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UNSELFISH INCENTIVE SCHEMES.
A TOOL TO INFLUENCE PEOPLES'
PREFERENCES IN ADOPTION AND
DIFFUSION PROCESSES.

A thesis submitted in partial fulfilment of the requirements
for the degree of:

Doctor of Philosophy (Behavioural Science)

Juan C. Carpio B.
University of Warwick
Warwick Business School

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DECLARATION OF AUTHORSHIP

This thesis, entitled *"*UNSELFISH INCENTIVE SCHEMES. A TOOL TO INFLUENCE PEOPLES' PREFERENCES IN ADOPTION AND DIFFUSION PROCESSES*",* is submitted to the University of Warwick in support of my application for the degree of Doctor of Philosophy. I declare that this thesis and the work presented (including data generated and data analysis) are my own. Specifically, I confirm that:

- This work was done wholly while in candidature for this research degree;

- This thesis contains no material which has been accepted for the award of any other degree or diploma in any university;

- The work described in this thesis has not served as material for any published paper.

ABSTRACT

It is in the interest of many different types of organisations to encourage the adoption of specific products or desirable behaviours. Such goal has been commonly pursued by offering economic incentives to people with the aim of making the desired action more appealing. This type of strategy is based on standard economic theory, which assumes that people behave in ways that maximise only their own economic benefits. However, behavioural scientists have suggested that people frequently make decisions that go against their own benefit and are affected by emotions, biases and social preferences, all of which may lead to the failure of traditional economic incentives. In the present work, prosocial motives are incorporated into the design of incentive schemes by allowing participants to give away part of their rewards to relevant peers. We tested whether such strategy can outperform the traditional "selfish schemes". Specifically, four experiments using hypothetical scenarios were performed, in which participants' preferences were elicited by implementing different methodologies. The main variables considered in this research are the number of recipients and the expectations about their reactions, the possibilities of reciprocity, the certainty of the reward, the size and framing of the reward, and the fear of negative evaluations. The results show a substantial proportion of the participants favouring the "unselfish" incentive schemes. Moreover, the expectations about recipients' reactions were particularly relevant in defining the effectiveness of programmes that incorporate prosocial motives. Findings also suggest that fulfilling others' expectations allows people to strengthen their self-concept and maintain a positive self-image. This research brings a new perspective in the study of adoption and diffusion processes by incorporating insights and methods from behavioural science, and it considers the role of contextual factors in decision-making processes

that have been neglected in the literature. These results can also contribute to the understanding of the mechanisms driving prosocial behaviours and inform the design of initiatives that aim to encourage desirable actions.

PREFACE

The journey of this research has started with a collaboration between the Design Council and the Behavioural Science Group at Warwick Business School. The former is a charity recognised as a leading authority on the use of strategic design, and it focuses, among other areas, on understanding individuals in order to design better products and services with a social purpose. On the other hand, the latter is probably the biggest of its kind in Europe and aims to expand knowledge of standard economics by incorporating a multidisciplinary approach in which insights from psychology, cognitive science, neuroscience, and experimental economics, among other disciplines, are taking into account in order to understand and predict human behaviour.

One common challenge that the Design Council faces – as well as designers, marketers, policy makers, and organisations in general – is that more beneficial and convenient solutions are not necessarily adopted and diffused as intended. It is therefore of great value to use a scientific understanding of people to encourage the adoption and diffusion of new practices. Even though decades of research have approached this topic from numerous perspectives, the methods and insights from behavioural science have rarely been considered. In the present research, I aim to contribute to the body of knowledge regarding the adoption and diffusion of products and behaviours and to provide some practical insights that can be tested in real-world settings. Specifically, I have decided to focus on how insights from behavioural science can help to make economic incentives a more effective tool to influence behaviours. This aspect is particularly relevant because they represent a widespread strategy used for the purpose of encouraging adoption and diffusion processes but has not always produce successful results.

The plan for the current thesis is to split the research into four sections. The first section consists of an integrative review of the studies from the main research traditions regarding the topic of adoption and diffusion processes published during the last decades. That summary is organised based on three categories that have been proposed for practical reasons, based on whether the studies were focused on: 1) Characteristics of the adopters, 2) Social Influence as a driver of adoption and diffusion, or 3) Innovation characteristics as a driver of adoption and diffusion. This categorisation provides a succinct and cohesive summary that familiarises the reader with the topic and positions this research within the current body of knowledge.

In the second section, a set of three experiments is presented in which participants have to state their preferences regarding a range of hypothetical incentive schemes. Some of these schemes allow participants to share a proportion of their reward with relevant peers, with the purpose of appreciating whether such "prosocial" alternative would be more appealing to people than the traditional "selfish" schemes. The possibilities of reciprocity, the number of people with which the reward can be shared, and the degree of certainty about receiving the reward represent the main variables manipulated in the experiments. In the third section, a follow-up study is performed in order to comprehensively explore some of the insights from the initial experiments by measuring preferences with a different methodology and by incorporating different variables. In particular, the two variables measured in the experiment are the role of expectations regarding how others may perceive us after sharing part of our reward with them and the fears of negative evaluations. Moreover, the size of the reward and the way in which it is framed are manipulated in the study. My results suggest, among other insights, that incentives schemes allowing people to show prosocial behaviours can represent a mechanism for strengthening the self-concept and for effectively encouraging desirable behaviours.

Finally, in the fourth and last section, the conclusions of the whole thesis are presented, including the contributions, implications and limitations of the research, and discussions on how the insights regarding prosocial motives as a driver of behaviour can represent a tool to encourage adoption and diffusion processes.

CHAPTER 1 - LITERATURE REVIEW

Why do people decide to buy a new product, start a specific diet or switch to a different internet provider? The answer to these questions seems very obvious in principle: people just want to adopt anything that can put them in a better situation. However, the literature is full of examples where innovations that are obviously more beneficial are adopted very slowly or not implemented at all (Rogers, 2003). Even more surprising are the numerous occasions in which innovations are widely adopted by people despite the conspicuous disadvantages of these inventions to individuals. Therefore, a very frequent challenge for governments, companies and organisations is to understand the drivers that motivate people to adopt certain products or behaviours.

An interesting example that illustrates very clearly the failure to adopt better innovations is the case of the QWERTY keyboard that we use in computers and other devices nowadays. The QWERTY keyboard, named after the six first characters in the upper row of letters, was invented in the nineteenth century and even though it makes people work much harder than necessary, its use has persisted. When early typewriters were rapidly and successively striking adjoining keys in the old machines, the keys used to jam. In an attempt to find a solution, Christopher Latham Scholes designed the keyboard in an awkward and inefficient way that we use today in order to slow down typist. Decades later, when QWERTY design was no longer needed, the Dvorak keyboard was proposed with a more efficient arrangement, clustering keys according to the frequency of use and the work assigned to each finger proportional to its skill and strength (Rogers, 2003). Given the devices used by people today, it is evident that Dvorak never succeeded in getting his more efficient design gain widespread acceptance from the public.

A fundamental question is whether cases like the Dvorak's keyboard in which more beneficial innovations that are not adopted occur in exceptional circumstances or instead they represent the norm. Admitting that these kind of phenomena are commonplace in the real world, as it seems to be, would require firms to focus not only on creating products and services with greater advantages but also on understanding the mechanisms that could make their innovations more "sticky", that is, more likely to be adopted faster and for longer periods.. Considering that adoption decisions are ultimately determined by individuals' preferences; the present work aims to contribute to the long tradition of research in adoption and diffusion by exploring some of mechanisms driving people's decision-making processes. In particular, we incorporate insights and methods from behavioural science to show how unselfish motives can represent a strong mechanism affecting individuals' preferences that can potentially encourage the adoption of products and services.

Even though "adoption" and "diffusion" are concepts that are closely related, they represent different processes. Adoption is understood as an individual process which involves the mechanisms that encourage a person to acquire a new object or behaviour. The present work will focus on identifying some of the mechanisms influencing individual preferences for adopting desirable behaviours. On the other hand, diffusion represents a wider phenomenon which involves the study of how innovations are adopted among a group of people over time.

In relation to the definition of "innovation", the term has been approached and defined in different ways by a large number of disciplines including business and management (Freeman & Engel, 2007), economics (Love & Roper, 2004), organisation studies (Garcia-Morales, Matias-Reche, & Hurtado-Torres, 2008), innovation and entrepreneurship (Du Plessis, 2007), technology and engineering

(Francis & Bessant, 2005), marketing (Berthon, Mac Hulbert, & Pitt, 2004), among many others. In the context of the present research, we embrace the broad definition provided by Rogers, Singhal, and Quinlan (2009), in which innovation is understood as objects, practices or ideas perceived as new by members of the social system where the diffusion process is taking place. The studies presented in the current work approach the adoption of innovations in a very narrow domain. Specifically, the studies concentrate on individual's preferences for initiatives encouraging the adoption of new behaviours in a commercial context. Even though the scope of the studies is very specific, we strongly believe that the insights and principles revealed in our results can have theoretical and practical implications in the wider field of adoption and diffusion.

The following sections present a succinct and cohesive summary of the most important traditions and methodological approaches in the study of adoption and diffusion processes. The review offers a general framework to contextualise the reader with the current body of knowledge in the field, and show how the study of human decision making and individual preferences represent an important research opportunity to contribute to the literature focusing on innovation characteristics as a driver of adoption behaviour. The end of the chapter focuses particularly on how the use of incentives as a tool to encourage adoption can significantly benefit from gaining a deeper understanding of the cognitive mechanisms influencing individual preferences for unselfish actions. The general framework just described represents and introduction to the set of experiments developed in the rest of the thesis, which explore the potential effectiveness of unselfish incentive schemes as a tool to influence peoples' preferences in adoption and diffusion processes.

1.1- Traditions in diffusion and adoption research

The study of the adoption and diffusion of innovations started several decades ago. The research conducted by Ryan and Gross (1943) on the adoption of corn hybrid seeds among farmers in Iowa is commonly cited as the first formal approach and probably the most influential research in the study of diffusion of innovations. These authors were surprised to find that the widespread diffusion of the seed was only achieved after 12 years, even though the new seed was significantly more beneficial than those used for previous practices (Rogers et al., 2009). The main contributions of this pioneering study were identifying the importance of social networks in diffusion and setting research paradigms that are useful for understanding this process.

After the mentioned research was performed during the 40's, the disciplines and the range of innovations studied increased significantly. By performing a meta-analysis of the relevant literature, as many as 13 different traditions in the study of diffusion of innovations were identified by Greenhalgh, Robert, Macfarlane, Bate, and Kyriakidou (2004), whilst Rogers (2003) summarised up to 9 different areas of knowledge where studies on this topic have been successively developed. In this regard, the three most prolific traditions seem to be rural sociology, communication and marketing.

A detailed exposition of all the topics studied in each tradition goes beyond the scope of the present analysis (for a review see Greenhalgh et al., 2004; Rogers, 2003). However, I offer below a review of some of the topics most commonly found in the literature by categorising them based on the elements involved in the diffusion process that researchers have focused on. Specifically, we have separated the topics according to those research works that emphasise the characteristic of the products being diffused, the characteristics of the adopters, and the role of social

influence. In reality, the different research streams are closely related. Nonetheless, the categorisation that we have created represent a conceptual framework that aims to facilitate the review of the current body of knowledge in adoption and diffusion research and position more clearly the present work within the literature.

1.1.1- Characteristics of the adopters

One apparent observation from the initial studies about diffusion was that some individuals decided to adopt innovations relatively earlier than other members of the same social systems. Rogers (2003) defined "innovativeness" as the degree to which this earliness in adoption characterise people. It involves all the mental, behavioural, and demographic characteristics associated with consumer willingness to adopt innovations (Hauser, Tellis, & Griffin, 2006).

Traditional approaches exploring adoption and diffusion processes have put particular attention on identifying personal characteristics that could make some people more likely to adopt innovations than others do. In this regard, Rogers (2003) found that "Innovativeness" represented almost two-thirds of all publications from a comprehensive review summarising all the different types of diffusion research commonly found in the literature. This finding shows a great deal of attention that this topic has attracted in the last few decades.

During the 50's Everett Rogers, probably the most prominent exponent in the study of diffusion of innovations, first published a classification of adopters based on the concept of innovativeness previously mentioned. Even though innovativeness is understood as a continuum, the author introduced the categories as a conceptual device to facilitate the identification of adopter types (Rogers, 2003; Rogers et al., 2009).

By realising that the adoption rate typically resembles a normal distribution, Rogers established 5 categories by lying off standard deviations from the average time of adoption, as shown in Figure 1. These five categories are as follows: Innovators, Early Adopters, Early Majority, Late Majority and Laggards; they differ from each other in the proportion of people they represent from the total population in the social system and in the characteristics and values that are expected to be observed within each group.
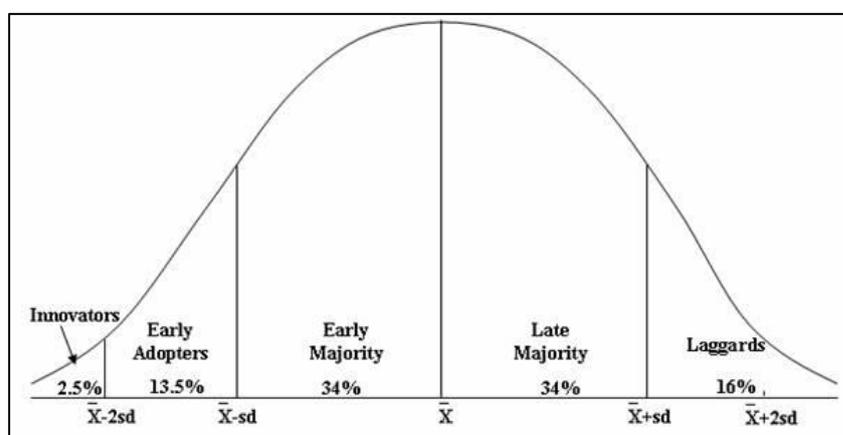
Figure 1: Adopters categories based on Innovativeness (Rogers, 2003).

Individuals under the categories of "innovators" and "early adopters" are of particular interest for anyone aiming to get an innovation diffused. In this regard, some research traditions like marketing have largely focussed on identifying the specific characteristics and conditions that distinguish the people under these categories with the aim of targeting them first when trying to spread a product or idea in a given social system.

When attempting to identify "innovative" people, one common approach has been consistent in assuming that some individuals are more innovative than others because they have innate characteristics that make them more likely to adopt new

products or ideas. Therefore, developing methods to measure these characteristics became an important goal. In this sense, the definition and measures of innovativeness have been very diverse within the extensive literature regarding the topic (Roehrich, 2004). Some have understood innovativeness as an innate or learned openness to novel ideas (Clark & Goldsmith, 2005; Mansori, Sambasivan, & Md-Sidin, 2015), intentions to adopt new products (Van Ittersum & Feinberg, 2010; Venkatesh, Morris, Davis, & Davis, 2003), actual ownership and usage of innovations (Im, Bayus, & Mason, 2003; Im, Mason, & Houston, 2007), relative time of adoption (Rogers, 2003), or a combination of different approaches that aim to find convergent validity (Arts, Frambach, & Bijmolt, 2011; Demoulin & Zidda, 2009). Of course, that heterogeneity when defining and measuring innovativeness has been a challenge when trying to consistently link people's characteristics to the actual adoption of innovations.

In terms of the specific measures of innovativeness, we are not aware of any formal attempt to synthesise the numerous scales and measures that have been developed to quantify innovativeness. However, Roehrich (2004) have provided a broad classification of these type of scales, dividing them into two broad groups: 1) adoptive innovativeness scales, and 2) life innovativeness scales. The first group refers to those measures capturing the tendency to adopt products in specific contexts, whereas the second group involves those factors measuring innovativeness as a general behaviour. The scales measuring innate innovativeness have been found to have, in general, low power to predict the willingness to adopt innovations when focusing on general innovativeness, but the predictive power seems to improve for scales focusing on domain-specific measures (Hauser et al., 2006; Roehrich, 2004).

In sum, innovativeness as a personality predisposition has been found to be very inconsistent as a predictor of adoption of innovations. Some authors have found strong positive relationships between the adoption of innovation and psychological variables such as innovativeness (Arts et al., 2011; Rogers, 2003). Nonetheless, other researchers have found no relationships (Im et al., 2003) or only indirect links between innovativeness and personality traits when incorporating other mediating variables into their analysis (Im et al., 2007; Mansori et al., 2015).

Apart from personality traits, the second approach that has been implemented when trying to link people's characteristics with the tendency to adopt innovations is the study of socioeconomic variables. Personal characteristics such as age, level of education and level of income have been often considered because, among other reasons, they are relatively easy to observe and allow companies and organisations generally to segment audiences based on these features. Overall, the evidence suggests that socioeconomic or demographic variables are poor and inconsistent predictors of adoption behaviour (Arts et al., 2011).

Even though generalisable and systematic evidence has not been found regarding the relationship between the adoption of innovations and demographic variables, some interesting insights can be identified in the literature. Early adopters have been found to have more years of formal education and a higher social status, but their age seems irrelevant as a criterion for innovativeness (Rogers, 2003). However, when studying the adoption of electronic products, age, level of income and other innate consumer traits seems to be a strong predictor of adoption (Arts et al., 2011; Im et al., 2003). Moreover, demographic variables can be powerful mediators when building models to predict adoption (Venkatesh et al., 2003). We can, therefore, conclude that demographic variables may have a limited impact on predicting diffusion in general, but they can be very valuable when considering

specific contexts such as the adoption and diffusion of technology products or when
building multi-caused predicting models.

In summary, even if we consider that some characteristics that are specific to
people (e.g. age and personality traits) may favour some predispositions to be
innovative, it seems clear that other contextual factors should play a role. This is
probably why it is not uncommon to see people showing innovativeness in certain
domains but not in other fields.

The third type of variable that has been studied to predict innovativeness based on
people's characteristics are the values and beliefs that they hold. The demographic
characteristics and innate traits previously described as a potential predictor of
adoption of innovations can be considered as relatively stable. In contrast, Mansori
et al.(2015) argue that the advantage of approaching values and beliefs as a
predictor of innovativeness is that they may change or evolve as a consequence of
environmental factors. Therefore, values and beliefs associated with adoption of
innovations can be identified and potentially modified.

Some research traditions such as anthropology have shown particular interest in
understanding why and how people's values and beliefs can facilitate or represent
barriers to the adoption of innovations. By observing participants and getting
immersed into people's day-to-day activities, researchers aim to understand and
adopt participant's perspectives regarding the adoption of a new behaviour (Rogers,
2003). In other words, they could foresee which features of innovations could be
against current values, traditions or cultural norms. A common practice under this
approach consists of identifying "Positive Deviants", who are individuals that are
already showing the desired behaviour, while most other members from the same
social system have not yet engaged in such behaviour (Pascale & Sternin, 2005;
Rogers et al., 2009). The knowledge gained by understanding the characteristics of

these outliers can then be used to promote the adoption of innovativeness by other members of the social system.

People's values and beliefs – as well as demographic variables, personality traits, and other characteristics – are frequently taken into account by marketers when establishing market segmentation strategies. This consideration involves implementing different communication channels and messages to target sub-audiences based on their characteristics. This kind of approach could help identify people who are more likely to adopt products and services in different contexts. One limitation of this perspective is that a large proportion of research about the topic is sponsored or directly performed by private companies aiming to gain a competitive advantage (Rogers, 2003). Consequently, scholars have limits on accessing the knowledge obtained from these studies. Even so, numerous publications linking values and beliefs with innovativeness can be found. A recent example was presented by Mansori, et al. (2015) who found that religiosity, ethnicity and the basic values of individuals influenced the acceptance of novel products.

We have described how different types of individual characteristics have been studied with the purpose of identifying potential drivers underpinning adoption behaviours. Even though our summary is not a comprehensive review, it is extensive enough to illustrate that individual characteristics provide useful insights to understand why products, services or behaviours in general are adopted. However, it is clear that they do not represent an analytical tool that can fully explain and predict adoption behaviour. Moreover, a particular problem that has been identified when targeting early adopters of innovations is that these are commonly the individuals that least need the benefits associated with the adoption of the new practice (Centola, 2010; Rogers, 2003). This fact is particularly relevant when trying to tackle social issues; for instance, when new beneficial technologies like novel

contraceptive methods are adopted only by well-off families, who probably are in a better position to raise more children compared to poorer families who cannot do so. For these reasons, diffusion researchers have realised that in order to explain and promote adoption behaviours, they need to go beyond studying people's characteristics and consider how individuals' interactions influence each other's behaviours. In the following section, we present a general review regarding the research on social influence as a driver of adoption behaviour and diffusion.

1.1.2- Social Influence as a driver of adoption and diffusion

The benefits of understanding the impact of individual's network and social influence in adoption behaviour have significantly increased its relevance during the last few years, especially because the technological and methodological tools that are currently available were not present during the early years of diffusion research. We will present a brief review of the main research streams on this topic. We will also divide them, for practical reasons, into two broad categories: 1) micro-level influence and 2) macro-level influence. The first group involves those studies exploring how the influences among immediate peers affect adoption behaviours. On the other hand, research from the macro-level perspective includes studies in which social network configurations as a whole are explored as a driver of diffusion patterns. Examples of both types of research are presented in the next sections.

