well as the higher likelihood of purchasing higher quality items (Bawa and Gosh, 1999). The latter finding is also supported by Ainslie and Rossi (1998) who are stating that household with higher disposable income may display lower price sensitivity.

H_{11a}: $Household\ income\ is\ moderating\ the\ effect\ of\ of\ shopping\ behavior^*\ when\ shopping\ individually\ or\ as\ a\ member\ of\ a\ group.$

H_{11b}: *When comparing shopping individually with shopping as a member of a group mean differences of shopping behavior* are larger for low income households than for high income households.*

2.3.2 Situational moderators

2.3.2.1 Main Store

Shoppers typically visit many stores but often affirm one of them as their "main store", where they spend the larger portion of their wallets at and visit more often (Miranda et al, 2005). Mårtensson (2007) describes how the emergence of a main store choice is a result of repeated satisfaction with a specific store experience. The effect of main store patronage is especially strong in the grocery sector where spending is up to four times greater amongst loyal customers compared to store switchers (Knox & Denison, 2000). However, no differences are found in shopping behaviour when shopping individually or in a group. Hence the hypothesis aims to explore whether shopping in the main store simply would enlarge expenditures or if the relative effect of shopping in a group would enhance it.

H_{12}: *Shopping in main store is not a moderator of shopping behavior* when shopping individually or as a member of a group.*

2.3.2.2 Shopping trip type

What type of shopping mission customers have in mind have been suggested to influence in-store behaviour (Nordefält, 2009), and categorisation into major and fill-in trips is customarily based on size of expenditure, number of items purchased, frequency and regularity (Kim and Park, 1997, Walters and Jamil, 2002). Nordfält (2009) concludes that fill-in trips, compared to major trips, are more contingency dependent. Hence, even though lacking literature on the effects of shopping individually or in a group, one can expect greater effect during fill-in trips.

H_{13a}: *Shopping trip type is moderating the effect of shopping behavior* when shopping individually or as a member of a group.*

H_{13b}: *When comparing shopping individually with shopping as a member of a group mean differences of shopping behavior* are larger for fill − in trips than major trips.*

2.3.2.3 Shopping lists and unplanned purchases

The literature on memory and memory aids are quite extensive. Nonetheless little is written about the effects when shopping in groups. Merely writing down what to buy raises the probability of acquiring the items on the list, to some extent even if one is just partly contributing to the list writing (Block et al., 1999). Social cognitive research also states that writing a list with and/or for other household members creates a social pressure of fulfilling the task of acquiring all the items on the list (Bandura, 1986). On the one hand one could assume the premise to withstand the context of shopping together would put greater stress on

individual household members. On the other hand there is reason to believe that the pressure of acquiring the items on the shopping list would be somewhat diminished by the shared responsibility when shopping in group.

A particular store´s marketing choices may very well explain the greater part of customers impulse shopping behaviour (Nordfält, 2009). Stimulating purchases by promotion strategies are common activities (Walters and Jamil, 2000). According to Block et al (1999), almost one out of two customers made an unplanned purchase because of marketing activities, one out four bought something outside the shopping lists because they thought someone at home wanted the item and approximately one out of six bought something because someone accompanying them wanted it. An older study produced similar results. Adults accompanied by two or more family members or peers had greater difficulties sticking to buying only planned items (Granbois, 1968). However, that study was not conclusive as to what direction the effect of the shopping company would have. The effects resulting in purchasing more than planned compared to purchasing less than planned differed by only 5%.

H_{14a}: *Using a shopping list is moderating the effect of shopping behavior* when s hopping individually or as a member of a group.*

H_{14b}: *When comparing shopping individually or as a member of a group mean differences of shopping behavior* are larger for shoppers refraining from usage of shopping lists.*

3. Data and Methodology

The research approach in this paper is based on deductive reasoning and formulated according to the theoretical framework described in the previous section. The intention of the study is to not only to observe but to test the validity of the claim that group context effects can be measured through changes in shopping behaviour. One of the reasons why this research was conducted was due to the access to a large dataset on shopping behaviour; with this factual premise, the study aims to have a broad and general perspective. This dataset is based on unique access to eye-tracking data from consumers in-store visits coupled with individual consumer shopping lists and receipts, which makes the study easier to interpret. The reason behind this statement is derived from the fact that theoretical measurements that reflect consumer behaviour are not present and therefore suppositions that govern that translation of data vanish. In other words, this research possesses raw observations of consumer behaviour. The raw data is also complemented by survey on psycho-demographic variables. On this basis a quantitative method has been chosen to provide an overview on potential group effects.

Statistical analysis of the data became a generous way of providing generating results while abiding by the need of a broader perspective.

3.1 Data collection

This research paper has used data from over 619 randomly selected consumers collected from three large supermarkets located in Sweden. By virtue of the sample size the research data will be considered normally distributed. The data was collected by a commercial third party by means of approaching shoppers entering each of the stores and asking the consumers whether they would wear eye-tracking devices. These eye-tracking devices would record the consumer's store visit from the consumer perspective while also tracking the shopper's path throughout the store. The recorded videos would then be coded into a standardized variable matrix, which would take into account behavioural measures. For example, one such behavioural variable is "duration of store visit" which would be measured and coded into the matrix. Furthermore, what makes the data used in this study unique is that the behavioural data recorded from the eye-tracking devices is combined with the financial data from the consumers purchase receipts. Therefore a strong dependency between observed behaviour and financial results is established per definition. The financial data from the consumers receipt is tied to the unique recording from the eye-tracking device of the consumers store visit which provides easy verification of the data. These financial measurements taken from the consumers receipts were then coded into the standardized variable matrix and coded into the same behavioural variables as identified by the unique video record. The consumers also answered additional standardized questionnaires before beginning their store visit and after finishing their shopping round. The standardized questionnaires would collect mostly psycho-demographic information on the consumers such as household size or self-reported levels of inspiration. For the intent of this research, these variables were mostly of secondary importance as primary interest lies in the behavioural measurements coded from the eye-tracking devices.

3.2 Data selection and manipulation

Out of the 619 randomly selected consumers 199 of them were asked by the interviewer to visit a particular section of the store, such as the dairy section. These consumers were intentionally nudged by the interviewer to alter their behaviour and therefore have inherently biased behaviour. They were therefore discarded from the analysis and the complete sample consists of a data matrix collected from 420 unique consumers. From the unbiased consumer sample, a set of behavioural measurements, receipts' information, and demographic descriptors have been used as the base of the research. Since the intent of this paper is to compare the differences of consumer behaviour in terms of individual and group context, it has been considered outside the scope of the research to provide nuanced and detailed segmentation of the group. Therefore, in addition to observed behavioural variables the inclusion of psycho-demographic variables has been restricted *Household size, Income, Age, Main Store, Unplanned purchase, Shopping trip type, Planned expenditure,* and *Satisfaction.* The following variables were used in the research:

Observable variables	Surveyed variables
Sum of expenditures	Household size
Number of SKU's purchased	Household monthly income
Number of Articles purchased	Planned time spent in-store
Time spent in-store	Age
Individual or group context	Distractedness
	Shopping trip type
	Gender
	Main store
	Satisfaction
	Shopping list
	Planned expenditure
	Unplanned purchases

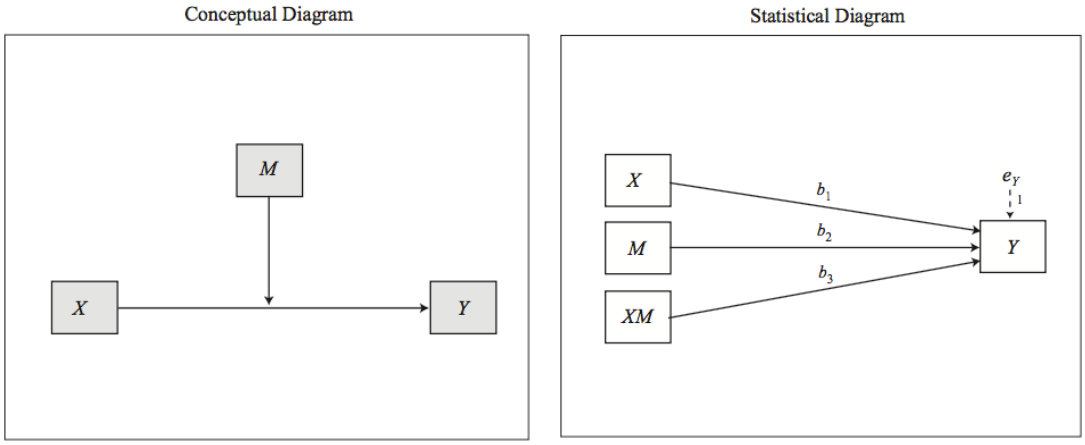
All observable variables have been coded into the data matrix from video records provided by the eye-tracking devices and corroborated with consumer receipts. All variables collected from questionnaires have an inherent risk of not being true to reality and complicate the analysis of the result. Therefore, in order to mitigate this inherent risk an assumption is made that the surveyed data is reflective of reality. For example, if a consumer states that their *household size* contains 5 members the analysis assumes it to be a true measurement.