1.1.2.1- Micro-level research on social influence

Adopting a new product, service or behaviour is a risky choice. New things can always go wrong, and the fear of failure can refrain people from taking the associated risks. Indeed, it is a well-established insight from behavioural science that most people have a natural tendency to be risk averse (Kahneman & Tversky,

1979; Wilkinson & Klaes, 2012). It means that they tend to prefer small gains with certainty rather than larger rewards under a situation with a known probability of losing the reward (higher risk). Such preference is prominent because individuals are more motivated to avoid losses than to obtain gains. Moreover, people tend to show ambiguity aversion (Ellsberg, 1961). Put simply, events that people know more about are preferred over uncertain situations. The subtle difference between risk and ambiguity aversion is that in the former the probabilities of the expected outcomes are known by the decision maker, whereas in latter such probabilities are unknown.

Both risk and ambiguity aversion are very crucial principles to take into account when trying to understand how people influence each other to adopt behaviours. As a mechanism to reduce uncertainty, potential adopters may need to seek for different sources of information before making the decision to adopt an innovation. In this context, behaviours from other individuals who are socially closed could heavily affect the adopter's decision because they may provide signals informing them about the quality of the innovation. Therefore, according to Aral (2011), social influence occurs when peer's behaviours change one's expected utility and consequently affect the extent to which one will engage in a given behaviour.

Based on the idea previously described, Valente (1996) proposed a very influential model in which individuals are characterised by different adoption thresholds. Specifically, he argues that once a person is exposed to a certain proportion of people from his or her personal network that has already adopted the innovation (threshold), then this person will also accept the innovation. Also, the model takes into account the time of exposure to the members of the local network who have already adopted the product or behaviour. By re-analysing the data from three classic studies considering different sort of innovations in different countries, the

author managed to predict the adoption patterns. Moreover, the adopter categories described in the previous section (Innovators, Early Adopters, Early Majority, Late Majority and Laggards) were explained by the model, suggesting that external influences from a person's network can actually define the level of innovativeness relative to the entire social system.

The impact of interpersonal influence on adoption behaviour is frequently understood as social contagion. That involves to assume that behaviours can spread in a social system as if they were infectious diseases, a system in which behaviours patterns are copied by other people who are exposed to them (Christakis & Fowler, 2007; Fowler & Christakis, 2008). Some evidence suggests that social influence occurs not only because of the mere exposition to peer's adoption, but peer's usage volume also seems to be one of the main factors driving the influence process (Iyengar, Van den Bulte, & Valente, 2011). Moreover, the direct observation of others seems not to be always required to generate influence, but also descriptive norms about how other people behave have been found to be significantly influential (Bond et al., 2012; Duflo & Saez, 2003; Nolan, Schultz, Cialdini, Goldstein, & Griskevicius, 2008; Sotiropoulos & d'Astous, 2012).

One of the main challenges that researchers have faced when attempting to explore the effects of social influence is the presence of "homophily". Homophily refers to the degree to which linked people are similar to each other (Rogers, 2003). Generally, individuals tend to make friends with people who are like them or with individuals whose company they enjoy (Aral & Walker, 2011b). Hence, if people are very similar to each other, their adoption patterns can be explained, at least in part, by their personal characteristics and not because of their social influence. For that reason, numerous studies in recent years have implemented complex statistical methods and creative research designs that aim to isolate the effect of social

influence from other factors (Aral & Walker, 2011a, 2011b, 2012), disentangle the

effect of homophily (Centola, 2011) or even quantify the weight of both effects,

social influence and homophily, within the same data set (Aral, Muchnik, &

Sundararajan, 2009). Nonetheless, controversies and challenges to these type of

analysis are not uncommon in the literature (Cohen-Cole & Fletcher, 2008; Fowler &

Christakis, 2008).

Another important research stream, regarding the impact of social influence on

adoption behaviour at a micro-level, is related to the identification of those

individuals who have distinctive abilities to alter the behaviours of other members

within a social system. People with such outstanding characteristics are frequently

defined as "opinion leaders". According to Iyengar, et al. (2011), opinion leadership

has been associated with the early adoption and heavy use of the innovation been

adopted. From the perspective of the threshold model proposed by Valente (1996),

opinion leaders are represented by those individuals with a low adoption threshold

who are able to influence the most to those people with higher adoption thresholds.

Moreover, distinctive characteristics have been identified for people labelled as

opinion leaders. Specifically, Rogers (2003) summarises empirical evidence

suggesting that opinion leaders have greater exposure to mass media, greater

social participation, greater contact with change agents, higher social status, more

cosmopolitanisms and more innovative.

Due to the crucial role that opinion leaders can have on adoption and diffusion,

researchers have developed a large number of methodologies that aim to identify

these kinds of individuals. Indeed, in a meta-analysis performed by Valente and

Pumpuang (2007) in which about 200 relevant papers were considered, the authors

found up to 10 different types of methodologies. Specifically, these methods of

identifying opinion leaders in order to promote behaviour change were named as

follows: (1) Celebrities, (2) Self-selection, (3) Self-identification, (4) Staff Selected, (5) Positional approach, (6) Judge's ratings, (7) Expert identification, (8) Snowball method, (9) Sample sociometric and (10) Sociometric. Different approaches of identifying opinion leaders may lead to different outcomes; therefore, many methods are likely to differ from each other in the constructs that they capture (Iyengar et al., 2011). Hence, the identification of effective opinion leaders should be driven by the theory underpinning the implementation of the behaviour-change programme and the type of behaviour being targeted (Rogers, 2003).

Opinion leaders are usually influential within a specific category. Other types of individuals that have been defined in the literature as "Market Mavens" are characterised by their influence across a large number of categories. These individuals know different facets of markets, and they are very active in initiating discussions and responding to requests from other people regarding market information (Feick & Price, 1987). They have been associated with higher self-esteem and a need for uniqueness, and at the same time, they seem to operate within a system of social norms (Clark & Goldsmith, 2005). Even though market mavens have been less studied than opinion leaders, they are also very valuable individuals to target when promoting diffusion of innovations.

We have briefly described so far how social interaction can affect adoption behaviours and how certain individuals can be more influential than others. An additional research theme that have caught great attention is how organisations and firms, in general, can encourage social interaction. Valente (2012) has defined "induction" as all the strategies that aim to intervene in a social network by stimulating or forcing peer-to-peer interaction in order to produce diffusion of behaviours or information.

Word-of-Mouth (WOM) is probably the induction strategy that has been more widely studied in the literature. It consists of stimulating interpersonal communication to persuade others to adopt a new behaviour (Valente, 2012). It is worth noting that this type of research is different from that found in the tradition of communication studies. According to Rogers, et al. (2009), a distinctive characteristic is that the communication messages being studied when approaching WOM are perceived as new by the receiver, and they aim to go beyond mere awareness but produce decision making and behavioural change. Furthermore, diffusion studies put greater emphases on interpersonal communication networks, whereas communications studies tend to focus more on creating awareness or knowledge about a given innovation.

Intuitively, we could expect that people happy with a given product or behaviour will immediately generate positive WOM within their social network. Similarly, undesirable experiences should always produce negative WOM among relevant peers. However, evidence shows that individuals' satisfaction (or dissatisfaction) is usually necessary but not sufficient to generate these kinds of referrals (Wirtz & Chew, 2002; Wirtz, Orsingher, Chew, & Tambyah, 2013; Wojnicki & Godes, 2008). For that reason, an important body of knowledge have been developed in order to understand the conditions in which both positive and negative WOM occurs. Presenting a detailed review of the extensive literature on WOM goes beyond the scope of the present work (for a recent review see Berger, 2014). However, we mention below some emblematic themes that have been of great interest in the literature.

A first important topic in the WOM literature has been to understand the psychological and social function that it serves. For instance, a plausible explanation is that people are altruistic; consequently, they are motivated to help

their friends by recommending products or behaviours that might be useful to them (Berger, 2013; Berger & Milkman, 2012; Price, Feick, & Guskey, 1995). Another approach is to study the extent that WOM relates to the need of boosting or strengthening the self-concept, maintaining self-esteem and reaching a positive image by behaving in a way that is likely to result in a positive feedback from others (Alexandrov, Lilly, & Babakus, 2013; Berger & Shiv, 2011; De Angelis, Bonezzi, Peluso, Rucker, & Costabile, 2012; Wien & Olsen, 2014; Wojnicki & Godes, 2008). Moreover, the impacts of many contextual factors on WOM have been studied. These impacts include the culture (Chung & Darke, 2006) and the size of the audience that will receive the message (Barasch & Berger, 2014), and the communication through electronic channels (Eisingerich, Chun, Liu, Jia, & Bell, 2015; Hennig-Thurau, Gwinner, Walsh, & Gremler, 2004; Kim, Lee, & Elias, 2015), among many others.

Another predominant theme in the literature has focused on understanding how organisations can encourage WOM. Even though WOM can occur spontaneously, firms and organisations can exogenously encourage conversations by providing economic incentives where none interpersonal communications would naturally have happened otherwise (Godes & Mayzlin, 2009). This initiative is very crucial in order to achieve diffusion, because messages about products or behaviours that have been received from a friend are more persuasive and influential than those obtained from traditional marketing campaigns that aim to affect behaviours (Arthur, Motwani, Sharma, & Xu, 2009; Berger, 2013; Wirtz et al., 2013; Xiao, Tang, & Wirtz, 2011). Such situation occurs, at least in part, because close peers seem more honest and objective (Day, 1971; Wirtz et al., 2013).

The initiatives in which firms and organisations generally provide economic incentives to encourage recommendations are frequently called Rewarded Referral

Programmes (RRP). Even though these types of programmes are very popular in the industry, some pieces of evidence have identified many situations in which this kind of initiatives fails (Tuk, Verlegh, Smidts, & Wigboldus, 2009; Verlegh, Ryu, Tuk, & Feick, 2013; Wirtz et al., 2013). Therefore, an important volume of research has been dedicated to better understand the mechanisms underlying externally incentivised recommendations. For example, some topics that have been approached are incentives magnitude (Ahrens & Strahilevitz, 2007; Ryu & Feick, 2007) reward distributions (Verlegh et al., 2013; Xiao et al., 2011), referral incentives and social norms (Tuk et al., 2009), perception of the recommendations (Wirtz et al., 2013), impact of the strength of social ties (Ryu & Feick, 2007; Wirtz & Chew, 2002; Wirtz et al., 2013), and value of referred customers (Schmitt, Skiera, & Van den Bulte, 2011), among many others.

We have previously presented a brief review of some of the most important research streams that have been developed in order to understand how peer-to-peer interactions can affect adoption behaviour. In the next section, we will explore how these interactions produce patterns of adoption among groups of people that can be analysed at an aggregated level or, in other words, in terms of patterns of diffusion over time.

1.1.2.2- Macro-level research on social influence

We have just presented some evidence on how immediate peers can heavily influence individuals' behaviours. The research of social influence at a macro-level involves considering a different conceptual dimension in which the unit of analysis is not the relationship between a few people but the collection of all individuals from a social group of interest and their social ties. In other words, groups are better understood as a network where each person represents a node, and nodes are connected by links. In this regard, Easley and Kleinberg (2010) argue that the

definition of "links" is very flexible, and depending on the context, they can represent different forms of relationships between nodes (e.g. friendship, communications exchanged, and physical proximity). In summary, the general purpose of study is to understand how the arrangement of the collection of linked nodes affects the spread of communication and behaviours over time.

One of the main research streams in the area aims to identify which nodes can be more influential within a given social network. Unlike the opinion leadership concept presented in the previous section, in this perspective influence is not defined based on personal characteristics or just by the amount of nodes that someone is connected to, but it is also crucial to consider the extent to which people are connected with nodes that are "central" within the network (Canright, Engø-Monsen, Weltzien, & Pourbayat, 2004). The main idea is that the identification of network centres that reach larger parts of the network may lead to accelerate diffusion processes. In this regard, central nodes are identified by implementing complex mathematical methods such as eigenvector centrality (Canright et al., 2004), betweeness centrality (Kratzer, Lettl, Franke, & Gloor, 2016), closeness centrality (Sabiduss.G, 1966), and super mediators (Saito, Kimura, Ohara, & Motoda, 2016), among many others. None of the methodologies available are equally effective in identifying influential nodes across different types of networks. On the contrary, their outcomes and assumptions about the way in which information flows through a network are different from each other (Borgatti, 2005). Therefore, the implementation of these methods requires a clear understanding of their reach and assumptions.

Another predominant topic within the literature on social networks has been the identification of methodologies to capture network properties and how those properties affect diffusion processes. In particular, it is common to appreciate the

organisation of nodes which are connected by many links between each other, but have only a few links with other nodes of the network. Revealing such dynamics that characterises the networks' topologies has become a crucial task. That is achieved by implementing one of the vast amount of algorithms and complex methodologies that are available to identify the formation of clusters, measure the isolation of communities, and identify how links are distributed and how dense they are, among many other features (for a review of the methodologies see Fortunato, 2010). Moreover, according to Valente (2012), once the topology of a network is understood, the structure may be deliberately altered in order to facilitate diffusion processes by: 1)adding/deleting nodes, 2) promoting/eliminating links between nodes, 3) rewiring existent links.

Apart from capturing the properties of social networks, researchers have frequently focused on understanding why networks have these features. For instance, social networks have been repeatedly found to form clusters because of homophily (Rogers, 2003). In other words, such clustering of social networks happens because people tend to become friends and establish links with other people who are similar to them. The relevance of understanding these patterns is that they can profoundly impact diffusion processes. In particular, more homophilous and clustered networks have been found to increase adoption behaviour (Centola, 2011). Also, even though clustered ties could be considered redundant in networks transmitting information or diseases, they seem to be highly effective when it comes to behavioural contagion (Centola, 2010). However, the acceleration of diffusion processes under these conditions seems to be limited to those people connected in a close-knit network (Rogers, 2003). Moreover, the presence of long weak ties in networks has been largely studied as a potential promoter of diffusion in clustered networks. To say it another way, bonds connecting socially distant locations in a network (weak ties) may speed up behavioural contagion (Centola & Macy, 2007; Easley & Kleinberg,

2010; Rogers, 2003). In summary, the examples just presented above represent a small sample of the many insights that can be obtained when exploring and understanding the features and topology of a social network.

Researchers have also shown particular attention to the development of predictive models based on the structural properties detected in social networks. A first type of predictive model aims to forecast how the connections and nodes in a social network will evolve based on its current and past properties. Some of the most popular models predicting network growth assume that new links will preferentially bond to nodes that are already well-connected, thus producing a self-organising phenomena governed by a power-law distribution of people's attachments (Barabasi & Albert, 1999; Easley & Kleinberg, 2010). In other words, networks tend to be characterised by having few people with a large number of attachments and many individuals with very few links with other members. Numerous complex models predicting network growth are currently available and the area is in constant evolution (for a review of network growth models see Newman, 2003).

The second type of predictive models commonly found in the literature on diffusion pretends to forecast how the adoption of behaviours will spread through networks. These type of models, also known as cascades behaviour models (Leskovec, Singh, & Kleinberg, 2006), usually take into account variables such as adoption thresholds, which can be understood from the social influence micro-level, and also elements from the macro-level of analysis such as node clusters or the presence of long weak ties (Easley & Kleinberg, 2010; Kleinberg, 2007). In the marketing tradition, the diffusion model proposed by Bass (1969) more than four decades ago has been the most influential predictive tool. This tool takes into account the effect of both mass media and interpersonal influences on adopters, and it is still

encouraging research nowadays (e.g. Hong, Koo, & Kim, 2016; Ratcliff & Doshi, 2016).

The emerging body of knowledge aiming to identify the most appropriate ways to measure networks' characteristics has provided a much better understanding of how social influence operates within a large group of people. However, being highly central in a network of having a lot of links with other members of the system cannot define whether someone is influential or not, but the individual's "potential" to reach more people and therefore influence larger segments of the social network. As Aral (2011) argues, to be influential it is not enough being connected or passing information to a significant amount of people. Instead, individuals must cause a behavioural change in others. In this sense, such behavioural change is better explained by the type of variables covered in the previous section regarding social influence at a micro-level.

In the previous sections, we have presented how both personal characteristics and social influence have proven to be important factors to consider when promoting adoption and diffusion of innovations. However, one disadvantage of these approaches is that they are relatively difficult to control or manipulate by people or organisations interested in encouraging adoption behaviours. In the next section, we will discuss how certain characteristics of the innovation itself, which are easier to manipulate, can also favour adoption and diffusion.

1.1.3- Innovation characteristics as a driver of adoption and diffusion

It is extremely sensible to assume that, at least in part, innovations' features have an impact on adoption and diffusion processes. After all, when people are asked about the reasons why they decided to buy a product or follow a given behaviour,

people tend to say that the new practice/product is more beneficial than the current one. In this regard, it is crucial to emphasise that the objective attributes of an innovation are not necessarily the most important aspects when it comes to adoption decisions but how people "perceive" those attributes. According to Greenhalgh et al. (2004), the marketing tradition on diffusion is built under the assumption that organisations can make efforts to influence the judgement of potential adopters by increasing the perceived benefits or decreasing the perceived costs of a novel product or behaviour.

In the influential diffusion theory proposed by Rogers (2003), the attributes of an innovation leading to adoption behaviours have been classified into five different conceptual categories. Even though the different types of attributes proposed are empirically highly related, the categorisation serves as a useful analytical tool. The first attribute suggested by Rogers is *compatibility*. People compare new products or ideas with practices currently prevalent and evaluate whether they may match or not. This compatibility assessment not only involves considering products or practices previously adopted, but also includes how innovations match needs and current beliefs. The second relevant innovation attribute is *complexity,* which consists of evaluating the extent to which potential adopters perceive the innovation as something easy to use or understand. Of course, they are likely to refrain from adopting innovations perceived to be too complex. *Observability* is the third important attribute that makes innovation more likely to be adopted. It refers to the degree to which the outcomes from adopting an innovation are visible to other members of the social system. The presence of public consequences can help potential adopters to reduce uncertainty regarding the innovation. The fourth attribute, the possibility of testing the innovation for a limited time before adopting it, has also been found to favour acceptance of novel products or practices. This attribute is called *trialability.* The fifth and final attribute is *relative advantage.*

Potential adopters need to perceive that the innovation is more beneficial than what they are currently doing in order to change their behaviours. Benefits are frequently assessed in terms of economic profitability; however, other variables such as perceived comfort, time or effort saved, and social prestige are considered when evaluating the relative advantage. In general, the impact that the different attributes previously presented have in adoption rates may differ depending on the context, the type of innovation being diffused or even the personal characteristics.

Overall, the relative advantage as an innovation attribute has been found to be one of the strongest predictors of adoption behaviour (Rogers, 2003). One extremely common strategy of increasing the degree of relative advantage is to offer direct or indirect economic incentives. In other words, potential adopters are entitled to receive economic rewards as a consequence of their decision to adopt the new product or practice. The present work focuses on contributing to the understanding of how incentives can be used as a mechanism in order to encourage adoption and diffusion. For that reason, in the next section, we will briefly review some of the most relevant research regarding incentives as a driver of behavioural change.

1.1.3.1- Incentives as an attribute driving adoption and diffusion

Incentives are considered as a tool that can lead to adoption behaviour among individuals who would not adopt given products or behaviours otherwise or would do it much later (Rogers, 2003). This is why its use as an instrument to encourage diffusion can be appreciated in many different contexts, either with the aim to achieve desirable social outcomes (Heil, Gaalema, & Herrmann, 2012; Rogers, 1971), or to simply sell products and services (Berman, 2006; Henderson, Beck, & Palmatier, 2011).

Regardless of the contexts in which incentives are implemented, the assumptions underpinning their usage are usually the same. People are rational agents who evaluate carefully the characteristics of potential products or practices to be adopted in each situation, and based on that assessment, only those behaviours maximising their own benefits are pursued. This assumption is the cornerstone of standard economic theories (Wilkinson & Klaes, 2012). From that perspective, individuals are mainly motivated to perform selfish behaviours that will maximise their own utility; and therefore, providing them with financial incentives is an easy way to encourage them to behave in ways that favour adoption and diffusion.

The variety of incentive schemes used as a mechanism to promote adoption and diffusion can be divided into two conceptual categories: 1) incentives encouraging own adoption and, 2) incentives encouraging recommendation behaviour. The first type involves providing rewards either because someone decided to adopt a new practice/behaviour for the first time or because the person has maintained the desirable behaviour over time. This type of strategy, extensively used by marketers, is represented by the so-called Loyalty Programmes, which aim to retain customers and/or increase the frequency with which they acquire products or services by providing them with different types of rewards. There is a broad body of knowledge that aims to identify the conditions in which these kind of programmes are successful. Some examples of the topics explored are the magnitude and frequency with which a reward should be offered (Bagchi & Li, 2011; Kivetz & Simonson, 2003), the types of rewards (Nunes & Dreze, 2006b; Verhoef, 2003), and the way the communication about the reward should be framed (Daryanto, de Ruyter, Wetzels, & Patterson, 2010; Nunes & Dreze, 2006a), among many others. Regarding the second category of incentives, they involve strategies in which individuals are incentivised after someone whom they recommended adopt the new product or practice. These types of schemes are frequently called Rewarded

Referral Programmes in the literature. Compared to the Loyalty Programmes, more limited amount of research aims to understand the mechanisms driving these initiatives, and variables that have been approached include the reactions of the recommendation's receiver (Verlegh et al., 2013; Xiao et al., 2011), rewards size (Ryu & Feick, 2007), and strength of the relationship between recommenders and receivers (Wirtz & Chew, 2002; Wirtz et al., 2013), among others.

Based on the assumptions of the standard economic theories, we should expect the types of incentive schemes previously described to be highly effective in promoting adoption and diffusion. This expectation is because they allow people to increase their own benefits and maximise their utility. Moreover, there is empirical evidence supporting the idea that incentives can represent an important source of motivation (Lazear, 2000). Nevertheless, failures of initiatives promoting adoption through the use of incentive are not uncommon (e.g. Nunes & Dreze, 2006b; Obrien & Jones, 1995).

One of the reasons that could explain the failure of the use of incentives as a tool for encouraging adoption and diffusion is that this type of rewards may not be the only one and not even the most important driver of human behaviour. Indeed, during the last two decades, the evidence contradicting the positive effect that incentive should have on motivation has been increasingly common (Fehr & Falk, 2002; Frey & Jegen, 2001; Garnefeld, Iseke, & Krebs, 2012; Heyman & Ariely, 2004). In this regard, research from behavioural science, in general, and in particular from behavioural economics, has emerged as an alternative to the standard economic approach. From the perspective of behavioural economics, people are not considered rational decision makers who seek to maximise their utility in every choice that they face. On the contrary, behavioural economists claim that people frequently make decisions that may be considered irrational because they go

against their own benefit. These decisions are also expected to be affected by variables such as social preferences (regard for others) and emotions, instead of being only driven by selfish motives (Kahneman, 2011; Sustein & Thaler, 2008). In this sense, by incorporating these type of factors into traditional economic models, the explanatory power of economics can increase while providing more realistic psychological foundations (Wilkinson & Klaes, 2012).

Despite the insights from behavioural science regarding the drivers of human motivation, the different incentive schemes that aim to promote adoption and diffusion in different context are still predominately relying on the assumptions from standard economics. In such schemes, larger economic rewards are considered a synonym of higher engagement to adopt novel products or practices. In the set of studies contained in the present work, we challenge this idea and test whether incorporating insights from behavioural science when designing incentive schemes could actually outperform traditional approaches.

Randomised control trials or experiments have been the predominant methodological approach characterising research on behavioural science, and this approach is implemented in the studies presented in this work. Nonetheless, this type of methodology has not been the most frequent in diffusion research. In the next section, we will present a general review of the methodological approaches that has traditionally been used in the area and provide more details about the experimental approach that we have decided to adopt.

1.2- Methodological approaches in diffusion research

After more than seven decades of research in diffusion of innovations, different methodological approaches have been developed in order to understand how

behaviours spread in social networks. The main paradigms that have been used in the area with the aim of gathering and analysing data are summarised in this section. As it will be explained below, methods have been very homogeneous during the first decades of research, and in more recent years, a wider range of perspectives have been more frequently adopted.

Early adoption and diffusion research mainly relied on self-report measures. This methodological paradigm was defined by Ryan and Gross (1943) in their pioneering hybrid corn study, which is usually identified as the first formal study on diffusion (Rogers, 2003). In this kind of approach, participants reported in short interviews, surveys, phone calls or similar methods what they could remember when they adopted a given innovation. These methodologies explore variables such as channels of communication, network links, and personal and social circumstances, among many others (Rogers, 2003; Rogers et al., 2009).One of the main weaknesses of this paradigm is that it depends on the participants' ability to accurately reconstruct their past experiences with the innovations. Because diffusion is a process that occurs through time, there could be some limitations in the possibility of reconstructing precisely the variables related to the diffusion progression (Rogers, 2003). Nonetheless, important conclusions have been obtained through these kinds of methodologies; and in fact, most of the body of knowledge in the field is based on this paradigm.

An alternative way to gather data in diffusion research, which does not imply relying on peoples' ability the reconstruct past events, consist of using archives or historic data which are obtained without interacting directly with the participants. When these kinds of records are available, researchers could retrospectively track adoptions and analyse variables linked to the diffusion process. A good illustration of this sort of techniques is presented by Christakis & Fowler (2007) who analysed

raw data from 12, 067 participants over a period of 32 years. Based on the data from a longitudinal health-related study, the authors examined social ties and changes in weight over time and were able to perform statistical analysis in order to observe the extent to which changes in one person's weight was associated with the weight gained by other members of their social network (friends, neighbours, spouse and siblings). The authors of this study have generated controversy by concluding that obesity could be socially transmitted, and further analysis of the data and their assumptions have been performed (e.g. Cohen-Cole & Fletcher, 2008; Fowler & Christakis, 2008; Trogdon, Nonnemaker, & Pais, 2008).

A shortcoming of using these methods to gather data is the bias produced when studying diffusion processes retrospectively. According to Rogers (2003), this approach led to the study of only successful diffusion processes, and rejected or discontinued innovations are therefore less likely to be analysed because they would not leave any traces that can be easily rebuilt.

The direct and thorough observation of people interacting in given social systems represents an additional method used to gather data with the aim of understanding the diffusion of innovations. This approach is clearly qualitative and attempt to capture information by sharing day-to-day experiences with participants (Rogers, 2003). In this kind of immersions, researchers can understand the culture and the context of the social system in order to identify variables encouraging or discontinuing the diffusion of a given innovation. In addition, qualitative methodologies also focus on political, conflictual and institutional factors that explain the effectiveness of spreading given practices (Nicolini, 2010). Among the different constraints that could be attributed to this kind of methodologies, it can be highlighted that they are restricted to small social systems due to logical limitations in the number of resources (researchers) that should collect the data individually

(Rogers, 2003). The types of research relying on in-depth interviews, anthropological observations and other qualitative techniques are extremely unusual compared to other methods of gathering data (Rogers et al., 2009).

Another methodological paradigm that is relatively infrequent in the literature consists of using computer simulations of diffusion processes based on tools such as agent-based models (e.g. Garcia, 2005), hazard models (e.g. Aral & Walker, 2011a, 2012) and other analytic tools. This kind of techniques is usually grounded on assumptions coming from the observation of data previously gathered. However, those suppositions are not necessarily precise; therefore, the results obtained through these kinds of methods should be considered cautiously. Probably, these models can represent an intuitive guide to understanding network dynamics rather than signifying accurate predictive models.

In terms of research designs, the literature shows a predominant application of correlational approaches implemented in cross-sectional data that are frequently collected with one-shot surveys (Rogers, 2003). However, the recent development of on-line data sources has opened the possibility of accessing big data sets, which allow the application of complex methodologies to analyse network dynamics. This kind of methods implements statistical models and visualisation tools that permit the identification of network clusters, communication links, influential nodes and other variables that account for the interaction in social systems, and therefore can describe diffusion of innovations (e.g. Canright et al., 2004; Christakis & Fowler, 2007).

The sort of research just described implies identifying events co-occurring when innovations are accepted or used by members of a social system. In that way, researchers can understand which variables are "associated" with the event of adoption. In this sense, Rogers (2003) argues that the network analyses represent

an important change in the nature of diffusion research and reveal interpersonal mechanisms in diffusion processes that were not available in the past. Nonetheless, it is pertinent to understand that studies based on observations of co-occurring events or "associations" between variables cannot establish indisputable causal relations; therefore, their claims may be limited. For that reason, some researchers have implemented complex statistical methods in an attempt to separate correlation from causation in the analysis of social networks. For instance, some methods take into account the timing of actions performed by agents as well as the asymmetric social ties in each period in order to establish clearer explanations when changes in behaviour occur (e.g. Anagnostopoulos, Kumar, & Mahdian, 2008; Aral et al., 2009; Aral & Walker, 2011b). However, Anagnostopoulos et al. (2008) recognise that this kind of techniques cannot answer every question related to diffusion and social interaction, and probably approaches like randomised controlled trails are highly desirable as a complement.

When one or more variables are manipulated in a controlled fashion and everything else is kept constant, it is possible to directly establish the causality underlying the diffusion of a given innovation or behaviour in a social system. This type of interventions is usually called randomised controlled trails. For instance, imagine that in the study about the spread of obesity and other behaviours from Christakis & Fowler (2007) presented early in this section, the authors were able to 'magically' intervene to change the weight of a random subset of people, and then observe the implications on the weight of other people in their immediate social network. In this case, such intervention would provide conclusive (and less controversial) evidence regarding the spread of obesity. However, in many domains (including this one), such manipulation is not possible. Therefore, a key challenge is to find the domains in which this sort of interventions could directly be made.

Such contexts as different as adoption of pension plans (Duflo & Saez, 2003),

voting behaviours (Bond et al., 2012), spread of health behaviours (Centola, 2011)

and animal social diffusion (Whiten & Mesoudi, 2008) represent some examples in

which adoption and diffusion processes have been studied by implementing

experimental designs or randomised controlled trials. However, this type of

approach has been very uncommon in diffusion and adoption research, and its use

has been identified as an important tool to enhance the development of knowledge

in that field (Rogers, 2003). The set of studies contained in the present work aims to

contribute to the adoption and diffusion literature by implementing an experimental

approach.

The practical relevance and applied nature of the research on diffusion and

adoption have made it a prolific field during several decades. However, its

development has been partially limited by the scope of the predominant methods

characterising the field since its early studies back in the forties. In more recent

years, different methodological tools, such as social network analysis or randomised

controlled trials, have been used to approach research questions regarding the

causes of diffusion processes that were unanswered until now. Nonetheless,

numerous topics can still be addressed in ways that have not been considered in

the past.

In addition, the current conceptions explaining why people adopt innovations can be

broadened in light of the relatively new developments in judgements and decision

making brought by behavioural scientists, in which traditional assumptions about

individuals' rationality are challenged. In summary, adopting a new practice is

ultimately an individual decision, consequently, incorporating the use of randomised

controlled trials to understand how people define their preferences represents an

opportunity to identify novel strategies aiming to encourage adoption and diffusion processes.

In the next section, we discuss the specific contributions from behavioural science that underlies the fundamental principles and ideas being tested in the present work.

1.3- Behavioural science perspective

As it was mentioned in section 1.1.3.1, incentives have traditionally represented a very popular tool to encourage adoption behaviours. However, we have also pointed out that the failure of this type of initiatives is not uncommon, and that insights from behavioural science may inform the design of novel and potentially more attractive incentives schemes. In particular, evidence suggesting that people are strongly driven by unselfish motives lead us to propose a type of scheme in which participants have the opportunity to share part of their rewards with relevant peers. In this section, we discuss the cognitive mechanisms underlying that proposal. Specifically, we focus on the research about "mental accounting" and "social rewards", to justify the potential effectiveness of the unselfish incentive schemes proposed in the present work.

1.3.1 Mental Accounting.

The term mental accounting was originally introduced in the influential paper *"Mental accounting and consumer choice",* written by Thaler (1985) and updated a few years later (Thaler, 1999). This theoretical framework suggest that people perform a set of cognitive operations in order to code, categorise and evaluate their financial activities; comparable to the financial accounting practices observed in

organisations. Such cognitive operations influence the perceived attractiveness of choices, and how people's decision are made and evaluated.

Unlike the traditional accounting practices, humans' mental accounting operations do not follow the economic notion of fungibility. In other words, the money allocated in one specific account is not a perfect substitute of similar resources allocated in a different account. For instance, people may assign their income to different monthly budget accounts, such as "having drinks at pubs" or "buying gifts to friends". However, they may constrain their purchases of "drinks at pubs" when the budget is running out, while not limiting their purchases in other accounts like "buying gifts to friend". It means that even though the resources of both accounts came from the same "fungible" income (e.g. salary), the rules governing how people experience and decide to use them differ depending on the "mental account" to which those resources were allocated. This fact has profound implications for the use of incentives, because people may perceive and consequently treat differently the resources that were received as a consequence of an external economic reward.

Research on mental accounting has consistently found that resources coming from recent gains are not treated in the same way as the money that is already part of people's wealth (Thaler, 1999; Thaler & Johnson, 1990; Wilkinson & Klaes, 2012). The classic example to illustrate this phenomenon is capture by gamblers' attitude towards the money they have just won in a casino. Commonly, they treat resources coming from recent gains as "money from the casino" that they can spend in risky gambles without regrets. For that reason, this behaviour was first described by Thaler and Johnson (1990) as the "House money effect". According to the authors, after a recent gain, people integrated the following loses with the prior gain, as long as the loses do not exceed the original gain. It means that losing "money from the house (casino)" is less painful than losing "one's own (previous) resources".

The money house effect has been documented in contexts in which both large and small unexpected gains are received. For instance, investors in the financial markets has been found to make riskier investments after large recent gains (Huang & Chan, 2014; Wen, Gong, Chao, & Chen, 2014). Similarly, receiving small windfall gains as it is the case for customers' promotions has also been found to change the way in which people categorise and evaluate their financial activities. In particular, customers receiving small rewards tend to increase their habitual spending and focus on acquiring products that they do not typically buy (Heilman, Nakamoto, & Rao, 2002; Milkman & Beshears, 2009; Reinholtz, Bartels, & Parker, 2015). In summary, regardless the size of the recent gain, people do not tend to mentally attach resources resulting from windfalls to their own wealth, and consequently, they tend to use them in ways they would not normally do.

In addition, people have been found to assign their gains to different mental accounts depending on how they obtained the resources. For example, experiments exploring social preferences have found that participants are more selfish when they have to earn their endowment (e.g. by performing a task in the experiment) compared to the situation in which their endowment is merely allocated involving no efforts from the participant (Cherry, Frykblom, & Shogren, 2002). Moreover, people receiving more tangible rewards (e.g. cash) has also been found to show more self-interested behaviours compare to people receiving less tangible endowments (e.g. tokens) (Reinstein & Riener, 2009).

Contrary to the assumptions from standard economics, the present research proposes that people can find appealing to participate in unselfish incentive schemes in which participants are allowed to share part of their rewards with relevant peers. In this regard, we claim that the notion of mental accounting may partially explain why this type of initiatives can be effective. Specifically, people

should be expected to be more open to use their rewards in non-habitual activities (e.g. sharing it with a friend) because they are less mentally attached to small windfall gains (like the rewards from incentive schemes). Moreover, based on the evidence previously presented, people should be incline do use their rewards in an unselfish way considering that the schemes being proposed involved rewards that are earned with very little effort, and are presented as an intangible incentive (voucher),

Even if people code and categorise small windfall in a different way, and consequently, they are less mentally attached to this type of resources, it does not completely explain why people would choose to share such resources with others instead of using them for selfish consumption. In the following section we discuss evidence suggesting why people may actually prefer to give away at least part of their recent gains. In particular, we discuss in detail the concept of "social rewards".

1.3.2 Social Rewards.

In their daily life, people constantly face scenarios in which they are required to choose one of many different courses of action. In this regard, people are expected to select the alternative associated to the most "rewarding" experience. In other words, the different potential outcomes have motivational properties that induce people to pursue certain behaviours in order to achieve the most attractive result. Some stimuli in the environment, known as primary rewards, are naturally rewarding because they are essential for survival (e.g. food, liquids) and help to correct homeostatic imbalances in the body. Other secondary or non-primary rewards enhance chances of survival but do not directly support essential body functions (Schultz, 2015). A clear example of this is represented by monetary rewards, which cannot directly satisfy people's nutritional needs, but can be used to buy the food to do so. For that reason, monetary resources are expected to have motivational

properties, because they can be exchanged for other resources in order to fulfil more basic needs.

Standard economic theories, focus on the motivational attributes of economic benefits to explain peoples' decisions. They claim that individuals define their preferences for a specific action by weighting the cost, gains and probabilities of occurrence of each potential outcome and then choose the one that maximise their own benefits. This is commonly known in the literature as the expected utility maximisation hypothesis (Becker, 1976; Wilkinson & Klaes, 2012). Such premise, however, cannot account for people's behaviours leading to outcomes with no apparent personal benefits. For instance, individuals frequently choose to do voluntary unpaid work, give money to charity, cooperate with unknown people, among many other actions that reflect unselfish motives in people's decisions. Recent developments in neuroscience and neuro-economics suggest that such social interactions can be rewarding in itself, consequently, they are more similar to monetary rewards than what economist have traditionally acknowledge.

When making a decision, the human brain needs to assign values to the different stimuli associated with each choice alternatives, in order to create a representation of the reward magnitude or utility to be experienced (Lin, Adolphs, & Rangel, 2012). In this sense, advances in neuroimaging have allowed to visualise and reveal the structures activated when choices are made. Surprisingly, recent evidence supports the idea that the paths and areas engaged when processing economic incentives strongly resemble those activated when social rewards (e.g. feedback from others) are expected to be received. The evidence shows that both monetary and non-monetary stimuli are transformed into a "common currency" that allows to compare rewards of different nature (Fehr & Camerer, 2007; Izuma, Saito, & Sadato, 2008; Lin et al., 2012; Ruff & Fehr, 2014; Saxe & Haushofer, 2008; Zink et al., 2008).

In the past, the standard economics perspective has explained prosocial actions as a strategic decision. In other words, even in one-shot anonymous games, they assume that people show unselfish behaviours because it may bring them future material benefits or avoid them punishments from others in future interactions (Samuelson, 2005; Wilkinson & Klaes, 2012). From this perspectives, prosocial actions are just a mechanism through which people can achieve material rewards. On the contrary, the evidence from neuroscience previously mentioned strongly suggest that the feedback from social interactions can be rewarding in itself.

Not only similar brain structures have been found to be activated when both monetary and social rewards are expected to be received. Additionally, regardless of the type of reward, the neural activation has been found to increase proportionally to the levels of the expected incentive. For example, Spreckelmeyer et al. (2009) found that anticipating to see different types of happy face expressions with increasing intensity (happy closed mouth; happy open mouth; happy open mouth exuberant) produced similar activation levels compared to increasing monetary rewards. Similarly, Davey, Allen, Harrison, Dwyer, and Yuce (2010) made participants believe that other people had formed an opinion on their likability based on the appearance in a picture. They found greater neural activation for being liked by people who participants regarded highly compared to those they regarded less. Moreover, Van Hoorn, Van Dijk, Guroglu, and Crone (2016) manipulated increases in social pressure by asking people to make donations either alone, in front of a passive spectator, or before an evaluator who provides positive feedback (likes) for larger donations. They found that both the amount donated and the neural activation increased in the presence of peers and even more when others gave evaluative feedback. These examples highlight the idea that social rewards have an important role on stimulating neural circuits associated to pleasurable experiences.

The rewarding properties of social behaviour are likely to have evolved to enhance the chances of survival by facilitating cooperation and encouraging group cohesion. This is probably why this type of behaviours has also been observed in non-human primates (Ruff & Fehr, 2014). For instance, macaques has been found to be willing to exchange access to food for the possibility of viewing the pictures of others socially relevant, suggesting that such social stimuli can have even more value than food (Deaner, Khera, & Platt, 2005). Similarly, what is known in the literature as "vicarious reinforcement" has been observed in monkeys, when performing actions that do not lead to rewards for themselves but for other monkeys (Chang, Winecoff, & Platt, 2011). These are just a few of many evidence supporting the evolutionary value of prosocial behaviours.

Despite the overwhelming evidence in favour of social rewards as source of motivation, the initiatives aiming to encourage desirable behaviours are frequently based on the idea that only economic incentives represent a driver of human motivation. In the present work we claim that by designing initiatives that allow people to show behaviours that are perceived as "unselfish", they could obtain social rewards that can potentially be equally or even more motivating than the classic monetary incentives. In the following section the focus of the present work is explained in more detail.

1.4- Research focus

The general focus of the present research is to explore how unselfish motives can influence people's preferences, with the purpose of informing the design of initiatives aiming to encourage adoption behaviours. Since the implementation of incentive schemes is one of the most common tools used to promote adoption and diffusion, we aim to shed some light on how this kind of initiative may be more effective. In particular, we challenge the assumptions from standard economics in

which people are perceived as naturally self-interested and motivated to maximise their utility. Instead, we propose alternative incentive schemes that incorporate unselfish motives as a driver of human behaviour.

In terms of research design, randomised controlled trials or experiments will be the methodological paradigm to be followed in the present work because they represent the most effective way to establish causal relationships between variables. Specifically, participants will be randomly allocated to different conditions, and then their preferences will be measured and compared.

The experiments being run are based on hypothetical behaviours. In other words, participants are asked to imagine hypothetical scenarios and state how they would react under certain conditions. This type of experiments allows researchers to collect data in a very cost-effective way while allowing them to control external variables that may create noise in the experiments' outcomes. Moreover, even though the conclusions from this kind of approach may be considered not valid in real-life settings, there is evidence suggesting that hypothetical-scenario experiments can lead to similar results compared to real-behaviour experiments (Heyman & Ariely, 2004; Locey, Jones, & Rachlin, 2011). For that reason, these research can provide useful insight that can inform further research in more realistic settings.

CHAPTER 2: CUSTOMERS SHARING THEIR LOYALTY REWARDS. A NEW PERSPECTIVE TO INCREASE ENGAGEMENT IN LOYALTY PROGRAMMES.

2.1- Introduction

Being offered a "reward card" in the checkout point when you are about to pay for goods has become something extremely common when visiting outlets as different as supermarkets, coffee shops, and restaurants, among many others. In the last two decades, the global economy has witnessed an exponential increase of initiatives in many different industries aiming to reward customers based on the frequency with which they consume products or services from a given firm (Dorotic, Bijmolt, & Verhoef, 2012; McCall & Voorhees, 2010). Marketers seem to have realised that their efforts should involve not only making people aware of new products and services but also engaging customers in a long-term relationship that guarantees the sustainability of their business in the future.