Manipulation has been done on data pertaining to *Age, Income, Distractedness* and *Shopping Mission*. Data defining *Age* categorised the consumer into one of three intervals each with a range of 25 years. *Income* categorised the consumer into one of four intervals each with a span of 20 000 Kr and observations outside the 99% confidence interval have been defined as extreme outliers and discarded. *Distractedness* was indexed from three questions all referring to a self-reported state of distraction. The last data manipulation was redefining *Shopping Mission* from three categories of *one-article purchases, fill-in,* and *major trip* to two categories. This was made by combining *one-article purchases* and *fill-in* to achieve the categorisation of shopping trip types presented by Nordfält (2009).

It is worth mentioning that large quantities of behavioural and psycho-demographic variables were omitted from the research as they were inconsistent with its purpose.

3.3 Statistical analysis

SPSS 25 was used as a tool for statistical analysis. Because the research relies on analysing the observable differences between shoppers in groups and those shopping individually independent t-test were conducted. Moderation effects of different variables on shopping behaviour were tested as proposed by Hayes moderation analysis, model 1. The model is represented as follows:



In this model the M-variable is moderating the effect of the independent variable, X, on the dependent variable, Y.

3.4 Statistical rejection

A p-value of 0.05 is used as a measure of rejecting or upholding the tested hypotheses. At the same time a p-value under 0.1 will be used as a point of reference for discussing possible interactions between the researched variables as the unsegmented population of the dataset will probably skew the statistical results. This will allow the research to discuss conjecture without discarding reliable statistical measurements.

3.5 Statistical reliability

The only reliability analysis was conducted on the indexed variable of *Distractedness* in order to ascertain that it did not possess any collinearity problems. A Cronbach's Alpha test was conducted on the variable and received a value of 0.736.

3.6 Variable definition

In this paper there is a frequent referral to *shopping behaviour*. For all intents and purposes it will be defined as a combination of the variables *Number of bought SKU's, Number of bought Articles*, and *Sum of expenditures*, which are provided by the data set. Therefore when stating that there has been an effect on the shopping behaviour it will be considered that all of the three aforementioned variables have been altered from its previous condition or norm. However, discussions may arise from results supporting one of the three.

3.7 Method limitations

This study is conducted on a relatively deep selection of consumers but with a narrow focus. It relies heavily on data that is based on fast moving consumer goods, FMCG, which is associated with a consumer behaviour process motivated by *habitual-problem* and *limited-problem solving*. This means that even though group context effects on consumer behaviour

may be probable in consumer behaviour process *extended-problem solving* the research in this paper will not be able to confirm such an assertion. The same could hold true for industries, which are categorized as FMCG but not referred to by the collected data. In other words, there might be a possibility that the methodology in this paper do not translate to consumer process behaviour in other industries. This should also hold true for digital versions of the FMCG industry.

4. Results

In this chapter result from the tests are presented, conducted as described in previous chapter.

4.1 Descriptive results and hypothesis testing

4.1.1 Planned expenditure

An independent t-test was conducted on a sample composed of data from 420 individuals in order to determine whether an difference in planned expenditure could be observed between individual shopper and individual shoppers in group context. Statistical significance was reached with a p-value less than 0.05 and supports the hypothesis presented in H_1.

	n	Planned expenditure	Std.d.	Mean difference
Individual	247	327**	305	75
Group	173	402**	386	
. *p<0.01, **p<0,05 ***p<0,1				

4.1.2 Number of bought SKUs

To test hypothesis H_2 an independent t-test was conducted on a sample of 419 individuals in order to investigate whether a difference can be measured in the amount of unique stock-keeping units purchased by an individual shopping alone versus in a group context. Statistical significance was reached with a p-value less than 0.01. The findings support the H_2 hypothesis.

	n	Mean number of purchase SKU's	Std.d.	Mean difference
Individual	246	12*	10	4
Group	173	16*	12	
. *p<0.01, **p<0,05 ***p<0,1				

4.1.3 Number of bought articles

As much as H_2 refers to unique articles H_3 refers to the total number of articles. An independent t-test was conducted from a sample of 418 individuals in order to investigate whether a difference can be observed in the total number of purchased articles by an

individual shopping alone versus in a group context. Statistical significance was reached with a p-value less than 0.01. The findings support the H_3hypothesis.

	n	Mean number of purchased articles	Std.d.	Mean difference
Individual	246	15*	13	5
Group	172	20*	16	
. *p<0.01, **p<0,05 ***p<0,1				

4.1.4 Sum of expenditures

Independent T-tests were conducted on a sample of 420 individuals in order to research whether there is a difference in the mean sum of expenditures of an individual that is shopping alone versus in a group context. The group context was defined as the shopper with an addition of one individual or more to the shopper party.

Statistically significant differences were found with a p-value less than 0.01 for the test. Therefore hypothesis H_4 is supported.

	n	Mean sum of expenditures	Std.d.	Mean difference
Individual	247	338*	332	93
Group	173	431*	379	
Mean comparison of actual expenditures measured in SEK. *p<0.01, **p<0,05 ***p<0,1				

4.1.5 Satisfaction

Self-reported satisfaction levels were collected from 420 individuals which were used as a basis to conduct an independent t-test. The t-test was intended to provide information whether a difference could be measured in the satisfaction levels of an individual shopper as opposed to an individual shopper in a group context. The t-test concluded that statistical significance could not be reached and that no difference could be measured. Therefore the findings do not support the H_5 hypothesis.

	n	**Satisfaction index (1-7)**	**Std.d.**	**Mean difference**
Individual	247	6,38	0,963	0,103
Group	173	6,28	0,923	
. *p<0.01, **p<0,05 ***p<0,1				

4.1.7 Duration of store visit

An independent t-test was conducted on a sample composed of data from 420 individuals in order to determine whether a difference in time spent in the store could be observed between individual shopper and individual shoppers in a group context. Statistical significance was reached with a p-value less than 0.01 and supports the hypothesis presented in H_6.

	n	Duration of store visit(min)	Std.d.	Mean difference
Individual	247	14*	10	4
Group	173	18*	12	
. *p<0.01, **p<0,05 ***p<0,1				

4.1.8 Planned minus actual duration of store visit

An independent t-test was conducted on a sample composed of data from 420 individuals in order to determine whether the planned versus actual duration of a store visit will differ between individual shopper and individual shoppers in a group context. Statistical significance was reached with a p-value less than 0.01 and supports the hypothesis presented in H_7.

	n	Planned minus actual duration of store visit (min)	Std.d.	Mean difference
Individual	247	4*	8	2
Group	173	2*	10	
. *p<0.01, **p<0,05 ***p<0,1				

4.2 Moderators and mean differences

4.2.1 Household size

Three separate Hayes moderator tests, model 1, were conducted showing that the quadratic effects of shopping party size by household size were not significant on a satisfactory level. Household size did not moderate the effect that shopping party size had on shopping behaviour, thus rejecting H_{8a}.