It is a well-known fact that retaining old customers is worth more than attracting new consumers (Nunes & Dreze, 2006b; Yoo & Bai, 2013). For that reason, the sort of initiatives previously mentioned, known in the literature as loyalty programmes (LPs), represent a multimillionaire marketing industry. The estimation of its size in the US range from about one billion dollars (Wagner, Hennig-Thurau, & Rudolph, 2009) to about six billion dollars (Berman, 2006). Moreover, LPs have reached more than 1.3 billion people participating in the US, averaging 12 separate programmes per household (Ferguson & Hlavinka, 2007). The dimension and popularity of this kind of programmes are not too different from the trends observed in other developed countries, such as the UK and Canada, where participation represents more than 90% of total customers (Berman, 2006). Nonetheless, despite the

significant number of programmes offered and a large number of members, an important proportion of them has not been successful (Berman, 2006). Moreover, it has been found that only about 39% of members are active participants (Ferguson & Hlavinka, 2007) and the awful performance of many of these programmes results in their abolition (Nunes & Dreze, 2006b). The findings suggest that there is not a comprehensive understanding of how these kinds of programmes operate. Also, the lack of success could be because people are part of multiple similar programmes; therefore, it is difficult to maintain a competitive advantage (Berman, 2006). For these reasons, in the present study, we propose a novel approach that challenges traditional assumptions about the design of LPs with the aim of providing both theoretical and practical insights that could result in competitive advantages.

The term LP captures a wide range of marketing activities such as reward cards, special gifts, tiered service levels, and other initiatives that intent to affect client's attitudes towards a firm (Henderson et al., 2011). Most of them have in common the fact that they provide different forms of financial incentives, either in the short-term or long-term, with the aim of making more appealing the offering from the firm. Many programmes strongly rely on the assumption from standard economics that proposes that people's behaviour is driven by a desire for maximising their own economic benefits. In other words, these programmes assume that customers will prefer to be loyal to companies or brands that offer better economic incentives and therefore improve their overall wealth. In the present study, we will challenge that assumption by showing that people might actually be more engaged with firms that give lower economic incentives but offer the possibility of obtaining social reinforcement by sharing an economic reward with relevant peers.

In the last few decades, evidence from behavioural economic, psychology, cognitive science, and other behavioural sciences have challenged the idea of the *homo*

economicus proposed in standard economic theories. According to this perspective,

people are naturally self-interested, they are utility-maximizers, and they can make

perfectly rational individual decisions (Becker, 1976). On the contrary, behavioural

scientists have argued that people's decisions are not necessarily "rational" and,

crucially, not necessarily selfish because they frequently choose course of actions

that clearly reduce their possibilities of maximising their own utility. Moreover, they

claim that people show social preferences that lead them to care about the material

resources allocated to others or what others might think of them (Bowles & Polania-

Reyes, 2012; Eckel & Grossman, 1996; Fehr & Falk, 2002; Frey & Jegen, 2001;

Heyman & Ariely, 2004; Kamenica, 2012).

One of the most popular experimental paradigms used during the last three

decades with the aim of demonstrating that people have social preferences is the

"Dictator Game" (Colin Camerer, 2003; Engel, 2011). The dictator game is a

modification made by Kahneman, Knetsch, and Thaler (1986) of the "Ultimatum

Game", that was originally introduced by Guth, Schmittberger, and Schwarze

(1982). Similar to the dictator game, in the ultimatum game a player (proposer) has

to divide a sum of money between herself and a second player (receiver). However,

unlike in the dictator game, in the ultimatum game, the receiver can either accept or

reject the proposer's offer. Therefore, there is a strategic element in the ultimatum

game in the sense that the proposer needs to anticipate the amount of money or the

type of offer to be accepted or rejected from the receiver. Hence, the dictator game

eliminates that strategic aspect, and it represents a clearer test of social

preferences.

Even though this approach has not been exempted from criticism (Bardsley, 2008),

it has systematically shown that human populations are more benevolent than *homo*

economicus (Branas-Garza, 2006; Dana, Cain, & Dawes, 2006; Eckel & Grossman,

1996; Engel, 2011). In other words, it has been consistently observed that people prefer to share an important proportion of their endowment with others, even though they have the possibility to keep it to themselves. If that is actually the case in real world behaviours (not only Lab experiments), then it is sensible to ask whether people would be more engaged with initiatives that allow them to share with someone else an endowment that they have received from a third party. For that reason, we will explore the extent to which the customers of a firm would be willing to share with a friend the endowment received as a consequence of a LP. Moreover, we will compare people's preferences for LP in which the amount to be shared and the number of people with whom to share the reward is manipulated.

In order to contextualise the approach to be considered in the present research, imagine that you have two firms offering comparable products. One of the firms, let say Firm A, gives you a £1 incentive any time you buy a given product and allow you to redeem the accrued rewards after reaching a specific target. The other firm, Firm B, offers you £0.7 after each purchase of a similar product but also allow you to share a £0.3 reward with a relevant friend. From the standard economic perspective, most people would prefer Firm A because buying in that store would allow them to maximise their economic benefit. On the other hand, being more loyal to Firm B would represent a violation to the *homo economicus* conception in which customerss are selfish and self-interested individuals motivated by economic incentives. Our results contradicted the *homo economicus* perspective.

The kind of benevolent behaviour observed in the dictator game (and other comparable games) has been sometimes attributed to the expectation of a reciprocal behaviour from the person with whom the player who received the endowment is sharing the reward (Charness & Rabin, 2002; Dufwenberg & Kirchsteiger, 2004; Falk & Fischbacher, 2006). If that is the case, sharing the

endowment in the dictator game could be considered a self-interest act.

Nonetheless, some pieces of evidence suggest that reciprocity cannot account for such kind of behaviours in a dictator game (Bohnet & Frey, 1999; Branas-Garza, Duran, & Espinosa, 2012; Hoffman, McCabe, & Smith, 1999). In our experimental paradigm, we explored whether those apparent social preferences can be explained by an expectation of reciprocity. In this regard, our results partially supported such hypothesis.

The use of the dictator game (and other simple set of games) to investigate unselfish behaviour could be considered as unrealistic because, among other things, participants might not perceive the experimental context as a situation that occurs in their everyday lives, and because the "other" person with whom the reward is shared is commonly a stranger. In this regard, the characteristics of the experimental paradigm and the exclusion of context-specific social norms could drive the results and therefore limit its external validity (Bardsley, 2008). The set of experiments presented in our study represents an opportunity to test selfish behaviour in a setting comparable to the dictator game but framed in a more realistic context. Therefore, our results can contribute to the literature about unselfish behaviour by using a novel experimental paradigm that may increase the validity of previous findings in the field.

In our first experiment, we test the willingness of a hypothetical customers to share the reward from a LP with a friend, and the possibilities for reciprocity is manipulated by making the receiver be either aware or unaware of the identity of the customer. In our second experiment, we also manipulated the possibility of reciprocity. However, in this case, participants chose their favourite LP from a sequence of pairwise comparisons, a study in which the amount to be shared with their friend are varied in each loyalty scheme. The last experiment is very similar to

the second one, but in this case, the reward of the LP can be shared with either two friends or one friend. In other words, the third experiment allowed us to test whether people's preferences for sharing a specific proportion of their endowment change if the receivers are more than one person.

In the following sections, we will develop our hypothesis and briefly review the literature on LPs, unselfish behaviour and the relationship with the "dictator game".

2.1.1- Loyalty programmes and incentives

Marketing initiatives named with terms as different as loyalty cards, reward programmes, frequent-shoppers programmes, among many other incentives are included under the umbrella that we called Loyalty Programmes in the present study. It is difficult to have a single definition for all these kind of initiatives because of the large variety of schemes. Nonetheless, for the purpose of this study, we will delimit the term LP to any marketing initiative containing the distinctive features defined by Dorotic, et al. (2012), which are summarised below:

- *Foster Loyalty:* The primary purpose of a LP should be to encourage consumers to buy from the provider more frequently, to increase the amounts of purchase over time and to augment the share of their wallets.
- *Structured:* Customers must formally enrol in a LP to obtain certain benefits from it. Consequently, they represent structured membership-based initiatives.
- *Long Term:* LPs are not offered for a short period as it is the case for sales promotions. Instead, they involve a long-term investment from both the provider and the customer.
- *Rewarding:* A LP rewards its members with a form of currency (e.g. goods, discounts and preferential treatment) based on their current or future value.

- ***Ongoing Marketing Effort:*** The activities regarding the programme represent a continuous effort (e.g. mailing list and personalised offers), instead of a specific activity.

The beginning of large-scale and long-term LPs, containing the features previously described, is usually linked to the airline sector in which companies were struggling to obtain competitive advantages after the "Airline Deregulation Act" in the US during the 80's. During that period, American Airlines came up with the idea of creating a frequent-flyers reward programme to differentiate themselves from competitors (Berman, 2006; McCall & Voorhees, 2010). From the 90's, this kind of initiatives increased exponentially not only in the US but also in other developed countries (Berman, 2006; Dorotic et al., 2012; Yoo & Bai, 2013). Such increase has led to the proliferation of academic research about LPs and customer loyalty (Yoo & Bai, 2013). However, after decades of research, there are still numerous contradictory results that bring practitioners confusion rather than providing guidance (Dorotic et al., 2012; McCall & Voorhees, 2010), and even challenge the effectiveness of this kind of programmes as a mechanism to increase customers loyalty and firms value (e.g.Obrien & Jones, 1995).

One of the reasons that explain why LPs do not always show positive effects on customers behaviours is that they might depend on the level of competition among different programmes (Dorotic et al., 2012). In other words, its effectiveness might decrease if similar programmes saturate the markets. For that reason, obtaining theoretical insights that help produce innovative and effective loyalty schemes is crucial for practitioners who aim to create competitive advantages.

In the last few decades, research has shown particular interest in understanding which type of rewards should be offered in LPs and what are the conditions in which those rewards increase customer engagement (McCall & Voorhees, 2010).

Specifically, some of the topics that have caught researchers' attention are: whether the rewards should be products from the same firm or indirect rewards that are not tied to products from the provider (Dorotic et al., 2012; Kivetz, 2005; McCall & Voorhees, 2010), the effort needed to obtain the reward (Kivetz, 2005; Kivetz & Simonson, 2003), the magnitude and frequency of the reward (Bagchi & Li, 2011; Kivetz & Simonson, 2003), the timing of the reward (Roehm & Roehm, 2011); the use of economic vs non-economic rewards (Nunes & Dreze, 2006b; Verhoef, 2003), the communication and framing of the reward (Daryanto et al., 2010; Nunes & Dreze, 2006a) and whether the programme is offered by a single vendor or a partnership involving several firms (Dorotic, Fok, Verhoef, & Bijmolt, 2011), among other topics. Even though the topics previously mentioned are different from each other, all of them share one similar assumption: They all assume that customer's engagement is driven by the desire to obtain benefits from providers with the aim of maximising their own wealth, status or both. However, as it was mentioned in the introduction, evidence from behavioural science suggest that people's behaviour can also be driven by social motives, not only by individual and selfish preferences.

A fairly robust finding in behavioural science is that social pressure could be a strong mechanism to influence peoples' behaviour. It has been observed in context as different as political mobilisation (Bond et al., 2012), web applications diffusion (Aral et al., 2009) , micro finances (Karlan, 2007), natural resources conservation (Van Vugt, 2009) and energy consumption (Nolan et al., 2008; Yoeli, Hoffman, Rand, & Nowak, 2013), among many others. Based on that evidence, Mani, Rahwan and Pentland (2013) formalised a model in which monetary incentives are used to promote social pressure. In this regard, they claimed that instead of directly rewarding or punishing a given Agent "A" to influence his or her behaviour, it is more effective and sustainable to incentivise agent A's peers to exercise social pressure on Agent "A".

The idea previously mentioned has proved to be effective in a field experiment were the authors tried to increase participant's daily physical activity (Aharony, Pan, Ip, Khayal, & Pentland, 2011). In one experimental condition, people were rewarded based on their own performance, but they could observe the activity levels of the two peers (Peer-View Condition). In a second condition, participants were rewarded based only on their peer's physical activity (Peer-Reward Condition). In the control condition, people were rewarded based on their own physical activity, which is the traditional way to influence behaviour. The researchers found that the conditions "Peer-View" and "Peer-Reward" outperformed the control group, thus suggesting that social aspects could be more effective in influencing behaviour than do traditional direct incentives rewards. Moreover, the Peer-Reward Condition resulted in being the most sustainable form of reward in the long run. We claim that a comparable result could be achieved if a similar approach is implemented in the context of the LPs. Specifically, we expect that people would prefer providers that gives, at least, part of their purchase' rewards to a relevant peer instead of giving the entire reward to the customer.

Finding that people favour providers that share part of the consumer's reward with relevant peers could be a consequence of the expectation of social feedback or even the expectation of reciprocity from the relevant peer receiving the reward. However, an alternative explanation is that people derive utility from helping others without expecting something in return. In other words, the preference for sharing a purchase reward with a relevant peer could be seen as an act of altruism. In the next section, we will briefly review the literature on altruism and unselfish behaviour.

2.1.2- Unselfish behaviour and the Dictator Game

People frequently donate to charities or help others regardless of the sacrifices it might imply. It seems that social reinforcement as a result of such behaviours could be as rewarding as monetary incentives as suggested in our first chapter. Since unselfish behaviours represent a violation of the assumptions underpinning standard economics, the topic has been the focus of attention among experimental economists and behavioural scientists in general during the last few decades (Branas-Garza, 2006; Colin Camerer, 2003; Dana et al., 2006; Eckel & Grossman, 1996; Engel, 2011). As it was mentioned in the introduction, the dictator game has been one of the most popular experimental paradigms to explore social preferences because of its simplicity to model key features of human behaviour (Colin Camerer, 2003; Engel, 2011).

The prolific literature on dictator (and ultimatum) game have explored numerous issues during the last decades, that can be summarised into five categories defined by Camerer (2003). This taxonomy based on the variable being manipulated includes the following: methodology (e.g. anonymity and stakes), demographic (e.g. age, gender and beauty), culture (e.g. origin of participants), description (e.g. framing and context), and structure (e.g. addition of moves). Those variables could cause differences in the results regarding social preferences. However, both structural and cultural variables seem to be the ones producing the biggest effects, whereas the other categories have shown in average more modest effects (Colin Camerer, 2003).

Even though the payoff maximisation perspective would predict that most people would share nothing in a dictator game because there are no economic incentives to do so, it is usually not the case. Some "dictators" might give nothing to the

receiver; however, it is extremely rare to find a situation in which most participants behave in a selfish way by keeping 100% of their endowment. The proportion of the stake that the "dictators" share varies from one study to another. For that reason, Engel (2011) presented a comprehensive meta-study that summarises 25 years of research based on the dictator game paradigm. A total of 616 different treatments from 129 publications were included, and the author found that the grand mean of the proportion of the endowment that dictators were willing to give was 28.35% of the total pie.

In our study, we claim that the rewards received as a consequence of a LP can be understood as a dictator-game type of situation. The *homo-economicus* hypothesis in the dictator game establishes that people will prefer to keep 100% of their endowment in order to maximise their payoff. In the same way, if customers are utility-maximisers, they should prefer firms that offer the highest economic rewards in their LPs (assuming that products and brands are similar among firms). Furthermore, according to the payoff-maximiser perspective, if customers have the possibility of sharing their consumption rewards with a relevant peer (e.g. a friend) they will not be willing to do so. Therefore, programmes offering that possibility will not be attractive to customers. Nonetheless, since evidence from the dictator game paradigm has consistently shown that people have social preferences, we hypothesise that those preferences can also be present when judging the attractiveness of firm's loyalty schemes. Specifically, our first hypothesis is shown below:

> *Hypothesis 1a: People will prefer LPs that allow them to share at least part of their consumption rewards with a customer's friend, compared to the situation in which a comparable reward is only offered to the customer. Moreover, we expect that the preferences*

for sharing the consumption reward will be close to the giving

behaviour observed in the dictator game, where participants give

away on average about 30% of their endowment (although with wide

individual variation).

2.1.3- Reciprocity in the Dictator Game

Even though dictator game experiments consistently result in most participants

giving away part of their endowment, the reasons underpinning such behaviour are

not absolutely clear. With the aim of understanding what is motivating dictator's

seemingly altruistic behaviour, researchers have manipulated variables such as the

social distance between participants (Branas-Garza et al., 2012; Charness &

Gneezy, 2008), anonymity of the participants (Bohnet & Frey, 1999; Hoffman,

McCabe, Shachat, & Smith, 1994; Hoffman, McCabe, & Smith, 1996) and

characteristics of the recipient (Branas-Garza, 2006; Eckel & Grossman, 1996),

among many others. In the present study, we will try to identify the reasons that

might lead a customer to share a loyalty reward with a friend by manipulating the

possibility of reciprocity from the receiver.

In the original design of the dictator game, the authors assumed that by keeping the

anonymity of both the dictator and the recipient, they were able to control social

influences, and therefore, they could attribute dictator's giving to a purely altruistic

act (Kahneman et al., 1986). Nonetheless, it might be the case that participants are

motivated to give away part of their endowment in order to cause a positive

impression to the experimenter. In this regard, some subsequent studies introduced

a double-blind procedure in which neither the experimenter nor any other observer

could know the subjects' decision (Bohnet & Frey, 1999; Hoffman et al., 1994;

Hoffman et al., 1996). After introducing such procedures with the aim of achieving

social isolation, the amount of money shared by dictators was significantly reduced (Hoffman et al., 1994). In contrast, in a follow-up study in which the social isolation was weakened by increasing the possibility of experimenters to identify participant's allocations, dictators giving increased compared to the situation in which complete anonymity was guaranteed (Hoffman et al., 1996). These changes in self-regarded behaviours suggest that financial allocations in the dictator game are the result of implicit concerns about what others may expect. Specifically, the authors claimed that previous knowledge regarding social norms and reciprocity is activated once the social distance is reduced, even though the experimental design explicitly rules out the possibility of reciprocal sanctions or rewards. In other words, people learn in life's interaction that reciprocity is expected when social distance is reduced, and these expectations might be unconsciously brought into the laboratory.

An alternative explanation for the reduction of the endowment shared in the experiments previously mentioned is that the attempts to keep anonymity in double-blind designs create doubts to the participants about whether a real person is actually receiving the money allocated (Frohlich, Oppenheimer, & Moore, 2001). Bohnet & Frey (1999) also challenged the results from Hoffman, et al., (1996) by manipulating the degree to which dictators and recipients could identify each other in the experimental situation rather than varying the social distance between experimenters and subjects. They found that reciprocity was not the factor influencing behaviour but the possibility of identifying the participants involved in the experiment. Their findings suggest that details about recipients in the dictator game play an important role in defining the size of the amount of money allocated.

Aligned with that idea, it has been found that when dictators are presented with the family name of the recipients, they give significantly more money away than the situation in which such information is not provided (Charness & Gneezy, 2008). In

addition, replacing anonymous recipients by a well-known charity has tripled dictators sharing (Eckel & Grossman, 1996). Furthermore, in a study in which hypothetical and real experiments were combined, the authors found that when participants were told that the recipients were poor or that the money to be shared would be used to buy medicines for disadvantage people, the proportion of the stake to be shared significantly increased (Branas-Garza, 2006). These and many other evidence suggest that, at least in part, information that makes recipients to be perceived as socially closer increase dictator's desire to engage in unselfish behaviours in the dictator game.

In our study, the social distance between the person sharing the reward and the recipient is probably the closest possible because they are meant to be friends. Under comparable circumstances, previous studies have found that offers significantly increase when friends perform the role of recipients (Branas-Garza et al., 2012). Specifically, participants in that experiment identified their network of friends in a classroom; in the second stage of the experiment, they played the dictator game either with friends or with strangers. Even though the dictators knew whether recipients were a friend or not, the exact identity was not revealed. They found that even though reciprocity was controlled, donations to friends were 35% higher than those to strangers.

Interestingly, the study just mentioned also found that participants that initially identified only one person as a friend in the classroom gave more money than those who elicited a larger network of friends during the first stage of the experiment. Since those with one friend were able to infer the person to whom they donated the money, the differences in donations between conditions could be explained by direct reciprocity. It might be the case that when people are able to easily identify the recipient they try to be more generous in order to respond to a previous positive

action from their friends. However, some pieces of evidence suggest that dictator's allocations are independent of previous recipient's kindness (Heinrich & Weimann, 2013). Another potential explanation is that dictators are more benevolent in their allocations when they can easily identify the recipient because in that way they can certainly signal a positive action to the recipient and therefore expect something back from them in the future. We test that idea in the present study.

As it was mention in our first hypothesis, in the present study we expect people to prefer loyalty schemes that allow customers to share at least part of their loyalty rewards with a friend. In our second hypothesis, we propose that when the recipient can easily identify the customer sharing the reward, such preference will be stronger. Formally,

> *Hypothesis 2a: People will prefer to share a higher proportion of their loyalty rewards with a friend when the recipient can identify them, but they will be less generous if the reward is shared anonymously.*

2.1.4- Recipient's expectations and Dictator Game

In the previous sections, we have suggested that people have social preferences that can be inferred from their willingness to share part of their endowment in the dictator game. The social distance and possibilities of reciprocity have also been pointed out as variables that could motivate people to engage in self-sacrificing behaviours. These explanations suggest that, at least in the context of the dictator game, participants allocating the money care about improving the receiver's wealth either because of altruistic reasons or because they are expecting some reciprocal behaviours in the future. It means that any amount of money shared by the dictator

that is higher than nil should be sufficient to improve the recipient's situation.