M=Household size **X = Size of Shopping Party**			**b_3-Coefficient**	**P-value**
$Y_1 =$	Sum of expenditure	Rejected	-19.23	0.1657
$Y_2 =$	Number of bought SKU's	Rejected	-0.6	0.1607
$Y_3 =$	Number of bought articles	Rejected	-0.7	0.1958

Independent t-tests were conducted on a sample of 401 individuals to investigate whether there is a mean difference in the sum of expenditures between individuals shopping alone

versus in a group context. This disparity is further investigated by taking into account the household size of the individual conducting the purchases. Although a total sample of 420 was taken in account, the tests has a threshold of 5 household members in order to retain large enough groups for statistical testing.

Significant differences have been found for small households. Although differences are seen even in larger households these differences lack statistical significance.

Results reject H_{8b}. We can confirm that differences exist for household sizes 1-2 and with respect to some variables 3 person households produce significant results, given that p-values range from below 0,01 to 0,1 levels. Results cannot present statistically significant differences for household sizes 4 and above, but the findings are congruent with our theoretical framework. This topic will be developed further in the analysis section. The mean differences diminish when household size goes from 1 to 2. In some cases the same pattern follows when household size goes from 2 to 3. However, this diminishing effect cannot be confirmed when household size increases from 3. See appendix, table 1 for specific results.

	Individual			Group			
Household size	**n**	**Mean**	**Std.d**	**n**	**Mean**	**Std.d**	**Mean difference**
1	36	204*	195	8	465*	382	261
2	78	339**	310	57	475**	384	136
3	44	279	244	39	372	296	-93
4	70	447	429	40	353	319	94
5	15	364	320	14	495	593	131

Mean comparison of actual expenditures measured in SEK. *p<0.01, **p<0,05 ***p<0,1

4.2.2 Age

Three separate Hayes moderator tests, model 1, were conducted showing that the quadratic effects of shopping party size by age were significant on a satisfactory level. Age did moderate effect of shopping party size had on the number of SKUs, the number of articles and sum of expenditures, thus supporting H_{9a}.

M = Age **X = Size of Shopping Party**			**b_3-Coefficient**	**P-value**
$Y_1 =$	Sum of expenditure	Supported	4.16	0.0465
$Y_2 =$	Number of bought SKU's	Supported	0.12	0.0496
$Y_3 =$	Number of bought articles	Supported	0.017	0.0269

Independent t-tests were conducted on a sample of 420 individuals to investigate whether there is a mean difference in the sum of expenditures and other behavioural variables (see appendix, table 2**)** between individuals shopping alone versus in a group context. This

disparity is further investigated by taking into account the age group of the individual conducting the purchases.

Significant differences have been found for consumers in the oldest age group. Given p-values below 0,15 one also finds significant differences amongst the youngest age group.

Statistical results reject hypotheses H_{9b} and H_{9c} on the basis of non-significant results for the mid-range age-group. Results confirm that differences exist within the oldest and the youngest consumer groups, given p-values ranging from 0,01 to 0,05 levels for the sum of expenditures, number of bought articles, duration of store visit and other variables (see appendix, table 2 for specific results). Results do not present statistically significant differences for consumers aged 26-50, but the findings are congruent with our theoretical framework. This topic will be developed further in the analysis section. However, the values of the mean differences are larger for consumers aged above 50 and below 26 than for those 26-50 years old.

	Individual			Group			
Age	**n**	**Mean**	**Std.d**	**n**	**Mean**	**Std.d**	**Mean difference**
<26	16	143**	125	19	296**	204	153
26-50	151	360	357	111	399	357	39
>50	80	334*	303	43	572*	455	238

Mean comparison of actual expenditures measured in SEK. *p<0.01, **p<0,05 ***p<0,1

4.2.3 Gender

Three separate Hayes moderator tests, model 1, were conducted showing that the quadratic effects of shopping party size by gender were not significant on a satisfactory level. Gender did moderate the effect shopping party size had on the number of SKUs, number of articles and sum of expenditures on the weaker 0,1 significance level. However, hypothesis H_{10a} is rejected as p-values are larger than 0,05.

M = Gender **X = Size of Shopping Party**			**b_3-Coefficient**	**P-value**
$Y_1 =$	Sum of expenditure	Rejected	73.69	0.097
$Y_2 =$	Number of bought SKU's	Rejected	2.47	0.0733
$Y_3 =$	Number of bought articles	Rejected	3.11	0.096

Independent t-tests were conducted on a sample of 419 individuals to investigate whether there is a mean difference in the sum of expenditures and other behavioural variables (see appendix, table 3) between individuals shopping alone versus in a group context. This disparity is further investigated by taking into account the gender of the individual conducting the purchases.

Significant differences were found for male but not for female consumers. Only when looking at the level of distractedness the opposite results materialise.

Statistical results reject research question H_{10b}. Results confirm that differences exist within the male consumer group, given p-values ranging from 0,01 to 0,05 levels for the sum of expenditures, number of bought articles, and other variables (see appendix, table 3 for specific results). However, results do not present statistically significant differences for female consumers with the exception of distractedness. This topic will be developed further in the analysis section. The moderating effect of gender cannot be said to be larger for males than females as the results of the female group lack significance.

	Individual			Group			
Gender	**n**	**Mean**	**Std.d**	**n**	**Mean**	**Std.d**	**Mean difference**
Female	157	369	361	99	422	413	53
Male	89	282*	269	74	442*	330	160

Mean comparison of actual expenditures measured in SEK. *p<0.01, **p<0,05 ***p<0,1

4.2.4 Household income

Three separate Hayes moderator tests, model 1, were conducted showing that the quadratic effects of shopping party size by household income were not significant on a satisfactory level. Household income did not moderate the effect of shopping party size on shopping behaviours, thus rejecting research question H_{11a}.

M = Household income **X = Size of Shopping Party**			**b_3-Coefficient**	**P-value**
$Y_1 =$	Sum of expenditure	Rejected	-29.88	0.2097
$Y_2 =$	Number of bought SKU's	Rejected	-1.19	0.1088
$Y_3 =$	Number of bought articles	Rejected	-1.13	0.264

Independent t-tests were conducted on a sample of 419 individuals to investigate whether there is a mean difference in the sum of expenditures and other behavioural variables (see appendix, table 4) between individuals shopping alone versus in a group context. This disparity is further investigated by taking into account the household income of the individual conducting the purchases.

Significant differences have been found for low-income households, with significance levels ranging from 0,01 to 0,1. Households with incomes between 20 and 60 thousand SEK show some significant results, given the same levels of significance. Households with incomes above 60 thousand SEK only show significant differences with regards to the level of distractedness.

Statistical results reject hypothesis H_{11b}. However, results confirm differences within low (household) income consumer groups, given p-values ranging from 0,01 to 0,10 levels for the sum of expenditures, number of bought articles and other variables (see appendix, table 4 for

specific results). Mid range (household) income consumer groups show some differences, given p-values ranging from 0,1 to 0,10 levels. We cannot present statistically significant differences for high (household) income consumers with the exception of distractedness, but the findings are congruent with our theoretical framework. This topic will be developed further in the analysis section. Given the above, mean differences can be said to be larger for low-income households than for others, keeping in mind that the high-income households hardly show any significant results at all.

	Individual			Group			
Household income	**n**	**Mean**	**Std.d**	**n**	**Mean**	**Std.d**	**Mean difference**
<20	19	138*	128	11	511*	576	374
20-40	61	264***	223	44	351***	297	87
40-60	64	336	281	46	427	357	92
>60	77	475	443	47	536	433	61

Mean comparison of actual expenditures measured in SEK. Household income measured in thousands and SEK. *p<0.01, **p<0,05 ***p<0,1

4.2.5 Main store

Three separate Hayes moderator tests, model 1, were conducted showing that the quadratic effects of shopping party size by the main store were not significant on a satisfactory level. Shopping in the main store did not moderate the effect of shopping party size on shopping behaviours, thus supporting research question H_{12}.