Surprisingly, the fact that dictators shared an average of 20 to 30 percent of their

endowment is very robust. However, the reason why this percentage is the

preferred proportion, instead of other proportion is not completely clear. Further

investigations on this issue could enable a greater understanding of the motivations

behind the behaviours in the dictator game and in real-world unselfish acts.

It might be the case that people simply have in their mind a pre-defined proportion

of their endowment that they are willing to give away regardless of recipients'

expectations. This idea has been defined in the literature as "fixed total sacrifice"

(Selten & Ockenfels, 1998). The proposers of this concept created a modified

version of the dictator game called "the solidarity game", in which groups of 3

participants have the opportunity to win either a given amount of money with a

probability of 2/3 or zero with a probability of 1/3. Before a random draw was

performed with the aim of defining the winners, participants had to decide how much

they would be willing to give away to each loser in case they win. The results

showed that people tend to keep constant the same amount to be shared

regardless of whether there were less or more "losers" to split the prize with. In

other words, the total amount offered when there were two losers was very similar

to the one shared when it only needed to be shared with one loser. In a different

study, the researchers tested the differences between giving participants the chance

to share a big endowment with one recipient (e.g. One game splitting $10) or giving

applicants the opportunity to share small endowments with several recipients (e.g.

10 games splitting $1 in each game). They found that the total amount of money

allocated was very similar across the different conditions (Bolton, Katok, & Zwick,

1998). They argued that their results seem to be a consequence of the "fixed total

sacrifice" effect because participants behaved as if they determined in advance how

much money they would keep depending on the total amount of money available for the experiment.

In the context of LPs, the previous idea implies that customers might be willing to share a proportion of a loyalty reward with someone else, but the amount that they are willing to give away would be the same no matter how many available friends with whom they can share the reward, or regardless of how recipients would react when receiving such reward. Nonetheless, some pieces of evidence suggest that participants in the dictator game are not only interested in giving something that improves recipient's wealth, but they also seem to care about what the recipient's expectations are how they could react (Dana et al., 2006; Ellingsen & Johannesson, 2008). In a modified version of the dictator game, in one of the experimental conditions the recipients had the opportunity to send an anonymously written message to the dictator after the dictator's allocation. On the other hand, in the control condition, there were no communication options between the dictator and the anonymous recipient. It was found that the participant's allocations significantly increased when recipients had the opportunity to communicate (Ellingsen & Johannesson, 2008). These results suggest that the anticipation of recipient's reactions might play a major role in dictator's allocations.

Another interesting modified version of the dictator game also supported the idea that giving not only reveals a desire to improve other's wealth but also fulfils other's expectations. In a first experiment that used a novel version of the dictator game, participants were asked to allocate $10 between themselves and a recipient in the same way it was done in the original version of the game. However, in this case after making their decisions and before recipients were told about the game, dictators had the opportunity of exiting the game and getting $9 without playing; and consequently, the recipients would never know about the game. Surprisingly, a

"substantial minority" was willing to leave the game and take the $9 rather than following the most convenient strategy of playing the game and keeping $10 (Dana et al., 2006). In a second experiment, the same authors introduced a "private dictator game" form in which receivers were not told why they were receiving the money allocated; therefore, no expectations could be possibly created. When the "private" condition was introduced, the number of participants exiting the game was significantly reduced. The results from Dana, et al. (2006) strongly suggest that people's giving, at least in part, is driven by a desire of not violating other's expectations.

In a case in which people are motivated to give away what recipients expect them to give, then they should be willing to share only part of their endowment when they can guarantee that others will receive the "expected" allocation. In other words, people should prefer to share something with only one person instead of two or more people, if splitting the allocation among more people is not likely to fulfil the recipients' expectations. We formalise this hypothesis in the context of LPs as follows:

> *Hypothesis 3a: When a larger proportion of the customer's loyalty*
> *reward is available for sharing with someone else, people are more*
> *likely to prefer to share the reward with two friends rather than with*
> *one friend. On the contrary, when the available proportion to be*
> *shared is smaller, they will prefer to give it to only one friend instead*
> *of two.*

2.1.5- Uncertainty and Dictator Game

We have previously argued that the possibility of sharing the reward received from LPs can be understood as a dictator-game type of situation. In this regard, customers could be more engaged with programmes in which they can give up part of their reward and share it with a relevant peer who receive it with certainty. However, with the intention of optimising costs, some companies in the real world offer a chance of getting an incentive instead of not a reward with certainty. We are, therefore, interested in understanding the consequences of introducing uncertainty in contexts where customers are entitled to share their loyalty reward.

The literature from behavioural science on attitudes toward risk would predict that adding uncertainty into an incentive scheme would reduce the attractiveness of the programme. Specifically, Kahneman and Tversky (1979) described in their highly influential Prospect Theory what they have labelled as the "certainty effect", which refers to people's tendency to avoid risky or uncertain outcomes when they face gains. On the other hand, some evidence from academic research as well as the prevalent use in industry of schemes including risky rewards suggest otherwise. In particular, uncertain outcomes have been found to prolong (Wilson, Centerbar, Kermer, & Gilbert, 2005) and intensify (Bar-Anan, Wilson, & Gilbert, 2009) positive emotions, thus, making more attractive an uncertain loyalty reward or promotion. Moreover, the human tendency to make overoptimistic assessments found in different contexts has also been linked to preferences for incentive schemes offering uncertain outcomes, in the sense that people seem to react to uncertain offers as if they expect to obtain the best possible reward from the probabilistic incentives (Goldsmith & Amir, 2010).

A few studies have attempted to reconcile the contradictory evidence just described by identifying conditions in which incentive schemes considering uncertain

outcomes may or may not be more attractive to customers than the traditional rewards offered with certainty. For instance, incentive schemes with uncertain rewards have been found to be more attractive when people focused on the process of pursuing the reward instead of the reward itself (Shen, Fishbach, & Hsee, 2015). Moreover, effort requirements to obtain the reward have been associated to preferences for sure-small rewards instead of large-uncertain incentives (Kivetz, 2003). These studies represent a few examples of the attempts to understand the attractiveness of unpredictable incentive schemes. Nevertheless, the mechanisms underlying the preferences for this type of strategies are far from being fully understood. To our knowledge, the role of uncertainty in the type of unselfish incentive schemes proposed in the present study has not been previously explored. Neither the role of uncertain outcomes is normally considered in experiments based on the dictator game paradigm, which resemble to the situation presented in the unselfish loyalty schemes. However, some authors have explored the impact of uncertainty in the assignation of the roles performed by participants. For instance, Iriberri and Rey-Biel (2011) compared three situations: (1) role certainty: participants were certain about their roles as "Dictator" and "Receiver"; (2) role reversals: participants had the opportunity to perform both "Dictator" and "Receiver" roles; (3) role uncertainty: participants were uncertain about which role they would perform in the experiment. The authors observed more frequent unselfish behaviours under uncertain assignation of roles. In our experiment, we are not interested in the certainty with which roles are assigned in the experiment; instead, our focus is on how people's preferences would change when uncertainty in the expected outcomes is introduced. In this regard, we are not aware of any previous attempt to approach the role of uncertainty in the dictator game, in the way that we are proposing it.

In order to illustrates our approach more clearly, let us imagine that after each customer's purchase of a given amount, Firm A offers a loyalty reward of £0.50 to the client and £0.50 to a client selected friend. Another Firm B also offers a £1 reward in total, but it is divided into two portions: £0.25 and £0.75. The client and a client's friend can randomly receive either portion. Both firms are offering programmes where customers and customer's friends have exactly an expected value of £0.50, Firm A= £0.50*(1)=0.5, Firm B= £0.75(0.5)+0.25(0.5)= 0.5). In the absence of risk aversion, , people should be equally likely to prefer any of the firms. On the other hand, preferences for Firm B would support the thesis of the emotional benefits when experience uncertain prospects. On the contrary, evidence from Prospect Theory suggests that people are risk averse and that participants would prefer Firm A to Firm B even if both firms offer similar expected values (Kahneman & Tversky, 1979). Previous evidence does not allow to assume a clear prediction in the direction of our results. However, we will assume that the preferences about LPs will follow the direction suggested by Prospect Theory, considering that this is the most robust and widely accepted theoretical approach. Below is our fourth hypothesis:

> *Hypothesis 4a: People would be more likely to prefer a loyalty*
> *scheme in which the rewards for both the customer and the selected*
> *friend are received with certainty compared to programs giving*
> *payoffs under uncertainty, even though the "expected payoff" to be*
> *received in both programmes is similar.*

The tendency to prefer options offering payoffs with certainty to alternatives that offer similar or higher expected payoffs under uncertainty seems to be a fairly robust finding among people making decisions about their wealth. However, it is unclear whether risk aversion would play an important role when deciding the possible

outcomes that others could receive. To frame that in the context of LPs, let assume that Firm A offers again £0.50 reward to the client and £0.50 to a client's friend. Firm C also offers a reward of £0.50 to the customer but a randomly assigned payoff of either £1 or nothing to the selected friend. The expected values are again similar in both loyalty schemes. In this regard, if people are only risk averse when they are making decisions about their own income, participants should be equally likely to prefer either programme because both are offering a reward of £0.50 to the client with certainty. On the contrary, if people favour Firm A, it would suggest that they also show risk aversion when making decisions about the outcomes for other relevant peers. In this regard we aim to explore whether people are averse to both types of risks: the risk directly affecting people's own payoff and the risk affecting relevant peers' payoffs. We hypothesise that:

> *Hypothesis 5a: Loyalty schemes offering rewards with similar "expected values" under uncertainty would be equally likely to be preferred, regardless of whether the payoffs are uncertain only for the selected friend or for both the customer and the selected friend.*

We will test our five hypothesis in a set of three different experiments that are described in details in the following sections.

2.2- Experiment 1

2.2.1- Method

2.2.1.1- Participants and Data Collection

The experimental sample consisted of 377 participants who were randomly assigned to three experimental conditions (123 in the Reciprocity Condition, 131 in the No-Reciprocity Condition and 123 in the No-Awareness Condition). The participants were 186 males and 191 females, with an average age of 48 years. In Appendix 33, a more detailed exploration of the sample considering the different demographic variables collected is shown. They were recruited through an online platform from the company Bilendi (former Maximiles), which is a UK based company comparable to Amazon Mechanical Turk service that matches demand and supply of online tasks that involve human intelligence. There seems to be little evidence suggesting that the data collected through this kind of methods necessarily have poorer quality than other traditional methods (Paolacci, Chandler, & Ipeirotis, 2010).

All the experimental tasks that were used in the present research have been designed in Qualtrics, which is a popular software for data collection. In addition, the data collected has been analysed with the free software R. In order to favour the reproducibility of our research, we have made public in the following link: http://rpubs.com/carpio_ucv/207175, the coding to transform the raw data obtained from the survey into a clean data set. Similarly, all the coding related to the results analysis can be accessed in the following link: http://rpubs.com/carpio_ucv/213121.

2.2.1.2- Design and Procedure

The experiment consisted of three independent groups. After reading the general instructions of the experiment (see Appendix 1) and completing some demographic information, participants were presented with a hypothetical scenario in which they had to imagine that they were customers from a coffee shop. Specifically, they had to imagine that their favourite coffee shop was about to launch a loyalty scheme which involved receiving a reward in a loyalty card after each purchase. Part of this reward could also be shared with a friend selected by the customers (coffee partner), and both rewards could be redeemed after reaching a given threshold (see Appendix 2). The next screen presented to the participants in the online experiment was randomly varied depending on the experimental condition. In the "Reciprocity Condition", participants were told that the friend whom (coffee partner) they would end up selecting to share the reward with would be able to participate in a similar promotion; therefore, the friend could select the customer (participants) as a coffee partner as well (see Appendix 3). In the second group, ("No-Reciprocity Condition"), it was also mentioned that the coffee partner receiving the reward could participate in a similar promotion. However, in this case, the friend was not allowed to choose the customer as a partner to share the reward with (see Appendix 4). In the control condition called "No-Awareness Condition", participants are told that there is no way in which the coffee partner can tell if she is obtaining a specific reward as a consequence of the customer's consumption (see Appendix 5). Also, in both the Reciprocity Condition and the No-Reciprocity Condition, participants were reminded that their selected friends would be notified each time they receive a reward as a consequence of customer's purchases.

After the experimental manipulation, participants across the different conditions saw a screen explaining the rules to obtain the £1 reward after each consumption. In

addition, they were asked to define how the £1 reward should be split between them (The Clients) and the friends (Coffee Partners) in order to engage them as clients to buy more frequently in the coffee shop. The proportion of the reward allocated to them and the coffee partners represents the main dependent variable in this experiment (see Appendix 6).

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2.2.2- **Results and Discussion**

In our first hypothesis, we stated that people would prefer to share with a relevant peer at least part of the reward received as a consequence of their purchases. This was actually the case for participants in the three experimental conditions. People had the opportunity to share their loyalty reward with a friend and were asked to split it in a way that "induces them as clients to buy more frequently in the shop". Selfish and self-interested individuals would probably have taken the entire reward for themselves; however, we observed that these people were willing to share a significant proportion of their reward with their friends. Specifically, the median proportion that people were willing to give away in each condition was as follows: Reciprocity Condition= 30%; No-Reciprocity Condition= 25%; No-Awareness Condition=30%. None of the participants decided to give their friends zero. These values are surprisingly close to those traditionally observed in the dictator game and other paradigms in which social preferences are measured (Engel, 2011).

In addition, Figure 2 shows that participants in the No-Reciprocity Condition tend to be more willing to offer a smaller proportion of their loyalty rewards. In other words, they seemed to be slightly less generous than the participants from the other two experimental conditions. However, the differences in the distribution of the offers across conditions (see Figure 3) were not statistically significant based on the Kruskall-Wallis rank sum test (chisq= 3.07, df=2, p=0.23). Therefore, the first experiment found no support for our Hypothesis 2a, which assumes that in the Reciprocity Condition, participants (customers) would be more generous in order to encourage a reciprocal behaviour from the recipient, because the coffee partners receiving the reward could clearly identify the customer's kindness and participate in a similar promotion. One factor that could explain why limiting the possibility of reciprocity did not significantly reduce participant's giving is the social distance between recipients and customers. Previous studies have found that the more information people have about the recipients, the more pronounced is their willingness to give away part of their endowment (Bohnet & Frey, 1999; Branas-Garza et al., 2012; Charness & Gneezy, 2008; Eckel & Grossman, 1996). Therefore, the giving behaviours in these cases might be more driven by altruism than by an expectation of reciprocity. In the next sections we will explore if participant's tendency to share their rewards with a friend remains when their preferences are elicited in a different way. Also, alternative explanations to the results observed in Experiment 1 will be discussed.
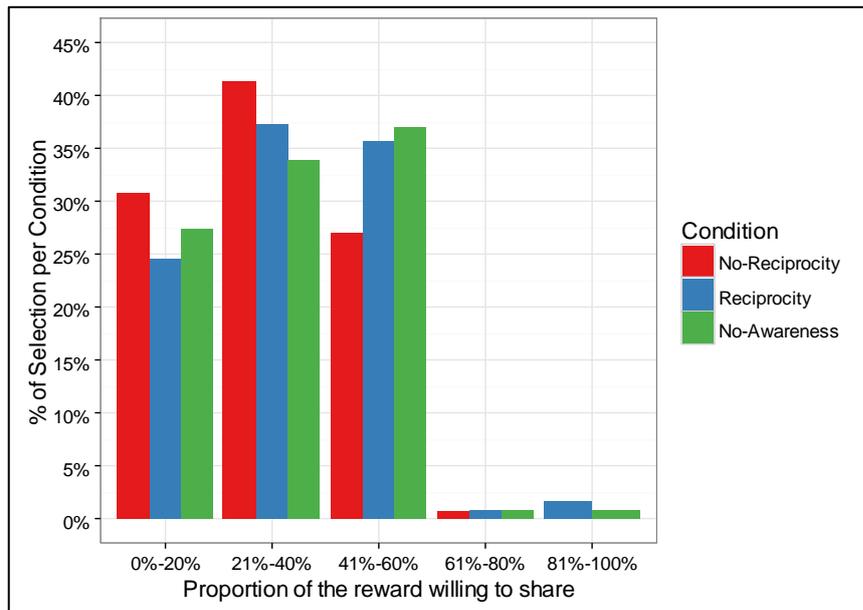
Figure 2: Proportion of the reward given away in each experimental condition.
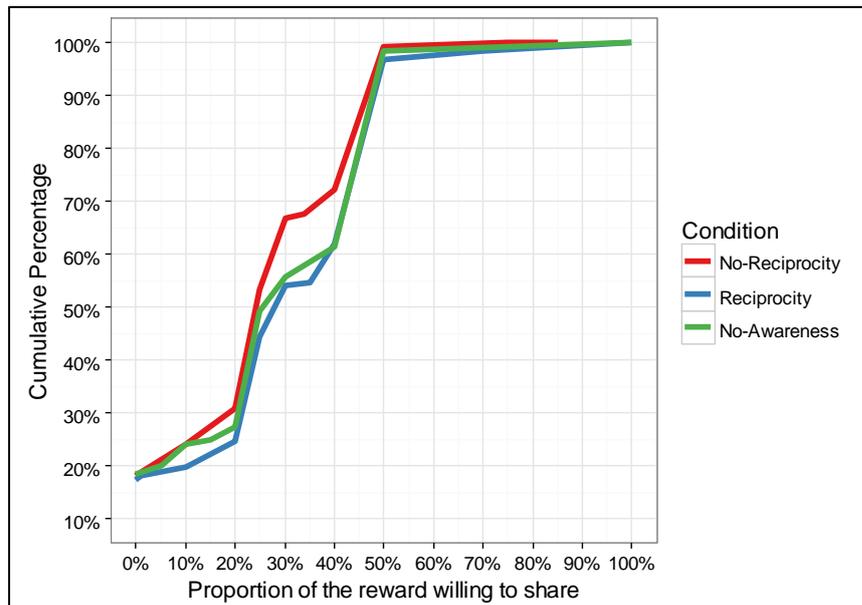
Figure 3: Cumulative distribution of participants' offers in each experimental condition.

In Experiment 1 that has been just described, participants' preferences have been elicited by asking people to write down how they wanted to divide a loyalty reward between themselves and a friend. In Experiment 2 presented in the next section, we

aim to explore whether the trends observed in the previous results remain after implementing a different methodology to measure participants' tastes. Specifically, we develop an experiment in which preferences for sharing part of a loyalty reward are measured by choosing in pairwise comparisons between pre-defined loyalty schemes.

2.3- Experiment 2

2.3.1- Method

2.3.1.1- Participants and Data Collection

In total, 148 people participated in the second experiment, 68 males and 80 females, with an average age of 47 years old. Appendix 34 allows to appreciate the distribution of the participants' age taking into account the demographic variables collected in the survey/experiment. As in Experiment 1, participants were randomly assigned to three different conditions (49 in the Reciprocity Condition, 49 in the No-Reciprocity Condition, and 50 in the No-Awareness Condition). They were recruited by using the same online platform from the company Maximiles that was described in Experiment 1. It is pertinent to note that participants who took part in the first experiment were not allowed to participate in the second test. The platform was designed to deny such participants access to this experiment in order to prevent results from being affected by the influence of previous experimental tasks. The *R code* used to clean the data collected (http://rpubs.com/carpio_ucv/213110), perform the exploratory analysis (http://rpubs.com/carpio_ucv/213116) and the choices modelling (http://rpubs.com/carpio_ucv/213169) is publically available in the links just provided.

2.3.1.2- Design and Procedure

The design and procedure of the second experiment are very similar to the first test, especially in the early stages of the experimental task. However, participant's preferences are elicited by implementing a different paradigm. In the real world, people do not always have the possibility to define the characteristics of the products or services that they would like to receive (e.g. deciding how to split a loyalty reward like in Experiment 1); instead, they have to choose among a set of pre-defined options that are available. For that reason, we have decided to use pairwise comparisons to elicit participants' preferences in the second experiment. Specifically, this technique consists of the repeated process of presenting participants with a pair of objects taken from a bigger set of alternatives and asking them, in each case, to state which element of the pair is preferred. These paired choices can be used to obtain a rank-ordering of the objects assessed in an interval scale (Dittrich & Hatzinger, 2009; Dittrich, Hatzinger, & Katzenbeisser, 1998). The details of the second experiment are presented in the following paragraph, including the pairwise comparison between different LPs that participants faced.

In the initial screens, participants had to complete some demographic information and read the general instructions of the experiment (see Appendix 1). Next, an identical hypothetical scenario to that presented in Experiment 1 describes a situation in which people had to imagine that their favourite coffee shop was launching a loyalty scheme that rewards their purchases under certain conditions; and the scheme also gives them the opportunity to reward a selected friend after client's purchases (see Appendix 2). The following screen was a reminder that purchases greater than £2 would generate a reward that could be split between the participant (client) and a selected coffee partner (recipient). Also, they were told that in the subsequent screen, information about how different shop brands were

planning to split the rewards between customers and coffee partners was displayed

(see Appendix 7). Specifically, the next screen observed by participants contained

five different combinations of the split of the loyalty reward between customers and

coffee partners, as presented in Figure 4:

<div style="border:1px solid black; padding:1em;">

Each transaction higher than £ 2 will give:

STORE A:
£ 0.5 reward to **you** and **£ 0.5** reward to your **friend** (Coffee Partner).