M = Main Store **X = Size of Shopping Party**			**b_3-Coefficient**	**P-value**
Y_1 =	Sum of expenditure	Rejected	5.12	0.6381
Y_2 =	Number of bought SKU's	Rejected	0.01	0.4826
Y_3 =	Number of bought articles	Rejected	0.2	0.5182

Independent t-tests were conducted on a sample of 420 individuals to investigate whether there is a mean difference in the sum of expenditures and other behavioural variables (see appendix, table 5 for complete list) between individuals shopping alone versus in a group context. This disparity is further investigated by taking into account if the individual conducting the purchases is shopping in the main store (favoured store measured in the sum of expenditure or frequency).

Significant differences have been found for all consumers shopping in the main store as well as in other stores. Significance levels are ranging from below 0,05 to 0,10. Results for consumers shopping in the main store are slightly more reliable than those of consumers shopping in other stores.

Results show that shopping in the main store enlarges sum of expenditures. However, the relative difference of the sum of expenditures diminishes somewhat when shopping in the

main store, shopping individually or in a group. Results also confirm that differences are enhanced by usage of shopping in the main store when looking at the duration of the store visit, number of bought articles, and other variables, given p-values ranging from below 0,05 to 0,1 (see appendix, table 5 for specific results).

	Individual			Group			
Main store	**n**	**Mean**	**Std.d**	**n**	**Mean**	**Std.d**	**Mean difference**
Yes	182	363**	344	121	456**	409	93
No	65	267***	290	52	372***	293	105

Mean comparison of actual expenditures measured in SEK. *p<0.01, **p<0,05 ***p<0,1

4.2.6 Shopping trip type

Three separate Hayes moderator tests, model 1, were conducted showing that the quadratic effects of shopping party size by shopping trip type were significant on a satisfactory level. Shopping trip type did moderate the effect of shopping party size had on the sum of expenditures, but did not moderate the effects on other shopping behaviours, thus rejecting H_{13a}.

M = Shopping trip type **X = Size of Shopping Party**			b_3-**Coefficient**	**P-value**
$Y_1 =$	Sum of expenditure	Supported	-115.46	0.0324
$Y_2 =$	Number of bought SKU's	Rejected	-1.25	0.4426
$Y_3 =$	Number of bought articles	Rejected	-0.8	0.2127

Independent t-tests were conducted on a sample of 420 individuals to investigate whether there is a mean difference in the sum of expenditures and other behavioural variables (see appendix, table 6 for complete list) between individuals shopping alone versus in a group context. This disparity is further investigated by taking into account if the individual conducting thought of the shopping trip as a major one or as a fill-in trip.

Significant differences have been found for consumers undertaking fill-in trips but not major trips. Significance levels are ranging from below 0,01 to 0,1. Results for consumers

Statistical results reject hypothesis H_{13b}. Results confirm that differences exist within the group undertaking fill-in trips, given p-values ranging from 0,01 to 0,1 levels for the sum of expenditures, number of bought articles and other variables (see appendix, table 6 for specific results). This topic will be developed further in the analysis section. Given the above, mean differences cannot be confirmed to be larger for consumers conducting fill-in trips than those conducting major ones.

	Individual			Group			
Shopping trip type	**n**	**Mean**	**Std.d**	**n**	**Mean**	**Std.d**	**Mean difference**
Fill-in trip	218	278*	253	134	371*	337	93
Major trip	25	892	433	24	694	438	198

Mean comparison of actual expenditures measured in SEK. *p<0.01, **p<0,05 ***p<0,1

4.3.7 Shopping lists

Three separate Hayes moderator tests, model 1, were conducted showing that the quadratic effects of shopping party size by usage of the shopping lists type were not significant on a satisfactory level. Weak support was found that shopping lists did moderate the effect that shopping party size had on the number of bought articles, and more firmly that it did not moderate the effects of other shopping behaviours, thus rejecting hypothesis H_{14a}.

M = Using a Shopping list **X = Size of Shopping Party**			**b_3-Coefficient**	**P-value**
$Y_1 =$	Sum of expenditure	Rejected	7.1	0.3694
$Y_2 =$	Number of bought SKU's	Rejected	0.189	0.1006
$Y_3 =$	Number of bought articles	Rejected	-0.19	0.0755

Independent t-tests were conducted on a sample of 420 individuals to investigate whether there is a mean difference in the sum of expenditures and other behavioural variables (see appendix, table 7 for complete list) between individuals shopping alone versus in a group context. This disparity is further investigated by taking into account if the individual conducting the purchases is also using a shopping list.

Significant differences have been found for consumers refraining from using shopping lists and not for consumers using them. Significance levels are ranging from below 0,01 to 0,1. Results for consumers using shopping lists are often inclined to a 0,15 level, while results of consumers refraining from it often appears to be well under the 0,01 level.

	Individual			**Group**			
Shopping list	**n**	**Mean**	**Std.d**	**n**	**Mean**	**Std.d**	**Mean difference**
Yes	83	462	380	49	581	453	119
No	164	274*	287	124	371*	329	97

Mean comparison of actual expenditures measured in SEK. *p<0.01, **p<0,05 ***p<0,1

Looking at comparisons of other variables such as the number of bought SKUs and number of bought articles results are significant on a weaker but satisfactory level (p<0,1) for all consumers. Consumers using shopping lists are not only buying more SKUs nor articles but mean differences are larger. Hypothesis H_{14b} is thus rejected.

4.3.8 Unplanned purchases

Independent t-tests were conducted on a sample of 420 individuals to investigate whether there is a mean difference in the sum of expenditures and other behavioural variables between individuals shopping alone versus in a group context. This disparity is further investigated by taking into account if the individual conducting the purchases is also using a shopping list and whether the individual states to have performed an unplanned purchase.

Significant differences have been found for around half the sample of consumers. Significance levels are ranging from below 0,01 to 0,1 but most results are not significant.
Results confirm that there are differences within the group that have not produced a shopping list but state to have performed unplanned purchases. However, that group constitutes only around half of the sample. When looking at other variables such as the number of bought articles and duration of store visit significant differences are also found within the group which both produced a shopping list and performed impulse shopping behaviour. Comparing the results of the groups attesting to have made unplanned purchases one finds that group context produces almost the same mean difference of the number of bought SKUs but a larger amount of bought articles for consumers who had a shopping list.

		Individual			Group			
Shopping lists	**Preformed unplanned purchase(s)**	**n**	**Mean**	**Std.d**	**n**	**Mean**	**Std.d**	**Mean difference**
Yes	Yes	54	495	401	41	583	446	88
	No	29	402	336	8	575	519	173
No	Yes	114	289*	278	99	411*	348	122
	No	50	240	308	25	211	169	29

Mean comparison of actual expenditures measured in SEK. *p<0.01, **p<0,05 ***p<0,1

4.3 Summary of results

4.3.1 Result summary of behavioural hypotheses

	Hypotheses	Result
H1	Planned expenditures of consumers will be greater for individuals shopping in group constellations than for those shopping alone.	Supported
H2	Number of bought SKU (stock keeping units) will be greater for individuals shopping in group constellations than for those shopping alone.	Supported
H3	Number of bought articles will be greater for individuals shopping in group constellations than for those shopping alone.	Supported
H4	Sum of expenditures will be greater for individuals shopping in group constellations than for those shopping alone.	Supported
H5	Customer satisfaction will be greater for individuals shopping in group constellations than for those shopping alone.	Rejected
H6	Duration of store visit will be longer for individuals shopping in group constellations than for those shopping alone.	Supported
H7	Planned duration minus actual duration of store visit will be greater for individuals shopping alone than for those shopping in group constellations.	Supported