STORE B:
£ 0.25 reward to **you** and **£ 0.75** reward to your **friend** (Coffee Partner).

STORE C:
£ 0.75 reward to **you** and **£ 0.25** reward to your **friend** (Coffee Partner).

STORE D:
£ 1 reward to **you** and **nothing** to any **friend**.

STORE E:
No reward to **you** and **£1** reward to your **friend** (Coffee Partner).

</div>

Figure 4: Incentive schemes Stage 1, Experiment 2.

In the first experiment, participants were asked to indicate their preferences about

sharing part of their rewards by typing the amount of money that they were willing to

give to the coffee partner and the proportion that they would like to keep for

themselves. In the second experiment, after observing the five different incentive

schemes presented in the previous box, participants were asked to indicate which

stores offer the most appealing scheme in order to "induce them as clients to buy

more frequently from a given coffee shop" (see Appendix 8). Then, one of the three

messages related to each experimental conditions was randomly presented to the

participants. The awareness of the recipient (coffee partner) about who was

responsible for her reward and her possibilities of reciprocity towards the customer

(participant) were again manipulated by introducing the same conditions used in the

first experiment: Reciprocity, No-Reciprocity and No-Awareness. (see Appendices

3, 4 and 5).

Participants' choices were not framed as a single decision; instead, pairwise comparisons between the different stores were presented. In other words, stores were compared with one another, and in total, participants had to make ten decisions based on the format presented in Appendix 9. The position (top or bottom) of each loyalty scheme in the pairwise comparisons was randomised in each trial in order to control for order effects.

The five incentive schemes just described involve rewards that can be obtained with certainty by the customer and/or the coffee partner if the conditions of the LP are accomplished. Nonetheless, in the real world, some firms also offer rewards that cannot be obtained with certainty, but a chance of winning a prize is offered. In this regard, we also wanted to observe people's preferences about LPs that offer rewards under uncertainty. For that reason, after participants made the ten decisions regarding the pairwise comparisons of the five loyalty schemes, a new stage of the experiment was presented with additional schemes containing some outcomes that were defined by uncertainty. Specifically, participants were told that some additional coffee shops were planning to offer new schemes. Also, the instructions mentioned that the subsequent screen would show how different stores were planning to split the loyalty rewards between customers and coffee partners (see Appendix 10). Then, a new screen with three different loyalty schemes was shown as presented in Figure 5:

Each transaction higher than £ 2 will give:

STORE F:

£0.50 reward to **you** and **£0.50** reward to **your friend** (Coffee Partner).

STORE G:

£0.50 reward to **you** while **your friend** (Coffee Partner) has a **50% chance of receiving £1** each time a valid transaction is completed (it means that the friend could receive either £0 or £1).

STORE H:

You will **randomly receive either** a reward of **£0.75 or £0.25** after each transaction. Each time your reward is equal to **£0.75**, **your friend** (Coffee Partner) will obtain **£0.25**. Instead, when you receive **£0.25** your Coffee Partner will obtain a reward of **£0.75.**

Figure 5 :Incentive schemes Stage 2, Experiment 2

As it can be observed in Figure 5, one of the new loyalty schemes includes an equal reward for both the client and the coffee partner, a reward that can be obtained with certainty (Store F), whereas the other two schemes incorporate some randomness when defining the amount of money to be received. Despite their differences, the three loyalty schemes have the same expected values for both the customer and the coffee partner. It means that when we sum up all the possible outcomes multiplied by their probability of occurrence (which is 1/2), we end up in all the cases with an expected reward of £0.50 for the client and £0.50 for the coffee partner. In other words, they offer equivalent rewards regardless of the variations in the design of the three programmes. In this regard, we wanted to appreciate which of the different formats that participants favour the most. For that reason, after presenting the incentive schemes from the three stores, we ask participants again to select in pairwise comparisons which scheme they find more appealing in order to "induce them as clients to buy more frequently from a given coffee shop" (see Appendix 8). Similar to the first stage of the experiment, one of the three messages related to each experimental conditions (see Appendices 3, 4 and 5) were presented to the

participants just before the pairwise decisions. In total, participants made three

additional decisions that correspond to the total number of possible pairwise

comparisons among the new schemes.

The total frequency with which participants selected each incentive scheme as the

more appealing option in each pairwise comparison represented the main unit of

analysis in this experiment. The probability of selecting each option was compared

among the three experimental groups (Reciprocity, No-Reciprocity, and No-

Awareness Condition) to appreciate whether participants' preferences are affected

by the expectation of reciprocity from the recipients. The model implemented to

analyse the data is presented in the following section.

2.3.1.3- Choices analysis

As it was mentioned in the previous section, participants in the experiment had to

choose their preferred loyalty scheme from pairwise comparisons. This useful

mechanism, which aims to elicit preferences, has been used in many different fields

to establish the value of different alternatives in a continuum of preferences that

might not be easy to identify. One of the main advantages of this approach is that

people usually find it easier to compare two objects than to establish a ranking from

a list of elements. The statistical models, which have been developed to analyse the

data resulting from paired comparisons, are very extensive. It is beyond the scope

of this work to present a detailed review of all the available models (for a review see

Cattelan, 2012). Nonetheless, the following are the most prominent models,

including those selected to analyse the data from our experiment.

A few decades ago, Bradley and Terry (1952) proposed one of the most noticeable

and largely used models to analyse pairs comparison data, and it is commonly

known as BTL model due to the extension made by Luce (1959) in order to consider multiple variables.

In its most simple version, the BTL model defines the probability of preferring an object *j* (*O$_j$*) to an object *k* (*O$_k$*) when j and k are compared, as presented in the following expression:

$$p(O_j > O_k | \pi_j, \pi_k) = \frac{\pi_j}{\pi_j + \pi_k} \text{ , for all } j \neq k \qquad (1)$$

Where π values represent "worth parameters" that locate each object being compared (the different coffee shops), in a preferences scale (Hatzinger & Dittrich, 2012).

Different extensions of the BTL basic model have been proposed over the years. For instance, a highly influential approach was presented by Sinclair (1982), who fit one of the first log-linear representations of the model. Moreover, commonly found in the literature are the attempts to incorporate additional complexity to the original model such as the possibility of having no preferences between two objects (Davidson, 1970), and the effect of the presentation order (Davidson & Beaver, 1977), among many others. In the present paper, we will focus on a very comprehensive extension proposed by Dittrich, et al. (1998). In this extension, a log-linear formulation is developed considering some of the previous extensions incorporating the main effects related to the objects being compared as well as the subject-specific covariates. The advantage of this approach is that the model can provide both a parameter to establish the ranking of the different loyalty schemes being compared, and allow subject-specific covariates to incorporate the experimental condition that each participant belongs. This model also allows us to define whether interactions between object parameters and subject-specific covariates occur. In this case, an interaction between the experimental conditions

(subject covariate) and the object parameters (loyalty schemes being compared) would indicate that participants rank the different coffee shops (and their loyalty schemes) in a different way depending on the experimental group to which they belong.

In terms of the specifications of the model, let $m_{(jk)j|l}$ be the expected number of times a loyalty scheme *j* is preferred to a scheme *k*, among participants classified in the different experimental conditions as covariates class *l, l=1,2…, L.* The Bradley – Terry extended model proposed by Dittrich, et al. (1998), which allows the incorporation of subject-specific covariates, is formalised in a log-linear representation by the equations presented below:

$$\ln(m_{(jk)j|l}) = \mu_{(jk)jl} + \lambda_j^O - \lambda_k^O + \lambda_l^S + \lambda_{jl}^{OS} - \lambda_{kl}^{OS}, \quad (2)$$

$$\ln(m_{(jk)k|l}) = \mu_{(jk)jl} - \lambda_j^O + \lambda_k^O + \lambda_l^S - \lambda_{jl}^{OS} + \lambda_{kl}^{OS}, \quad (3)$$

To obtain greater clarity and better understanding of the main model, we described each of its elements in the following table:

Table 1: Model summary

Equation Term	Description
j k	J and k represent a pair of loyalty schemes (objects) being compared in a given trial.
l	L is a covariate in the model. In our study, the experimental conditions are represented by the covariate l, l= No Reciprocity Condition, Reciprocity Condition, and No Awareness Condition.
$m_{(jk)j|l}$	Matrix containing the expected number of times a loyalty scheme *j* is preferred to a scheme *k*, among participants that are part of the experimental condition (covariates) **l**.

$m_{(jk)k|l}$ — Matrix containing the expected number of times a loyalty scheme **k** is preferred to a scheme **j**, among participants that are part of the experimental condition **l** (covariates).

μ — Nuisance parameter, which can be interpreted as an interaction parameter representing the loyalty schemes involved in the respective comparisons.

$\lambda_{j(k)}^{O}$ — Scheme-related term for the option **j** (k) preferred in its comparison **k** (j). The superscript O refers to loyalty scheme-object- specific parameter.

λ_{l}^{S} — Parameter related to the covariate representing the experimental condition to which each participant belong. The superscript S refers to "Subject" specific parameter.

$\lambda_{jl(kl)}^{OS}$ — Parameter related to the interaction between the incentive scheme selected (object) and the experimental condition (subject covariate), when option **j** (k) is preferred in its comparison **k** (j).

The previous model is parametrised in such a way that its coefficients are interpretable with respect to a pre-defined reference group, in terms of log-odds. In this regard, λ_{j}^{O} represents the main effect for preference ordering in the baseline group. For the purpose of our analysis, in the first stage of the second experiment, the LP where the customer gets 100% of the reward and the coffee partner gets no benefit (Store D) has been defined as the reference group (baseline group). In the case of the second stage, the condition in which the reward is given with certainty to both the coffee partner and the customer (Store F) has been defined as the reference group. Both reference groups have been selected because they represent people's preferences corresponding to the null hypotheses being tested. In addition, for the parameter λ_{l}^{S}, related to the subject-specific covariate describing the experimental conditions, the "No-Awareness" control condition has been defined as the reference class for this parameter.

The model gives initially the ordering parameter for only the reference group. Then, the ordering for the additional groups can be obtained by adding the specific λ_{jl}^{OS}'s to condition *l* to the λ_i^{S}'s of the baseline group. As an illustrative example, the definition of preference values for group 1 and 2 can be obtained by:

(reference group) Group 1: preference for object j: λ_j^{O}

Group 2: preference for object j: $\lambda_j^{O} + \lambda_{j2}^{OS}$

The BTL model allows the estimation of a parameter π which does not change under variations of scale and which represents the "worth" of each object being compared. This "worth parameter" requires $\sum_i \pi_i = 1$, and its relationship with λs parameters is given by the expression shown below:

$$\pi_j = \exp\left(2\lambda_j^{O}\right) / \sum_i \exp\left(2\lambda_i^{O}\right), \; j = 1, 2, \dots, J. \qquad (4)$$

More details about the mathematical development of the model just presented and further extensions and applications can be found in Dittrich, et al. (1998), Dittrich & Hatzinger (2009), and Hatzinger & Dittrich (2012).

There are a few packages of functions that have been developed in the free statistical software R (see www.r-project.org) that can estimate BTL models such as *EBA* (Wickelmaier & Schmid, 2004), *BradleyTerry2* (Turner & Firth, 2010), *psychotree* (Strobl, Wickelmaier, & Zeileis, 2011) and the *prefmod* package (Hatzinger & Dittrich, 2012; Hatzinger & Maier, 2014). We have chosen the R package *prefmod* to perform the estimation of the model and parameters in the present research. One of its advantages is that the model implemented can deal with dependencies. In other words, it does not assume that choices are independent

of each other (Hatzinger & Dittrich, 2012). Moreover, *prefmod* is particularly suitable to easily implement object-subject covariates in a linear model framework (Cattelan, 2012), as it is required for the data in our second experiment.

The results of the analysis and model estimations previously described are presented and briefly discussed in the following section.

2.3.2- Results and Discussion

2.3.2.1- First Stage - Experiment 2

In the first section of our second experiment, we wanted to explore whether people's preferences about splitting up a loyalty reward between themselves and a friend vary depending on the possibility of reciprocity from the friend. Specifically, in our Hypothesis 2a, we stated that when the friend (receiver) could identify the customer sharing the reward, then the customer would tend to be more generous compare with the situation in which the reward is shared anonymously. Our results support this claim and suggest that expectations of reciprocity is at least one of the variables that play a crucial role in participant's preferences about the LPs presented.

As a first step, we fitted the BTL model described in the previous section to the data from participants' decisions in order to establish the initial model. Subsequently, we estimated again the BTL model, including the experimental condition as a subject-specific covariate, to appreciate whether it improves the model. Finally, we estimated the general ranking of the five different loyalty schemes (stores) based on the parameters from the final model. In this regard, by adding the experimental conditions as a covariate, the model fitting had an improved statistically significant difference (changed in deviance= 17.758 based on 8 DF) as it can be appreciated in Table 2. This result suggests that overall, the possibilities of reciprocity that was manipulated in each condition plays a role in participants' preferences.

Table 2: Models comparison, Experiment 2, Stage 1.

Models	Resid. DF	Resid. Dev	Df	Deviance	Pr(>Chi)	
initial model	26	80.452				
initial model ǂ experimental condition covariate	18	62.694	8	17.758	0.02312	*

Additionally, even though incorporating the experimental conditions as a subject-specific covariate significantly improved the fitting of the final model, it is still underfitting the data (p=0.000). This finding suggests that other variables not considered could have a relevant role in the model; consequently, it might not predict preferences in a reliable way. It is therefore important to be cautious when generalising the model to different contexts.

Regarding the preferences for each specific incentive scheme from the standard economic point of view, in the first stage of pairwise comparisons, we should expect most people trying to maximise their income by selecting more frequently "Store D", in which customers keep 100% of the reward for themselves and nothing is given away. Nevertheless, if our Hypothesis 1a is confirmed, people should prefer to choose more frequently those stores that allow them to share part of their reward with a coffee partner. In particular, the store that offers the possibility of sharing 25% percent of the endowment (Store C) should be the most appealing by participants according to our Hypothesis 1a, because it would reflect the "social preferences" observed in other experimental paradigms such as the dictator game. In short, our results support this prediction.

To explore the results of the paired comparisons, we have first observed the frequency with which each scheme is selected in relation to the total number of times these schemes were compared. In Figure 6, we show such frequencies (expressed as a percentage) in order to make them comparable across conditions.

In addition, the graph shows the five different loyalty schemes in the x-axis expressing the proportion of the client's endowment that they established to be share with a friend. It can be appreciated that, as proposed in Hypothesis 1a, the loyalty scheme that was selected more frequently was the scheme offering 25% of the reward to the coffee partner and 75% of the reward to the customer (Store C). Specifically, the store offering these conditions was selected in average 40.9% of the times it was compared with other stores. It is worthwhile highlighting that even though Experiment 1 and Experiment 2 used different methodologies to elicit participants' preferences about loyalty schemes, both of them led to similar results. Stated another way, both experiments showed that people would be more engaged with a loyalty scheme that offered to share about 25% to 30% of the loyalty reward with a relevant peer.
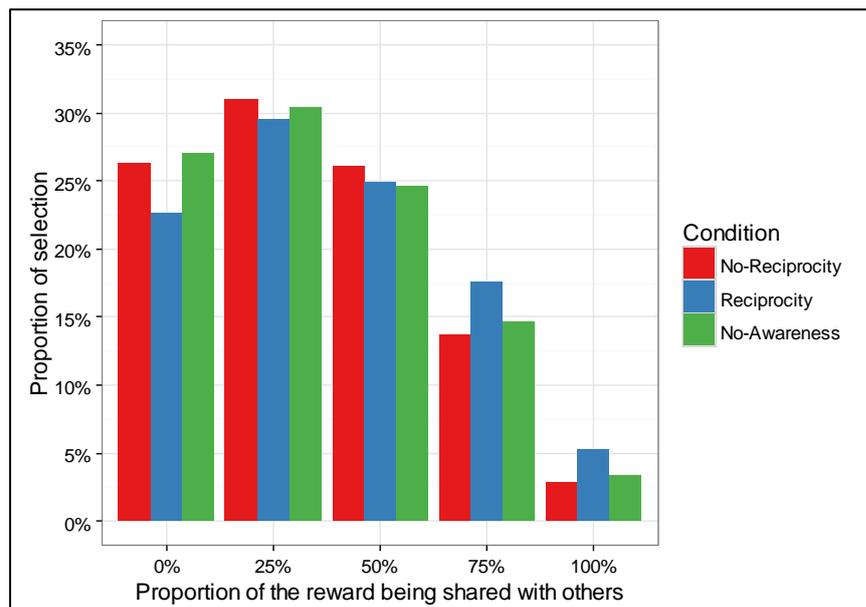
Figure 6: Proportion of participants selecting to share a given proportion of the reward with respect to the total number of choices.

In addition to the previous exploratory analysis, we have estimated the λ_i^S parameter for each incentive scheme and their interactions with the different experimental conditions (see Table 3), as well as the parameters π which represents the "worth"

of each coffee shop being compared, in a scale-invariant measure that goes from

cero to one (see Table 4). Moreover, in Figure 7, we present a visually clear

representation of the "worth parameters" for the three experimental conditions.

Table 3: Model parameters, Experiment 2, Stage 1.

	Estimate	Std. Error	z value	Pr(>|z|)	
GIFT100	-1.41845	0.14905	-9.517	< 2e-16	*
GIFT75	-0.64591	0.1105	-5.845	5.06E-09	*
GIFT50	-0.12344	0.10176	-1.213	0.22511	
GIFT25	0.18302	0.10458	1.75	0.08011	**
GIFT0	0	NA	NA	NA	
GIFT100:gr-No-Reciprocity	-0.09245	0.22047	-0.419	0.67496	
GIFT100:gr-Reciprocity	0.49943	0.1926	2.593	0.00951	*
GIFT75:gr-No-Reciprocity	-0.04945	0.16067	-0.308	0.75823	
GIFT75:gr-Reciprocity	0.40791	0.14815	2.753	0.0059	*
GIFT50:gr-No-Reciprocity	0.11257	0.1457	0.773	0.43975	
GIFT50:gr-Reciprocity	0.22849	0.14124	1.618	0.10571	
GIFT25:gr-No-Reciprocity	0.07675	0.1503	0.511	0.6096	
GIFT25:gr-Reciprocity	0.15283	0.1459	1.047	0.29488	
GIFT0:gr-No-Reciprocity	0	NA	NA	NA	
GIFT0:gr-Reciprocity	0	NA	NA	NA	

Signif. **0.1, *0.05

Table 4: "Worth" parameters, Experiment 2, Stage 1.

Proportion shared with Coffee Partner	No Awareness	NO-Reciprocity	Reciprocity
Give-100%	0.016	0.012	0.032
Give-75%	0.077	0.063	0.125
Give-50%	0.220	0.247	0.248
Give-25%	0.405	0.425	0.394
Give-0%	0.281	0.253	0.201
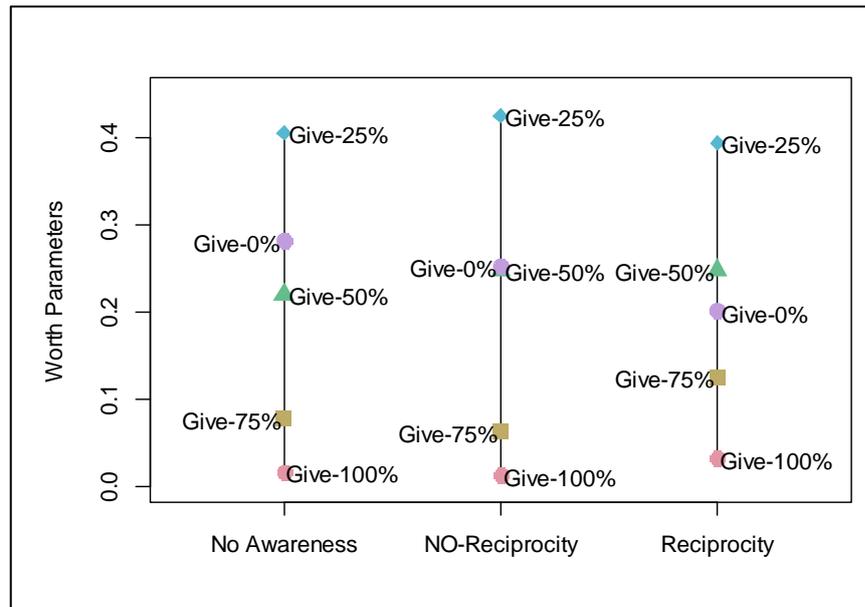
Figure 7: Worth parameters of each loyalty scheme in Experiment 2, comparing the three experimental conditions (possibilities of reciprocity).

The parameters related to the coffee shop that offers a scheme in which 25% of the reward is shared with a friend has the highest λ's values across the different loyalty scheme options which confirm the participants' preference for this kind of programme ($\lambda = 0.183$). This scheme had a marginally significant difference (p=0.08) compared to the reference group, which in this case is represented by the scheme were no money is shared with the coffee partner. In fact, from the worth parameters, we can estimate the odds in favour of preferring a coffee shop offering a scheme where customers can share 25% percent of their reward compared with a scheme where nothing was shared. For instance, we can state that when no anonymity is in the sharing mechanism (Reciprocity Condition), customers are almost twice (odds=1.96) more likely to prefer a coffee shop that allow them to share 25% of their loyalty reward with a friend than a coffee shop that gives the customer 100% of the loyalty reward. The odds related to the different types of incentive scheme for each experimental condition are presented in Table 5.