4.3.2 Result summary of moderating effects and mean differences

	Hypotheses	Result	Moderator of	Direction
H8a	Household size is moderating the effects of shopping behaviour* when shopping individually or as a member of a group.	Rejected	N/A	N/A
H8b	When comparing shopping individually with shopping as a member of a group mean differences of shopping behaviour* decreases as households size grows larger.	Rejected	N/A	N/A
H9a	Age is moderating the effects of shopping behaviour* when shopping individually or as a member of a group.	Supported	Number of SKUs, number of articles, sum of expenditures.	+
H9b	When comparing shopping individually with shopping as a member of a group mean differences of shopping behaviour* are higher for consumers younger than 26 than those 26-50 years old.	Rejected	N/A	N/A
H9c	When comparing shopping individually with shopping as a member of a group mean differences of shopping behaviour* are higher for consumers older than 50 than those 26-50 years old.	Rejected	N/A	N/A
H10a	Gender is moderating the effects of shopping behaviour* when shopping individually or as a member of a group.	Supported	Number of SKUs, number of articles, sum of expenditures.	+
H10b	When comparing shopping individually with shopping as a member of a group mean differences of shopping behaviour* are larger for men than for women.	Rejected	N/A	N/A
H11a	Household income is moderating the effects of shopping behaviour* when shopping individually or as a member of a group.	Rejected	N/A	N/A
H11b	When comparing shopping individually with shopping as a member of a group mean differences of shopping behaviour* are larger for lower income households than for higher income households.	Supported	N/A	N/A
H12	Shopping in main store is <u>not</u> a moderator of shopping behaviour* when shopping individually or as a member of a group.	Supported	N/A	N/A
H13a	Shopping trip type is moderating the effects of shopping behaviour* when shopping individually or as a member of a group.	Rejected	N.B. Sum of expenditures.	+
H13b	When comparing shopping individually with shopping as a member of a group mean differences of shopping behaviour* are larger for fill-in trips than major trips.	Rejected	N/A	N/A
H14a	Using a shopping list is moderating the effects of shopping behaviour* when shopping individually or as a member of a group.	Rejected	N.B Number of articles.	+
H14b	When comparing shopping individually with shopping as a member of a group mean differences of shopping behaviour* are larger for shoppers refraining from usage of shopping lists.	Rejected	N/A	N/A
	*Shopping behaviour as defined in section 3.6 and evaluated for each variable separately			

5. Analysis

5.1 General discussion

An argument mentioned in the introduction of this paper asserts that a general focus on the individual characterizes the basis of analytical perspective in economy. This very detailed fixation on individuals as economic units is also prevalent in retailing as the researched data shows. Yet at the same time the tested hypotheses have given a clear indication that contemporary research, which relies on a solely individual focus, will yield an incomplete account of shopping behaviour. Although early studies conducted by Granbois (1968) managed to quantify the effects of group context and Kollat & Willlet (1967) provided moderating factors of shopping behaviour it did not translate into a broader application of situational factors, such as group context, to analysing individual behaviour. This is best reflected by the fact that when Zhang et al. (2014) released their study on social influence almost four decades later an overarching theory on group context of shopping behaviour still did not exist. The sparse academic development in the field provides at the same time an insight into the complexity of the matter. Group context is unequivocally as subtle as it is misapprehended by observers, and therefore it is hard to define unilaterally how group context should be understood and measured.

Albeit this assertion, the need to understand the influence on groups cannot go unchallenged as the results of individuals present in a group context undeniable point to very quantifiable effects. The research provided in this paper shows clearly that there are statistically significant monetary effects that differ solely based on whether the consumer is alone or acting in a group context. Therefore, it is easy to understand why factoring in the group context is needed in order to provide a holistic perspective to already underlying causal links of shopping behaviour. It could be argued that this could be achieved by altering the individual as the basic unit of measurement to include group measurements. This adaptable unit should at the very least provide an additional aspect of nuance when differentiating patterns in shopping behaviour between seemingly identical shoppers. At the same time, it is important to note that social psychology has taken this approach as given in its field of academia whilst in economics, it is relatively uncommon. Cheng et al. (2013) have described this diverging view whilst researching the implications of gender in group context impulse purchases. Not only does Cheng et al. (2013) provide evidence that is congruent with the findings in this paper but also shows that the group context of shopping behaviour is multifaceted. It is also worth mentioning that an effort is not made in this paper to specify an exact definition of group context but rather that its presence should be acknowledged to a greater extent when researching shopping behaviour.

In an effort to construe a theoretical perspective an argument is made that group context effects can be understood through the Engel-Blackwell model of consumer behaviour in concert with Ariely & Levav's (2000) account of sequential choices of individuals in groups. The chronological behavioural process of individual consumers was complemented with the

differentiation of motivational goals in group settings. In tandem they serve as base of understanding consumer behaviour from an economic perspective although it is far from ideal. For the sake of proper discourse it should be stated that they do not provide the detailed insights that are needed to understand real causal links of group context. It is noteworthy that the models managed to provide ample context to the raw data researched in this paper in terms of structuring the analytical approach to researching behavioural differences of individuals in a group context. As already noted, this ad-hoc approach of patching theories into a greater structure is telling of the academical maturity in regards to consumer behaviour in group context. The conjunction of Engel-Blackwell model and the insights presented by Ariely & Levav (2000) managed to accomplish is to provide an intuitive categorisation of group context behaviour and a basis for further research. In other words, it points academical inquisitions of group context consumerism to a direction where classical retailing theories are complemented with situational moderators. This assertion is strengthened when considering that the effects of group context are easily understood through the theoretical framework that the aforementioned conjunction established.

5.2 Standard deviations

During the research it became apparent that the general statistical analysis was showing large standard deviations from the mean. This aspect was expected as the data set that is used has a large segmented user base that will have large behavioural and socio-demographic differences. When using a crude segmentation of the population into dichotomous group a plethora of nuances are not accounted for.

The reason why these nuances have not been included in the analysis is the simple fact that when tried to segment into specific subsets of groups or individual consumers the data set was not large enough. During the research the statistical analysis gave indications that when taking into consideration equivalent subsets of the population and only then differentiating for group context the large standard deviations were diminishing.

5.3 Shopping behaviour

A consideration in this regard would be trying to understand the H_1 hypothesis which showed that differences in the planned expenditures vary between consumers in individual and group settings. When analysing the reason behind this variation a probable cause could be found while looking into the Engel-Blackwell model's *information search* stage and combining it with Ariely & Levav's (2000) insights on *information gathering* as a consumer goal. It could be debated that the group setting affects the individual who uses the group members as external sources of information (*information search)* but also that the consumer's goal is to accommodate for the variety of expenditures of the group members (*information gathering)*. These aspects could be factors explaining why shopping lists, which arguably are manifestations of planned expenditure, only account for a fraction of their final expenditure as per Block et al. (2000) article. It is nevertheless clear that consumers plan for greater expenditures when they are situated in group contexts.

Differences in the planning of expenditures can be observed in the number of chosen *SKU*'s by the consumers shopping individually versus in groups. It is clear that the number of unique items that a shopper purchases will increase when in a group setting. When considering the theoretical framework of this paper a possible explanation for this difference could pertain to the individuals will of *self-presentation* or *information gathering*. The reason of the dichotomy of goals pertains to the group composition that the individual is placed in. Depending on whether the group consists of peers or family members will greatly affect the shopper (Bearden et al., 1982; Mangleburg et al., 2004; Chebat et al., 2013). By conjecture, there is reason to believe that the theoretical underlying causes of different number of purchased *SKU's*, such as *self-presentation,* are therefore also a function of group composition. This holds true for the *H3* hypothesis that the number of articles, not to be confused with unique *SKU*'s, purchased by consumers in group context is greater than those shopping individually. Following the division of value-expressive motivation behind the actual choice of SKU's it could be argued that the actual number of articles is a form of utility optimisation of the shopper. By extension this action should be based on utilitarian normative influence and therefore an act of *minimizing-regret*. This motivation could also be based on the aspect that an individual usually will take into consideration different views and opinions of the group members. The number of unique SKU's and amount of articles purchased may, therefore, be altered as an attempt to accommodate those differing views.

A tangible effect of the aforementioned hypothesis results in a set expenditure for the consumer's purchases at a given moment. Ostensibly, when considering shopping behaviour the aspect of final purchase sum is one of great interest for an economic perspective. The tested *H4* hypothesis has proved that consumers in group contexts generally spend more than those shopping individually. Much akin to the hypothesis *H2* and *H3* this could be attributed to the fact that the consumer has to accommodate the needs of the group whilst also trying to allocate the resources optimally. This allocation of monetary resources to specific needs is probably easier to conduct individually than in a group and could explain why there is such a strong monetary divergence between the individual and group settings of shoppers. With that said it is apparent that the three variables that that have defined as measures of shopping behaviour differ between individual and group shoppers. Although indirectly touched by Granbois (1968) the complex nature of analysing group influence on shopping behaviour did not give rise to an intuitive reason behind the differences. The research conducted in this paper has managed to present the importance of consumer group context as it leads to tangible and real monetary effects on shopping behaviour.

5.4 Time and satisfaction

At the same time the effects of group context on shopping behaviour were also felt in other areas such as planned and spent time. The tested hypotheses *H6* and *H7* confirmed the existence of time effects when shopping in a group context. Shoppers that are alone generally spend less time in the store than shoppers that are within a group. Furthermore, shoppers that are within a group setting adhere to their planned time spent in a store to a greater extent.

These observations are congruent with the findings on shopping behaviour in group context but at the same time the underlying reasons behind the effects are all but self-evident. A simple explanation could be that shoppers subconsciously plan for greater time spent in-store to accommodate for interaction with group members during their shopping trip. Juxtaposing this with individual shoppers it can be argued that people tend to underestimate the duration of their store visits.

A simple test was also conducted to review whether the group context had any effect on the customer satisfaction. The result was clear; there was no statistical difference between the individual and group context. While trying to elaborate on possible explanations behind the convergence of customer satisfaction it is important to remember that it is an individual assessment of the purchase. In the Engel-Blackwell model it would reside in the last chronological step of the process, which is the *post-purchase evaluation*. The researched data show that customer satisfaction seems unaltered by group context and may be explained by the fact that the evaluation is inherently a subjective and independent evaluation of the consumer's decisions. By extension, it should be reasonable to assume that consumers do not find group context as an important criterion for evaluating their decisions.

5.5 Moderators and mean differences

Household size is found not to be moderating the differences in customer shopping behaviour when shopping alone or as a member of a shopping party. However, when dividing consumers according to their household size these very same behaviours are differing as one is comparing sole shoppers with those in groups. Statistically significant results can only be presented for smaller households (1-2 members). Looking at those two steps, mean differences decreases as households grow larger.

A possible explanation for the non-significant results given by the larger households (3-5 members) relates to the role of the shopper. The agent shopping, either alone or for the household, perceives her/his role and subsequently her/his duty, as increasingly similar as household size grows larger. Thus acting similarly in the two contexts. Unfortunately the data set was lacking information about the relation the agent had to his or her shopping party. With such information the tests performed might have given more covering results as well as it might have provided empirical data to support the theoretical findings of Lou (2005).

Age is found to be moderating the differences of number of bought SKUs and articles as well as the sum of expenditures when shopping alone or as a member of a shopping party. These results might be attributable to accumulated experience of shopping situations and accompanying level of susceptibility to influence. Another probable but perhaps contrary explanation is differences between generations and life situation. Different age groups grew up under different circumstances and thus perceive what role they are expected to live up to differently. A deepened explanation is wanted for but given this paper's scope, it is satisfactory to prove the existence of a significant moderating relation.

When looking more closely within age groups, statistically significant results are found for consumers aged below 26 and above 50. Maybe not surprisingly so, as the youngest consumer group have since long been known to be associated with both strong purchasing power and high susceptibility towards influence (Mangleburg et al, 2004, Setlow, 2000). Lonely shoppers buy fewer products and spend less money than if they would have been in company, especially within the age group 50 and above. So it appears peer-influence is attributable to this group to an even higher degree than to teens and young adults.

Gender is found to be moderating the differences of number of bought SKUs and articles as well as the sum of expenditures when shopping alone or as a member of a shopping party. Women in this sample tend to buy a larger amount of articles and spend more than men when shopping alone. When in company of others they are less influenced by them than the male sample. When diving into the results, dividing them on the basis of gender, statistically significant results can only be shown for men with the exception of the level of distractedness where women perceive themselves as more distracted when in company of others. The differences displayed by men concerns everything from the amount of bought SKUs and sum of expenditures to the duration of the store visit. Evans et al. (1996) develops an idea of how the role of men and women have changed during the last century and it might serve well as a base for an explanation of the above exhibited differences. However, there is much to add to this subject to be completed. In this paper however, it is satisfactory to prove the existence of a significant moderating relation.

Household income is found not to be moderating the differences in number of bought SKUs and articles, nor the sum of expenditures when shopping alone or as a member of a shopping party. However, when dividing consumers into four groups according to their household income significant differences are found when comparing sole shoppers with those in groups, especially for low-income households. Amongst the lower income households the difference in the sum of expenditures can be as much as 5 times higher when shopping in groups compared to individual shoppers and purchases may consist of more than 3 times the number of articles. A possible explanation is that low-income households only got one wage earner who is living alone, or with others, are better at recognising budget constraint when shopping alone. Low-income households are also likely to consist of one individual and thus likely to be less used to shopping with others and more perceptible to peer-influence. As household qualifies into the groups of higher income these differences derived from group context are decreasing to a point where differences stop exhibiting significance. The later results can be interpreted as support of the claims made by Ainslie and Rossi (1998). For households in the two highest income groups significant results are only found regarding the duration of store visit and level of distractedness. A reason for this could be that the looser budget restriction multiplies options in many categories and arriving at a decision thus becomes less habitual. Another explanation could be that in the search for higher quality items (which they can afford) a larger amount of time is spent in in-store delis and equivalents. This explanation gives support to the claims of Bawa and Gosh (1999) that with higher disposable income consumers will have a higher propensity to consume and are more likely to purchase high quality items.

Shopping in ones main store is not found to be moderating the differences in number of bought SKUs and articles, nor the sum of expenditures when shopping alone or as a member of a shopping party. However, when dividing consumers according to whether they were shopping in their main store or not, significant intra group differences are found. Consumers shopping in their main store buy more products and spend more money regardless of social context however the intra group difference is smaller when shopping in the main store compared to other stores. This finding is perhaps attributable to the degree of which consumers use habitual or more demanding processes to find their way in the store and their products.

Shopping trip type is found to be moderating the differences in customer spending when shopping alone or as a member of a shopping party. When looking at the intra group differences when for shoppers doing fill-in shopping trips sum of expenditures are raised by a third when in company compared to when shopping alone. When engaged in a major shopping trip results go in the other direction however these differences are not found to be significant at a satisfactory level.

Using a shopping list is found to be moderating the differences of bought number of articles when shopping alone or as a member of a shopping party. Consumers using shopping lists tend to buy a greater number of articles than those without regardless of their shopping context, but when intra group differences are compared usage of a shopping list enhances the effects of social context in favour of shopping in a group. Perhaps, not surprisingly, use of external memory aids such as a shopping list spawns other behaviours, as shoppers do not forget what they wanted to buy to the same extent. Contrary to expectations results show that using shopping lists does not restrict shoppers to only buying items they perceived to be part of their shopping missions.

6. Conclusions, implications, and further studies

6.1 Conclusions

There can be no doubt that group context affects decision makers in a retail environment and that these effects have tangible monetary consequences for both retailers and consumers. The scope of effects generated by social context has in this paper been shown to cover large parts of the commonly used buying process. Planned sum of expenditure, number of bought SKUs, number of articles, actual sum of expenditures and duration of store visit are all variables that have been proven to be affected by the social context of the individual conducting the purchases.

Age and gender have been found to moderate the effects of social context on how many unique SKUs and articles consumers purchase as well as the sum of their expenditures.

Shopping trip type has only been found to be moderating the effects of consumer spending and usage of a shopping list have comparable effects on the number of bought articles.