Table 5: Odds of selecting each scheme compared to the reference group
(100% of the reward to the client) – Experiment 2, Stage 1.

Proportion shared with Coffee Partner	No Awareness	NO-Reciprocity	Reciprocity
Give-100%	0.059	0.049	0.159
Give-75%	0.275	0.249	0.621
Give-50%	0.781	0.979	1.234
Give-25%	1.442	1.681	1.957

Even though the store offering the entire loyalty reward to the customers (Store D) was less preferred to that which allow them to share 25% of the stake (Store C), that observation was not the case when it was compared with the other incentive schemes. The "selfish incentive" was indeed more attractive than other schemes that shared a large proportion of the stake with a partner. Specifically, the parameter λ for the scheme where nothing was shared with the coffee partner was significantly different from the LPs where 75% (p=0.000) and 100% (p=0.000) of the rewards were offered to the coffee partner. No statistically significant differences were found between the scheme where 50% of the reward could be shared and the arrangement where nothing was offered to the coffee partner (p=0.225).

When estimating the model parameters, we also found interactions statistically significant between the Reciprocity Condition and the schemes where 100% (p=0.009) and 75% (p=0.005) of the loyalty reward were shared with a friend. It has to be remembered that the model is parametrised in a way that comparisons are made against a reference group. In the case of the experimental treatments, we defined the No-Awareness Condition (control group) as our baseline. It means that schemes that allow the sharing of 100% or 75% of the loyalty reward were significantly more valued in the Reciprocity Condition than in the No-Awareness Condition. In other words, keeping less money for the customer and more for the coffee partner was more valued when the coffee partner was aware of where his or

her reward was coming from; and the client knew that the coffee partner had such information, compared to the situation in which absolute anonymity in the transaction was present. It suggests that customers tend to be more generous when the parties involved can identify one another. Therefore, customers can expect a reciprocal act from recipients as a consequence of their "generosity".

The link between expectations of reciprocity and generosity can also be appreciated in the worth parameters (see Table 4) and in the frequency with which the scheme that gives nothing away to the coffee partner was selected in relation to the total number of times of comparison (see Figure 7). Specifically, that scheme was on average less selected in the Reciprocity Condition (56.6%) than in the Reciprocity Condition (65.8%) and No-Awareness Condition (67.5%). Moreover, the worth parameter for the scheme that gives zero to the coffee partner was remarkably lower in the Reciprocity Condition ($\pi=0.20$) than in the No-Reciprocity Condition ($\pi =0.25$) and No-Awareness Condition ($\pi =0.28$). In other words, if customers' generosity can be observed by coffee partners, the selfish incentive scheme where customer can share nothing with a friend become less appealing.

In summary, the expectations of reciprocity seems to play a paramount role in people' preferences about LPs that allow customers to share their rewards with a relevant peer. Nonetheless, other variables need to be considered in order to achieve a more robust model.

In the second stage of our second experiment, three additional incentive schemes were assessed by participants by performing additional paired comparisons. The results of these decisions are presented in the following section.

2.3.2.2- Second Stage - Experiment 2

In the second stage of Experiment 2, three new loyalty schemes were compared by asking people to perform pairwise comparisons in the same way they did in the first stage of the experiment. In this case, the intention was to identify the consequences of introducing uncertainty in the rewards of the LPs being compared.

One of the programmes being compared offers a £1 reward where 50% goes to the client and 50% goes to a selected friend (Store F). We will refer to this programme as "Certainty Both", because both the client and the coffee partner always receive the same amount of money for sure if they fulfil the promotion rules. Another scheme (Store G) offers a reward or £0.500 for the client with certainty, but the selected friend has a 50% chance of receiving either £1 or nothing. We are defining this scheme as "Uncertainty Partner". The last LP also offers an overall reward of £1, divided into two portions of £0.75 and £0.25. The client and the selected friend have a 50% chance of receiving either portion. We will call the loyalty scheme just described "Uncertainty Both".

We first fitted the data from participants' decisions to the basic BTL model. Then, a new model incorporating the experimental conditions (Reciprocity, No-Reciprocity, and No-Awareness Condition) as subject-specific covariates was estimated. As shown in Table 6, the fitting of the model does not improve significantly (p=0.76) after incorporating the covariate. Therefore, we kept the initial model in order to estimate the programmes' ordering parameters. The results from the goodness-of-fit test for the initial model allow us to assume that there is a good fitting of the data (p= 0.943).

Table 6: Models comparison, Experiment 2, Stage 2.

Models	Resid. DF	Resid. Dev	Df	Deviance	Pr(>Chi)
initial model	7	2.283			
initial model ‡ experimental condition covariate	3	0.442	4	1.841	0.7649

As we did for the data from the first stage, we have performed an initial exploratory analysis by aggregating the frequency with which each loyalty scheme was selected. In Figure 8, we displayed these frequencies expressed as a percentage, with the aim of making them comparable across conditions. The figure showed a clear preference for the Certainty Both scheme which was selected on average 45.74% of the times it was compared. In contrast, the programmes Uncertainty Partner and Uncertainty Both were preferred on average 27.9% and 26.4% respectively.
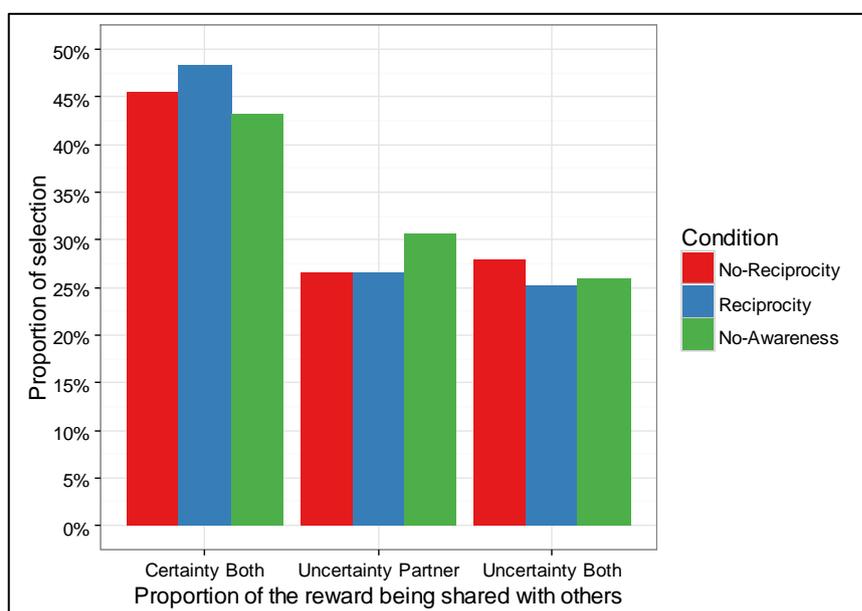
Figure 8: Proportion of selections, with respect to the total number of choices, of schemes with different levels of reward certainty.

In our Hypothesis 4a, we have claimed that loyalty schemes with features like those observed in the Certainty Both schemes would be preferred to programmes that are associated with any uncertainty, even though the expected values to be received for each person are similar across programmes (£0.50 for each person). The parameters λ 's of the model observed in Table 7 confirm that assumption. Both the Uncertainty Partner (p=0.000) and the Uncertainty Both (p=0000) programmes were significantly different from the reference group, which offers rewards under complete certainty for both the client and the selected friend. In fact, the Certainty Both schemes were twice more likely to be selected than the Uncertainty Partner (Odds=2.11) and the Uncertainty Both (Odds=2.26) programmes.

Table 7: Model parameters, Experiment 2, Stage 2.

	Estimate	Std. Error	z value	Pr(>|z|)
Uncertainty_Partner	-0.37387	0.07123	-5.249	0.000*
Uncertainty_Both	-0.40694	0.07163	-5.681	0.000*
Certainty_Both	0	NA	NA	NA

Signif. *0.05

In addition, we obtained the π worth parameters, which were 0.25, 0.23 and 0.52, for the Uncertainty Partner, Uncertainty Both, and Certainty Both schemes respectively. These results also confirm our Hypothesis 5a, thus showing that the programmes involving uncertainty were almost equally likely to be preferred even though in one of them, the customer (participant) had the possibility of receiving her percentage of the reward with complete certainty.

In short, the results just described suggest that people are risk averse not only about their own expected outcomes but also about the expected outcomes of relevant peers. Therefore, risk aversion should be an element to be considered when designing LPs offering incentives under uncertainty.

The previous two experiments have shown that generally, people are willing to share an important proportion of their loyalty reward with a friend. It is not clear, however, whether such behaviour would be affected by an increase or decrease in the number of recipients (friends). In other words, it may be the case that people are willing to share a larger proportion of their endowment when more friends are expected to receive it. On the contrary, the amount that they are willing to share may remain the same regardless of an increase in the number of recipients. We have designed a third experiment (see next section) to shed more light on this question.

2.4- Experiment 3

With the aim of understanding more clearly the drivers leading participants to share their loyalty reward with others, we have run an additional experiment very similar to the two previous trials, but we have made two fundamental changes in terms of the characteristic of the coffee shop presented. The first difference has to do with the proportion of the reward to be shared with the coffee partner. In Experiment 1 and 2, we found that generally most people prefer programmes that shared no more than 50% of the loyalty reward. We have therefore included in the third experiment only schemes offering to share a proportion of the reward equal or lower than that value (50%, 30% and 10%) because they proved to be the most popular among participants (see Figures 2 and 6). The second difference in the third experiment is that we have included schemes were the reward can be shared with not only one friend but with two recipients.

2.4.1- Method

2.4.1.1- Participants and Data Collection

Just as in Experiment 1 and 2, participants in the third experiment were recruited through the online platform provided by the vendor Maximiles. In total, 227 participants, 116 males and 111 females took part in the experiment. The average age of the participants was 48 years old. Further details regarding the characteristics of the experimental sample can be observed in Appendix 35. Participants were again randomly assigned to the three different experimental conditions: 75 in the Reciprocity Condition, 76 in the No-Reciprocity Condition, and 76 in the No-Awareness Condition. Like previous experiments, the data was collected through Qualtrics, and analysed with the free software R. Codes regarding data cleansing (http://rpubs.com/carpio_ucv/213235), exploratory analysis (http://rpubs.com/carpio_ucv/213237), and choices modelling (http://rpubs.com/carpio_ucv/213242) are publically available in the links just presented.

2.4.1.2- Design and Procedure

In the third experiment, participants faced a very similar task to the undertaking described in Experiment 2. In the initial stages, people completed some demographic information and read the details about the hypothetical scenario regarding coffee shops planning to offer different loyalty schemes (see Appendix 12 and 13). After that, a screen showing the text related to one of the three possible experimental conditions was randomly presented (see Appendices 3, 4 and 5). Again, in each condition, the possibility of reciprocity towards the customer (Reciprocity, No-Reciprocity, and No-Awareness Condition) was manipulated. The subsequent screen displayed to the participants provided information on how the

different coffee shops were planning to split the rewards between clients and selected friends in their loyalty schemes. Unlike the previous experiments, in this occasion the schemes offered the possibility of sharing comparable incentives with either one or two friends. In total, six different loyalty schemes were presented to the participants as illustrated in the following in Figure 9:

Each transaction higher than £ 2 will give:

STORE A:
£0.50 reward to **you** and **£0.50** reward to **one friend** (Coffee Partner).

STORE B:
£0.50 reward to **you**, **£0.25** reward to **one friend** and **£0.25** to a **second friend** (Coffee Partners).

STORE C:
£0.7 reward to **you** and **£0.3** reward to **one friend** (Coffee Partner).

STORE B:
£0.7 reward to **you**, **£0.15** reward to **one friend** and **£0.15** to a **second friend** (Coffee Partners).

STORE E:
£0.90 reward to **you** and **£0.10** reward to **one friend** (Coffee Partner).

STORE F:
£0.90 reward to **you**, **£0.05** reward to **one friend** and **£0.05** to a **second friend** (Coffee Partners).

Figure 9: Incentive schemes, Experiment 3.

Just as the second experiment, participants made the pairwise comparison between the different schemes just presented (See Appendices 8 and 9). In total, each participant had to make 15 decisions, which corresponded to the total number of possible comparisons among the programmes presented. The model used to analyse the results from these decisions is briefly described in the following section.

2.4.1.3- Choices analysis

The paired comparisons of the six different loyalty schemes previously described were analysed by implementing the same extension of the Bradley-Terry-Luce

model, which was applied in Experiment 2. In the case of the third experiment, we not only had the possibility of incorporating the experimental condition as a subject-specific covariate, but it was also feasible to incorporate an object-specific covariate. Specifically, we compared loyalty schemes that allowed participants to share a given proportion of the reward with either one or two friends (coffee partners). In order to appreciate whether a property common to a group of LPs (e.g. sharing the reward with two people) affects participants' preferences, a reparameterisation of the original model needs to be done (Dittrich & Hatzinger, 2009; Dittrich et al., 1998; Hatzinger & Dittrich, 2012). In particular, the λs parameters can be calculated based on the following formula:

$$\lambda_j = \sum_{q=1}^{Q} \beta_q \, x_{jq} \qquad (5)$$

Where x_{jq} represents the characteristic q of the loyalty scheme j, whereas the effect of characteristic q is given by β_q. The log-linear formulation of the BTL model incorporating the object-specific covariate, for the preferences in comparisons jk, is given by the following formula:

$$\ln m(y_{jk}) = \mu_{jk} + y_{jk} \sum_q (x_{jq} - x_{kq}) \beta_q, \qquad (6)$$

The model estimations, as well as other results from the third experiment, are briefly discussed in the next section.

2.4.2- Results and Discussion

Like in Experiment 1 and 2, in the third experiment we were also interested in exploring the impact of manipulating customers' expectations of reciprocity on

preferences about loyalty schemes. In the first two experiments, we found evidence supporting Hypothesis 2a, in which it is assumed that people will prefer to share a higher proportion of their rewards with a coffee partner if the former can identify the customer's sharing behaviour; therefore, the customer might expect a reciprocal action. Our results in Experiment 3, based on a different sample of participants, also support that claim.

We have fitted the BTL model explained in previous sections to the data from the pairwise decisions with the aim of estimating the initial model describing participant preferences about loyalty schemes. After that, the second model has been fitted, including the experimental conditions as a subject-specific covariate, with the purpose of appreciating whether it improves the fitting in comparison with the initial model. In Table 8, the contrast between the two models can be appreciated. It shows that incorporating the experimental condition as a covariate in the model improves its fitting significantly (changed in deviance= 22.836 based on 10 DF). This result, as well as the evidence from the two previous experiments, supports the idea that expectations of reciprocity can affect people preferences about LPs in which a portion of the rewards can be shared with other people.

Table 8: First model comparison, Experiment 3.

Models	Resid. DF	Resid. Dev	Df	Deviance	Pr(>Chi)	
initial model	40	74.695				
initial model + experimental condition covariate	30	51.859	10	22.836	0.01137	*

Despite the improvement of the model after adding the experimental conditions as a covariate, it underfits the data (Resid. Deviance=51.859, df=30, = p=0.008). The model is therefore not robust enough and might not have the flexibility to capture the

underlying trends in participants' decisions. It implies that other variables not considered might also play and important role in people's preferences.

Reparameterising the model might be a way to improve its fitting even more. Therefore, we have tested a different model in which the two object-specific covariates replaced the six objects being compared (loyalty schemes). One object covariate has been defined as "split" and assigned the value "0" if the scheme offers to share the reward with one person, and the value "1" when the reward is shared with two people. The second covariate refers to the proportion of the reward being shared (50%, 30%, or 10%). Table 9 presents the comparison between this model and the one that includes the six LPs and the experimental condition as subject-specific covariate.

Table 9: Second model comparison, Experiment 3.

Models	Resid. DF	Resid. Dev	Df	Deviance	Pr(>Chi)	
Initial model‡ experimental condition covariate	30	51.859				
Model including two object specific covariates	39	194.055	-9	-142.2	0.0000	*

Table 9 shows that substituting the six loyalty schemes for objects covariates did not reduce the deviance; rather, it worsens the model fitting. For that reason, we retain the previous model, which considers the six objects and the experimental conditions as a subject-specific covariate.

An initial exploration of the participant's preferences can be obtained by plotting the frequencies with which each loyalty scheme was selected among the total amount of decisions made by each experimental group. That summary can be observed in Figure 10. In the x-axis of the graph, the six loyalty schemes, which were compared, are represented based on the proportion of the reward shared with the coffee

partner (£0.50, £0.3, or £0.1) and whether the reward was shared with either one or

two persons.

Figure 10: Proportion of selections, with respect to the total number of choices, comparing number of coffee partners and experimental condition.

The results from the third experiment also allow us to test our Hypothesis 1a, which

states that people will prefer LPs that permit them to share part of their reward with

someone else, and in particular, schemes allowing to share about 30% of the loyalty

reward would be more appealing because they match the social preferences

observed in different experimental paradigms. In the case of the schemes been

compared in Experiment 3, we would expect Store B and C, where 30% of the

loyalty reward is shared with either one or two friends, to be preferred to the rest of

the incentive schemes presented. The trends observed in Figure 10 support that

claim. Overall, the schemes offering to share 30% of the loyalty reward with a friend

were more attractive (selection=41.06%) than were the programmes sharing 50%

(selection=26.29%) and 10% (selection=32.65%) of the reward. When the schemes

are compared individually, the two most appealing were the programme that offered

30% of the reward to only one friend (selection=22.56%) and the scheme that

allowed customers to share 10% of the incentive with one coffee partner (selection=22.78%). This preliminary analysis suggests that participants were not indifferent about the number of people with whom they shared the reward (one or two friends). We will explore this idea in more details by plotting and interaction graph to observe the relationship between the amount being shared and the number of coffee partners receiving part of the reward but without considering the experimental conditions (see Figure 11).
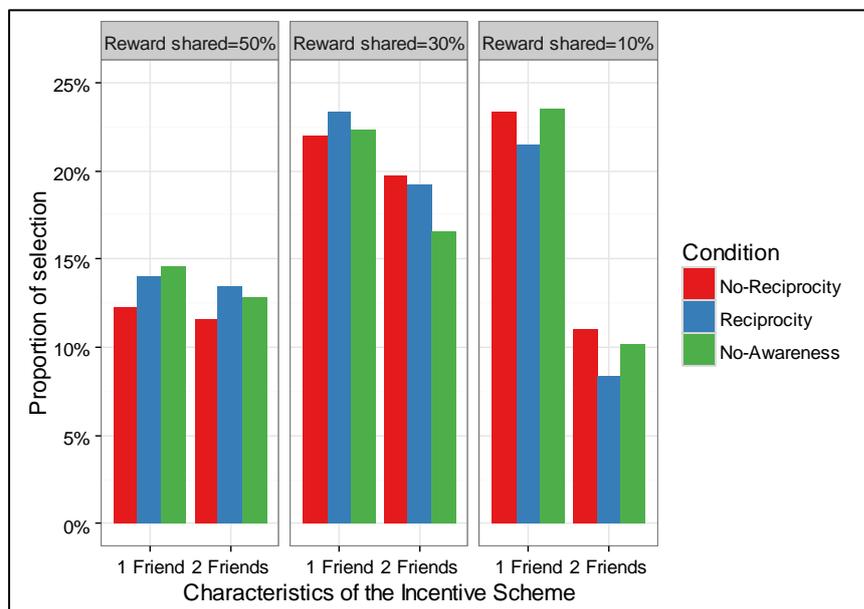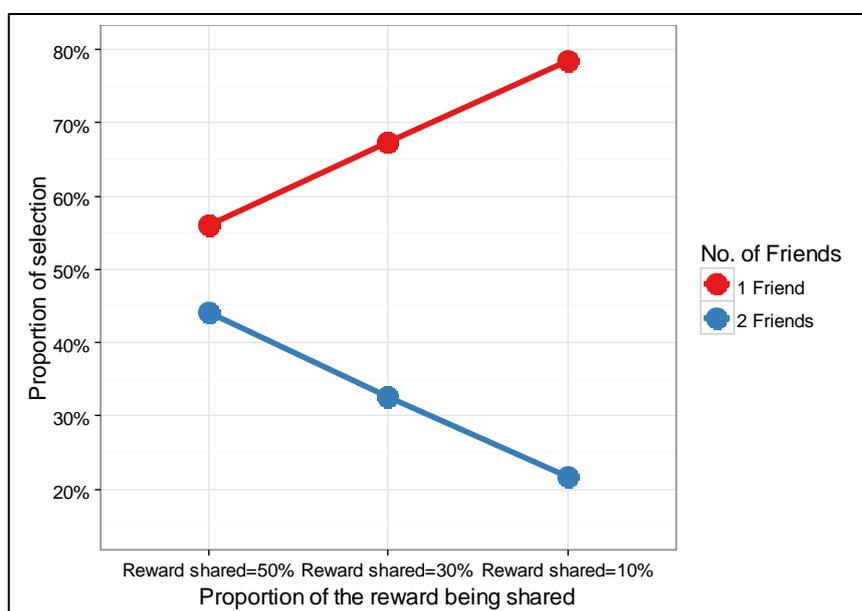

Figure 11: Proportion of selections, with respect to the total number of choices, comparing number of coffee partners and proportion of the reward being shared with others.