This paper reports the effects of an individual's social context and does not thoroughly explain, or aim at explaining, causality in the lives of consumers and stores prior to in-store social context purchase situation. It does however highlight the need to complement the established theoretical models of consumer process behaviour as the effects of group context significantly differs from shopping alone.

This paper establishes a ground for academic as well as market research to build deeper and more complete insights on group shopping behaviours and measure their effects through accessible and quantifiable entities. Furthermore this paper gives insights in order to accelerate a shift from regarding individuals as the only interesting financial unit to a broader view completed by the addition of group context. When segmenting, researching and communicating with (amongst other things) actual and future customers the findings of this paper, and others to follow, group context should be at the very least considered.

6.2 Implications

6.2.1 Academic implication

In much of the academic consumer research, the individual has been the focal point of reference when explaining consumer behaviour. This research can explain actions of consumers as well as stores even more thoroughly if taking group context into account. Analysis of individuals complemented by analysis of affiliated shopping parties will not only deepen the knowledge base in the field but also enhance the usability of its findings. Insights will be more conveniently transferable to non-academic fields as they will provide a more complete picture of reality. This addition or change of perspective can in turn affect many of the managerial decisions of how to conduct marketing efforts made on tactic or more long-term basis.

On a more general level this research highlights the parochial nature of economics. The findings of this narrow field could be applied to a broader spectrum of academic research. There is reason to believe that differences found in this research will also be found in other branches of economics. Ultimately, the implication is that individuals as sole financial units should not be regarded as a given truth.

6.2.2 Managerial implications

Consumer behaviour when in group have been proven to be far more profitable than sole shoppers in many regards, number of bought articles and sum of expenditures to name just two of them. This reason alone constitutes a rationale for using group level analysis when evaluating the market and marketing efforts to accommodate its needs. The findings of this paper offer retailers, and other sales and service staff members, two sets of implications:

(i) An opportunity to tailor offerings in new and perhaps more stimulating ways as it involves others. This could for example involve further investigations into already existing market segments and how they interact when shopping with other available segments.

(ii) A new route of procuring profit growth by stimulating impulses making shoppers visit the store together with someone else. For example by offering discounts proportionate to the shopping party's size.

6.2.3 Consumer implications

Given the clear results, awareness of group context effects on shopping behaviour should be elevated amongst consumer interest groups and consumers themselves. A more knowledgeable consumer group would benefit from the insights of this paper and could enhance resilience towards corporate efforts and manipulation. Consumers should be wary of the monetary effects of shopping with others and as a result to be conscious of marketing propagating larger shopping parties. Consumers under stricter budget constrains are thus recommended to go shopping alone. However, for a large part of the consumer group there are other values than the monetary one to be weighed into the equation.

6.3 Further studies

As this paper only sets out at comparing the differences of two kinds of units of measurement, the individual and the group, it would be suitable for further studies to examine the bearings of the presented findings when dividing groups into their varied sizes. An additional aspect of interest would be looking at the effects of the relations the individuals conducting the purchases have with their shopping parties. When doing so one might benefit from adding data on group cohesiveness and individual susceptibility to influence.

Although not researching the questions directly, there were indications of differences between men and women shopping with children. Another question raised by our findings is the non-significant relation between group context and satisfaction. How does it come that group context affects so much of a store visit without leaving any significant marks on satisfaction?

Secondly, this paper spurs reason for the academia to revise theoretical models and, where needed, develop them to better suit the reality of group shopping behaviour. When doing so there is much to gain if results, unlike the ones in this paper, are expressed in models easily mapped into the weave of theories on consumer behaviour as well as in-store marketing.

There are additional concerns when contemplating the conformity of group context effect found and presented here compared to situations coupled with extended, rather than habitual or limited, problem solving. And the same goes for online-purchases. Do consumers think and act as presented in this paper when conducting purchases online? Is it possible to stimulate group shopping situations online?

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8. Appendix

Table 1. Household size

		Individual			Group				
Variable	**Household size**	**n**	**Mean**	**Std.d**	**n**	**Mean**	**Std.d**	**Mean difference**	**Significance of mean difference**
Sum of expenditures	1	36	204	195	8	465	382	261	0,007
	2	78	339	310	57	475	384	136	0,024
	3	44	279	244	39	372	296	-93	0,12
	4	70	447	429	40	353	319	94	0,228
	5	15	364	320	14	495	593	131	0,462
Number of bought SKUs	1	36	8,4	6,5	8	14,8	7,1	6,4	0,018
	2	78	12,3	9	57	18,1	11,8	5,8	0,002
	3	43	11,1	9,1	39	14,8	11,9	3,7	0,109
	4	70	15,4	12,7	40	14,2	11,4	1,2	0,608
	5	15	14,1	9,5	14	16,6	18,6	2,5	0,349
Number of bought articles	1	36	9,9	7,2	8	19,3	9,6	9,4	0,003
	2	78	14,9	11,4	57	22,6	16,1	7,7	0,001
	3	43	12,6	11	39	18	14,2	5,4	0,058
	4	70	19,9	18,9	40	16,7	14,5	3,2	0,353
	5	15	18	12,4	14	21,6	24,9	3,6	0,618
Level of distractedness	1	36	2,2	1,1	8	2,5	1,4	0,3	0,559
	2	78	2,2	1,3	57	2,4	1,3	0,2	0,59
	3	43	2,1	1,3	39	2,8	1,5	0,7	0,019
	4	70	2,4	1,4	40	3	1,7	0,6	0,039
	5	15	2,6	1,7	14	3,3	1,6	0,7	0,274
Planned expenditures	1	36	204	142	8	234	194	30	0,616
	2	78	332	278	57	426	395	94	0,11
	3	44	281	214	39	379	353	98	0,123
	4	70	410	401	40	313	234	176	0,164
	5	15	388	373	14	581	373	193	0,338
Duration of store visit	1	36	12,1	6,9	8	22,5	12,3	10,4	0,002
	2	78	15,4	11,7	57	19,5	12,5	4,1	0,053
	3	44	11,3	6,6	39	18,7	14,4	7,4	0,003
	4	70	14,8	9,7	40	13,9	10,1	0,9	0,618
	5	15	14,1	10,1	14	20	15,5	5,9	0,473
Planned minus actual duration of store visit	1	36	5,8	8,6	8	2,5	7,1	3,3	0,313
	2	78	3,9	10	57	3	10,3	0,9	0,593
	3	44	5,4	6,2	39	-0,9	11,7	6,3	0,002
	4	70	4	5,8	40	2,6	7,4	1,4	0,29
	5	15	3,1	7,1	14	2,6	7,6	0,5	0,848

Table 2. Age

		Individual			Group				
Variable	**Age**	**n**	**Mean**	**Std.d**	**n**	**Mean**	**Std.d**	**Mean difference**	**Significance of mean difference**
Sum of expenditures	<26	16	143	125	19	296	204	153	0,130
	26-50	151	360	357	111	399	357	39	0,384
	>50	80	334	303	43	572	455	238	0,001
Number of bought SKUs	<26	16	6,5	5,2	19	13	8,8	6,5	0,015
	26-50	150	13,1	10,8	111	15,1	11,5	2	0,147
	>50	80	12,4	9,2	43	20,6	14,3	8,1	0,001
Number of bought articles	<26	16	7,6	7,2	19	14,5	10,1	6,9	0,028
	26-50	150	16,4	15,3	111	19	15,3	2,6	0,176
	>50	80	14,8	11,4	43	25,8	19,4	11	0,000
Level of distractedness	<26	16	2,3	1,2	19	3	1,6	0,7	0,136
	26-50	150	2,4	1,3	111	2,9	1,5	0,5	0,003
	>50	80	2,1	1,3	42	2,1	1,2	0	0,989
Planned expenditures	<26	16	131	88	19	247	187	116	0,029
	26-50	150	356	341	111	389	361	33	0,447
	>50	80	312	244	43	505	483	193	0,004
Duration of store visit	<26	16	8,5	5,8	19	18,7	12,9	10,2	0,006
	26-50	151	13,8	9,6	111	16,9	12,4	3,1	0,024
	>50	80	14,9	10	43	19,9	13,1	5	0,020
Planned minus actual duration of store visit	<26	16	7,5	11	19	1,7	11,2	5,8	0,131
	26-50	151	3,9	6,4	111	1,7	9,2	2,2	0,020
	>50	80	4,8	9,5	43	3,2	10,4	1,6	0,373

Table 3. Gender

		Individual			Group				
Variable	**Gender**	**n**	**Mean**	**Std.d**	**n**	**Mean**	**Std.d**	**Mean difference**	**Significance of mean difference**
Sum of expenditures	Female	157	369	360	99	422	413	53	0,281
	Male	90	282	269	74	441	330	159	0,001
Number of bought SKUs	Female	157	13,8	11,1	99	16	13,5	2,2	0,172
	Male	90	9,9	7,4	74	16,5	10,4	6,6	0,000
Number of bought articles	Female	157	16,8	15,3	99	19,6	17,5	2,8	0,18
	Male	90	12,5	10,3	74	20,8	14,5	8,3	0,000
Level of distractedness	Female	157	2,29	1,34	99	2,81	1,56	0,5	0,005
	Male	90	2,28	1,26	74	2,60	1,40	0,3	0,125
Planned expenditures	Female	157	361	336	99	410	408	48	0,299
	Male	90	267	234	74	391	357	124	0,008
Duration of store visit	Female	157	14,9	10,1	99	17,5	13,4	2,5	0,082
	Male	90	11,7	8,2	74	18,1	11,5	6,4	0,000
Planned minus actual duration of store visit	Female	157	4,3	7,9	99	2,7	8,7	1,6	0,132
	Male	90	4,5	7,8	74	1,1	10,8	3,5	0,017

Table 4. Household income

		Individual			Group				
Variable	**Household net income (thousand SEK)**	**n**	**Mean**	**Std.d**	**n**	**Mean**	**Std.d**	**Mean difference**	**Significance of mean difference**
Sum of expenditures	0-20	19	137	127	11	511	575	374	0,01
	20-40	61	264	223	44	350	296	86	0,091
	40-60	64	335	281	46	427	357	92	0,136
	>60	77	475	443	47	536	432	61	0,455
Number of bought SKUs	0-20	19	7,4	5,1	11	21,0	20,0	13,6	0,009
	20-40	61	9,8	7,0	44	14,7	9,8	4,9	0,004
	40-60	63	13,1	9,4	46	15,2	11,2	2,1	0,282
	>60	77	16,0	12,7	47	19,4	13,7	3,4	0,165
Number of bought articles	0-20	19	8,7	6,3	11	25,3	25,7	16,6	0,01
	20-40	61	11,9	9,3	44	18,0	11,9	6,1	0,004
	40-60	63	17,0	15,2	45	18,8	15,0	1,8	0,545
	>60	77	19,4	16,6	77	25,0	19,4	5,6	0,091
Level of distractedness	0-20	19	2,1	0,82	11	2,8	0,93	0,7	0,037
	20-40	60	2,3	1,31	44	2,4	1,45	0,1	0,67

	40-60	64	2,3	1,32	46	2,5	1,43	0,2	0,393
	>60	77	2,2	1,33	77	2,9	1,49	0,7	0,012
Planned expenditures	0-20	19	168	97	11	492	595	324	0,015
	20-40	61	255	198	44	330	307	75	0,129
	40-60	64	338	281	46	434	388	96	0,136
	>60	77	446	407	77	503	444	57	0,465
Duration of store visit	0-20	19	9,2	5,3	11	24,2	18,3	15	0,002
	20-40	61	12,6	8,9	44	15,4	9,0	2,8	0,117
	40-60	64	14,1	9,0	46	18,0	13,0	3,9	0,066
	>60	77	16,1	11,3	77	18,1	12,3	2	0,36
Planned minus actual duration of store visit	0-20	19	6,7	9,9	11	-0,6	6,8	7,3	0,038
	20-40	61	3,4	8,5	44	3,5	6,9	0,1	0,997
	40-60	64	4,4	6,5	46	1,4	11,8	3	0,083
	>60	77	4,5	7,7	77	2,6	9,5	1,9	0,243

Table 5. Main Store

		Individual			Group				
Variable	**Main Store**	**n**	**Mean**	**Std.d**	**n**	**Mean**	**Std.d**	**Mean difference**	**Significance of mean difference**
Sum of expenditures	Yes	182	363	344	121	456	409	93	0,33
	No	65	267	290	52	372	293	105	0,054
Number of bought SKUs	Yes	181	13,3	10,4	121	16,9	12,7	3,6	0,014
	No	65	9,9	8,9	52	14,6	11	4,7	0,081
Number of bought articles	Yes	181	16,3	14,3	120	20,8	16,6	4,5	0,014
	No	65	12,4	12,1	52	18,7	15,4	4,3	0,015
Level of distractedness	Yes	181	2,4	1,3	121	2,7	1,5	0,3	0,023
	No	65	2,1	1,2	52	2,7	1,4	0,6	0,014
Planned expenditures	Yes	182	342	310	121	411	353	69	0,073
	No	65	285	291	52	382	458	97	0,168
Duration of store visit	Yes	182	14,6	9,9	121	18,7	13,7	4,1	0,002
	No	65	11,7	8,6	52	15,8	9,3	4,1	0,015
Planned minus actual duration of store visit	Yes	182	4,6	8	121	1,8	9,9	2,8	0,006
	No	65	4	7,5	52	2,8	9,3	1,2	0,426

Table 6. Shopping trip type

		Individual			Group				
Variable	**Shopping trip type**	**n**	**Mean**	**Std.d**	**n**	**Mean**	**Std.d**	**Mean difference**	**Significance of mean difference**
Sum of expenditures	Fill-in	222	275	251	146	371	333	96	0,002
	Major	25	891	443	27	750	451	141	0,582
Number of bought	Fill-in	222	10,4	7,7	146	13,8	10,5	3,4	0,000

SKUs	Major	25	29,7	12,2	27	28,7	13,4	1	0,262
Number of bought articles	Fill-in	222	12,5	9,6	146	16,9	13,6	4,5	0,000
	Major	25	39,8	20,3	27	37,2	18,5	2,6	0,638
Planned expenditures	Fill-in	222	265	210	146	327	317	62	0,025
	Major	25	882	440	27	812	469	70	0,583
Duration of store visit	Fill-in	222	11,8	7,5	146	16,1	12	4,3	0,000
	Major	25	30,9	8,8	27	27,0	11,7	3,9	0,189
Planned minus actual duration of store visit	Fill-in	222	4,5	7,6	146	1,5	9,1	3	0,001
	Major	25	4,2	9,4	27	4,7	11,9	0,5	0,864

Table 7. Shopping lists

		Individual			Group				
Variable	**Shopping list**	**n**	**Mean**	**Std.d**	**n**	**Mean**	**Std.d**	**Mean difference**	**Significance of mean difference**
Sum of expenditures	Yes	83	462	380	49	581	452	119	0,108
	No	164	274	287	124	371	329	96	0,008
Number of bought SKUs	Yes	83	16,2	11,6	49	21,33	14,1	5,1	0,026
	No	164	10,5	8,7	124	14,2	10,8	3,7	0,001
Number of bought articles	Yes	83	19,9	15,0	49	27,7	19,4	7,7	0,011
	No	164	12,9	12,6	124	17,2	13,8	4,2	0,008
Level of distractedness	Yes	83	2,30	1,30	49	2,55	1,48	0,2	0,302
	No	164	2,28	1,31	124	2,79	1,50	0,5	0,002
Planned expenditures	Yes	83	437	360	49	535	446	98	0,168
	No	164	271	257	124	349	347	78	0,029
Duration of store visit	Yes	83	16,8	10,5	49	23,0	15,2	6,2	0,006
	No	164	12,2	8,7	124	15,7	10,7	3,4	0,003
Planned minus actual duration of store visit	Yes	83	5,5	8,2	49	1,1	12,5	4,4	0,016
	No	164	3,9	7,6	124	2,4	8,3	1,5	0,113