In Figure 11 a very clear trend can be observed. Put simply, when a large proportion of the reward is shared (e.g. 50%), people are almost equally likely to prefer giving it away to either one or two friends. However, people start favouring the schemes where the reward is shared with only one friend and when the proportion being shared is reduced. This support our Hypothesis 3a, which states that schemes offering to share smaller proportions of the loyalty reward with other people are

more likely to be preferred when the reward is shared with only one friend instead of two friends.

In order to better understand the patterns underpinning participants' preferences about LPs, we have estimated the parameters of the BTL model, including the effect of each incentive scheme and their interaction with the experimental conditions. It is worth mentioning that the model parametrisation needs to be compared with a baseline group. In this case, the No-Awareness Condition represents the baseline for the experimental groups as it occurred in the previous experiments. Regarding the loyalty schemes, the programme which the client keeps 50% of the reward and shares the other 50% with one friend (Store A) has been defined as the reference group because, among the options presented, this is the choice that implies the most selfish behaviour, and therefore, the option expected to be preferred according to the assumption from standard economy theories. As shown below, Table 10 summarises the results of the model estimation.

Table 10: Model parameters, Experiment 3.

	Estimate	Std. Error	z value	Pr(>|z|)	
GIFT10x1	0.28294	0.06845	4.134	3.57E-05	*
GIFT5x2	-0.05519	0.06786	-0.813	0.41599	
GIFT30x1	0.40238	0.06984	5.762	8.3E-09	*
GIFT15x2	0.09997	0.06752	1.481	0.13874	
GIFT25x2	-0.09715	0.06813	-1.426	0.15389	
GIFT50x1	0	NA	NA	NA	
GIFT10x1:gr-No-Reciprocity	0.10693	0.09777	1.094	0.27412	
GIFT10x1:gr-Reciprocity	-0.05406	0.09715	-0.556	0.57789	
GIFT5x2:gr-No-Reciprocity	0.18689	0.09663	1.934	0.05309	*
GIFT5x2:gr-Reciprocity	-0.08487	0.09731	-0.872	0.3831	
GIFT30x1:gr-No-Reciprocity	0.1168	0.09982	1.17	0.24198	
GIFT30x1:gr-Reciprocity	0.10068	0.10038	1.003	0.31586	
GIFT15x2:gr-No-Reciprocity	0.29459	0.09716	3.032	0.00243	*
GIFT15x2:gr-Reciprocity	0.17128	0.0967	1.771	0.07651	**
GIFT25x2:gr-No-Reciprocity	0.05838	0.09742	0.599	0.54901	
GIFT25x2:gr-Reciprocity	0.06869	0.09688	0.709	0.47827	
GIFT50x1:gr-No-Reciprocity	0	NA	NA	NA	
GIFT50x1:gr-Reciprocity	0	NA	NA	NA	

Signif. **0.1, *0.05

Among the different schemes compared in the third experiment, we could confirm in

Table 10 that, as predicted in Hypothesis 1a, the most attractive scheme among

participants was the programme in which 30% of the reward was shared with a

friend (Gift30x1). Specifically, that LP had the highest estimate and was significantly

different from the reference group (p=0.000). The scheme, in which the same

proportion was shared not with one coffee partner but with two partners, was not

significantly different from the reference group (p=0.139). This suggests that people

care not only about how much they share with others but also about what the

recipient's expectations could be. The second most preferred loyalty programme

was the one sharing 10% of the reward with one friend, which also resulted having a

statistically significant difference from the reference group (p=0.000). Again, that

difference was only observed when the reward was shared with one person but not

with two people (p=0.416).

In addition, some statistically significant interactions were observed between the

experimental conditions and the schemes offering to share 30% (p=0,002) and 10%

(p=0.005) of the loyalty reward with two people (but not with one person).

Specifically, these programmes were more preferred when the coffee partner could

not identify the client (No-Reciprocity Condition) compared to the reference group in

which the sharing behaviour was anonymous (No-Awareness Condition). It

suggests that people might find rewarding receiving positive feedback from the

recipients regardless the possibilities of reciprocity, especially if such feedback will

come from more than one person.

We have also estimated the "worth" of each loyalty scheme by calculating the

parameters π, based on the BTL model previously described, in which the

experimental conditions have been included as a covariate. As mentioned in the

description of the previous experiment, the worth parameters allow us to locate the

LPs in a measure of scale-invariant preferences in which the sum of the parameters considered is required to be equal to one (1). Moreover, based on the parameters λ and π, the odds in favour of preferring the different loyalty schemes compared to a reference group can easily be estimated. In Table 11, the π parameters of the model are presented, and Figure 12 shows a graphic representation of the preferences structure based on the worth parameters.

Table 11: "Worth" parameters, Experiment 3.

| Proportion shared with Coffee Partner	Number of Coffe Partners to share de reward with	Experimental Condition		
		NO Awareness	NO-Reciprocity	Reciprocity
10% Shared	1 Cofee Partner (GIFT10x1)	0.222	0.209	0.181
	2 Cofee Partners (GIFT5x2)	0.113	0.125	0.087
30% Shared	1 Cofee Partner (GIFT30x1)	0.282	0.271	0.313
	2 Cofee Partners (GIFT15x2)	0.154	0.211	0.197
50% Shared	1 Cofee Partner (GIFT50x1)	0.104	0.089	0.108
	2 Cofee Partners (GIFT25x2)	0.126	0.096	0.114
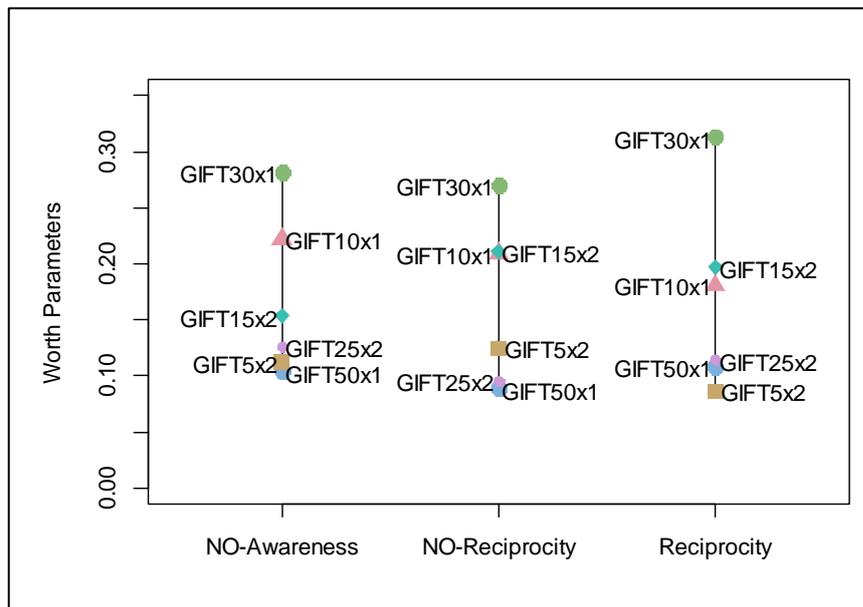
Figure 12: Worth parameters of each loyalty scheme in Experiment 3, compering the three experimental conditions (possibilities of reciprocity).

The previous tables and graph allow us to appreciate that the variance of the preferences structure, depending on the experimental condition that participants partook; however, some aspects were common across conditions. For instance, it is apparent that allowing customers to share 30% of the reward with only one friend is the most attractive incentive scheme regardless of the experimental condition and that preference is particularly more remarkable for the Reciprocity Condition. In contrast, we can see for example that, sharing 10% percent of the reward with two friends (GIFT 5x2) ranked last only when the coffee partner and the client were aware of the sharing behaviour and the coffee partner could participate in a similar programme (Reciprocity Condition), but not in the other two conditions in which direct reciprocity might not be expected.

An interesting result observed in the preferences structure is that, overall, the different loyalty schemes tended to be slightly more valued for participants in the No-Awareness Condition than in the No-Reciprocity Condition. It is worth noticing that in both conditions, customers knew with whom they were sharing the reward; in neither scheme, the coffee partner(s) had the possibility to directly reciprocate the "generous action" from the customer. The main difference between the two conditions has to do with the information that the coffee partner had about where the reward received was coming from. That information was anonymous for the No-Awareness Condition, but not for the No-Reciprocity group. Since the information was not anonymous in the No-Reciprocity Condition, people may find rewarding being socially accepted after receiving positive feedback from the coffee partner, but such scenario should not be expected in the No-Awareness Condition. Therefore, people might be more willing to share larger proportions of the loyalty reward with the friend(s) in the No-Reciprocity Condition than in the No-Awareness group. Surprisingly, we did not find such pattern. Instead, the two conditions were in general very similar, a result that suggests people are willing to favour programmes

sharing part of their reward regardless of the possibilities of receiving positive social feedback.

In addition, the "worth" parameters π previously presented allow the estimation of the odds of preferring a given loyalty scheme to another. Table 12 shows the odds of selecting the schemes sharing the reward with one friend over the programmes sharing the incentive with two coffee partners, considering the different proportions of the total reward available to be shared that were included in the experiment.

Table 12: Odds of selecting schemes sharing the reward with one coffee partner over the ones sharing it with 2 people – Experiment 3

Proportion shared with Coffee Partner	Comparison	Preference	Experimental Condition		
			NO Awareness	NO-Reciprocity	Reciprocity
10% Shared	1 Cofee Partner (GIFT10x1) - 2 Cofee Partners (GIFT5x2)	1 Cofee Partner (GIFT10x1)	1.966	1.676	2.092
30% Shared	1 Cofee Partner (GIFT30x1) - 2 Cofee Partners (GIFT15x2)	1 Cofee Partner (GIFT30x1)	1.831	1.283	1.590
50% Shared	1 Cofee Partner (GIFT50x1) - 2 Cofee Partners (GIFT25x2)	1 Cofee Partner (GIFT50x1)	0.823	0.925	0.945

The pattern observed in Table 12 clearly support our Hypothesis 3a. That is, when a large proportion of the customer's loyalty reward is available to be shared with other people, participants are more likely to prefer to share it with two coffee partners instead of one partner. However, the opposite trend is expected when a smaller proportion of the loyalty reward is available to be shared with friends. In this regard, Table 12 shows that when the proportion of the reward to be shared was 50%, the odds of preferring to have one coffee partner over two coffee partners was below 1 across the three conditions. Nonetheless, the reduction of the proportion to be shared to only 10% makes people on average almost twice more likely to prefer having one coffee partner to two coffee partners. These results suggest that people might engage in a meta-perception process in which they evaluate what others may think of their actions when deciding to share part of a loyalty reward. We will discuss

further this idea and the rest of the results presented for the three experiments in the general discussion (see the next section).

2.5- General Discussion

In the last decades, different industries have witnessed a strong competition to offer the most attractive LPs with the aim of engaging customers and guaranteeing businesses sustainability in the long term. In this regard, firms continuously try to increase the size of the rewards given to frequent customers in order to make more appealing the products or services offered. One of the main contributions of this study is to show that LPs could be more attractive not by giving larger rewards to customers as it is usually assumed, but by allowing them to sacrifice or share part of their loyalty reward with a relevant peer.

Our three experiments based on different samples and various approaches to elicit participants' preferences strongly suggest that people would be more engaged with LPs that allow them to share part of their reward with a friend. In particular, schemes sharing about 30 percent of the loyalty reward seemed, on average, to be the most appealing to the participants. That tendency clearly contradicts the predictions from standard economic theories underpinning most of the existent loyalty schemes, which assume that people engagement is driven by a selfish desire for maximising their own wealth and benefit. On the contrary, these results are clearly aligned with findings from other experimental paradigms in behavioural science such as the "dictator game" in which social preferences seem to have an important role in people's preferences.

The reasons underlying the observed results seem to be diverse. We have attempted to test whether expectations of reciprocity from the person(s) with whom the reward is shared represents the main variable explaining the preferences for the kind of schemes previously described. We found that generally people were more likely to favour programmes sharing a larger proportion of the loyalty rewards when direct reciprocity was a possibility. However, expectations of reciprocity cannot fully account for the observed preferences for LPs. Our first experiment found no significant differences among the experimental conditions, whereas the models used to fit the data in Experiment 2 and 3 significantly improved when considering the possibility of reciprocity as a covariate. However, the final model still underfits the data. Therefore, some additional variables need to be considered apart from the possibilities of reciprocity in order to have a reliable model predicting preferences for LPs.

Findings from neuroeconomics support the idea that social rewards such as positive feedback from others activate similar neurological pathways in the brain compared to monetary rewards (Izuma et al., 2008; Zink et al., 2008). In this regard, a potential reason explaining the preferences observed in the experiments is that people engage in behaviours that fulfil expectations from others because in that way, they can receive positive feedback that strengths their self-esteem. If that is that case, we should expect people favouring the schemes in our No-Reciprocity Condition in which recipients were aware of where the reward was coming from, in contrast to the No-Awareness Condition in which the sharing behaviour was anonymous. Our results supported that claim and are aligned with previous evidence suggesting that people engage in a meta-perception process in which they anticipate recipient's reactions and try to behave in a way that will not

violate other people's expectations (Dana et al., 2006; Ellingsen & Johannesson, 2008). Nonetheless, our experimental design cannot rule out the possibility that participants in the No-Reciprocity Condition expect a reciprocal action from the recipient out of the context of the LP. Therefore, further research is needed to explore that possibility in grater details. In this regard, the next chapter implements a different experimental design in order to approach, among other aspects, the role of expectations on the type of incentive schemes proposed.

Moreover, previous studies have found that unselfish giving might be influenced by participant's need to make a positive impression on the experimenter (Bohnet & Frey, 1999; Hoffman et al., 1994). Such situation is particularly likely when participants perceive that experimenters have the possibility to identify them. However, this is not likely to occur in our online experiment, in which participants are anonymous and physically distant.

Another important finding was that people not only aim to avoid uncertainty regarding their own expected rewards; they were also motivated to avoid sharing part of their loyalty rewards with friends when the outcome for the recipient was uncertain. This insight should be carefully considered in the design of LPs in the real world because promotions offering rewards under uncertainty may need to increase their attractiveness by providing an amount of reward that is significantly higher.

The results from this study offer a novel approach that challenges previous theoretical assumptions about the design of LPs and might provide commercial opportunities for business owners and entrepreneurs. Furthermore, previous research has started to show how incentives can be used as a mechanism to promote peer pressure and encourage the adoption of behaviours such as physical activity (Mani et al., 2013). In this regard, the insights from this study can also be

extended to other contexts different from LPs, in which the adoption and diffusion of behaviours are the aim of the research.

From the methodological point of view, we have used an experimental paradigm that resembles the setting presented in the popular dictator game but framed in a more realistic situation. The use of a similar paradigm in further research could help to study unselfish behaviours incorporating more context-specific variables in order to improve the external validity of findings from context-free laboratory experiments.

CHAPTER 3: STRENGTHENING SELF-CONCEPT BY FULFILLING OTHER'S

EXPECTATIONS: A MECHANISM FOR IMPROVING LOYALTY PROGRAMMES

3.1- Introduction

A significant amount of money is spent on gifts, charitable contributions and other prosocial behaviours every year. For instance, in the UK charitable giving exceeds 10 billion pounds per year (Charities, 2015), and people have been found to spend normally between 3% to 4% of their income on gifts (Prendergast & Stole, 2001). Giving something away is a costly action that people are not forced to do. However, the fact that these types of behaviour are consistently observed across cultures suggests that they are part of human nature and should lead to greater beneficial outcomes in people's lives (Aknin et al., 2013). In fact, a relatively recent body of evidence suggests that people who spend money on others report higher levels of well-being and happiness compared to those who spend their wealth on only themselves (Aaker & Akutsu, 2009; Dunn, Aknin, & Norton, 2008). That is consistent with our results presented in the second chapter, in which we observed that on average, people preferred to participate in loyalty schemes that allow the sharing of part of their rewards with friends rather than programmes offering a reward that is entirely kept by customers.

If we assume that people naturally aim to maximise their happiness and given that prosocial behaviours seem to be an important source of well-being, we might expect people to give away substantial amounts of their wealth and continuously engage in unselfish behaviours. However, this is clearly not the case. Despite its apparent benefits on happiness, most people spend a relatively small amount of their money or time on prosocial actions. According to the main authors linking prosocial

behaviours and happiness, such habitual tendency is mainly because people are inaccurate when forecasting their emotional states (Aknin et al., 2013; Dunn et al., 2008; Dunn, Gilbert, & Wilson, 2011). In other words, individuals tend to assume that their emotions would be more positive when spending money on themselves rather than on others, even though the evidence categorically suggests the opposite. Therefore, based on this perspective, the willingness to engage in prosocial behaviours should increase once people understand the facts about which actions would make them happier.

The experiment performed in the present study aims to shed some light on some of the conditions in which people are motivated to engage in prosocial actions. Specifically, we explore whether such actions are affected by our expectations about how the recipients of our prosocial actions may perceive us. In addition, we explore the relationship of such variables with the fears of receiving negative evaluations from others. Similar to our second chapter, the experiment presented is framed in the context of loyalty schemes that allow the sharing of part of a loyalty reward with relevant peers. In this case, however, we manipulate the size of the reward being offered (large or small), the way in which the incentives are framed (cash or product), and the number of people with which the reward is shared (one or two friends).

Our experimental design attempts to demonstrate, among other aspects, that preferences for engaging in prosocial actions are not simply given by the ability to forecast the positive feelings that helping others may produce. On the contrary, we propose that such positive feelings will not necessarily emerge as a result of a prosocial action. Instead, we argue that they will occur only if the prosocial action leads to a significantly favourable reaction in the recipient, which help givers to strength their self-esteem and self-concept. In other words, the willingness to

engage in prosocial actions may be related to our expectations about how others may react or feel as a consequence of our behaviours because such positive reactions will make us perceive ourselves as better persons. For example, we observed in the results from our second chapter that having the possibility of sharing a loyalty reward with two people instead of one person reduced the willingness for giving, especially when the amount available to be shared was smaller. Stated another way, people were less inclined to show prosocial behaviours when they had to share the money with more people because each recipient would receive a smaller amount; consequently, recipients would be less likely to react positively. In this sense, one of the purposes of the present study is to understand better the mechanisms that lead people to obtain personal satisfaction as a consequence of their prosocial behaviours as well as examining how such satisfaction can be used as a driver to encourage desirable behaviours.

Understanding what drives people's happiness can not only help governments to translate national wealth into national well-being (Dunn et al., 2008) but also inform firms and organisations in the design of initiatives promoting diffusion and adoption processes. Ultimately, individuals adopt products and behaviours that make them feel satisfied. When promoting adoption behaviours, the predominant paradigm until now had been to assume that relative advantage of a product or behaviour could be improved by providing economic incentives that made offers more appealing (Rogers, 2003). This kind of approach is based on the principles of human behaviour underpinning standard economic theories, which assume that people are motivated by a desire to maximise their utility and are characterised by selfish motives (Wilkinson & Klaes, 2012). On the other hand, as it was mentioned in our first chapter, developments in behavioural science have challenged this perspective, proposing that people frequently make decisions that go against their interest and suggesting that individuals are affected by emotions and social preferences (Daniel

Kahneman, 2011). Moreover, our results from the set of experiments in chapter two can be a powerful tool as findings suggest that incorporating insights from behavioural science in the design of commercial initiatives encourages the adoption of products. In the present study, we aim to expand the reach of our previous results by exploring further how the expectations about others' reactions may affect ones' willingness to engage in loyalty schemes that promote prosocial behaviours.

A large body of knowledge regarding charitable giving and other prosocial behaviours is available in the literature, and variables such as empathy (de Waal, 2008; Telle & Pfister, 2016), identity (Aaker & Akutsu, 2009; Gneezy, Imas, Brown, Nelson, & Norton, 2012), status signalling (Griskevicius, Tybur, & Van den Bergh, 2010; Kumru & Vesterlund, 2010) and social pressure (DellaVigna, List, & Malmendier, 2012), among many others; have been identified as potential drivers of such behaviours. However, very limited amount of research has focused on understanding how prosocial behaviours can be used as a mechanism for encouraging the adoption of products or behaviours in general (e.g. Strahilevitz & Myers, 1998; Strahilevitz, 1999). Particularly, apart from the studies developed in our second chapter, we are unaware of any previous attempt to understand whether giving people the opportunity to share their incentives for adopting a product with relevant peers can actually be more engaging than the traditional selfish rewards in which sharing is not a possibility. In the present study, our purpose is to understand better the conditions in which that could occur by focusing particularly on the impact that the expectations about others' reactions may have.

The experiment performed in the present study, which was briefly described before, allows us to test numerous hypotheses. In the following table, we depict each of the hypotheses to be evaluated in the present chapter:

Table 13: Hypotheses summary -Experiment 4.

1b	▪ People will expect more positive reactions from friends (recipients) when they face loyalty schemes that share a larger proportion of the reward, compare to the situation in which the proportion being shared is smaller.
2b.1	▪ Changes in the amount of the reward will not affect participants' preferences for loyalty schemes when sharing the loyalty reward with friends is associated with expectations about recipients' reactions that are sufficiently positive.
2b.2	▪ When sharing the loyalty reward with a friend is not associated with sufficiently positive reactions from the recipient(s), smaller rewards will encourage people to prefer loyalty schemes in which they keep the entire incentive for themselves, whereas larger rewards will make them more inclined to prefer schemes that allow them to share the reward with friends.
3b	▪ People receiving a reward framed in terms of "Cash" will be more likely to prefer loyalty schemes in which customers keep the entire reward for themselves, compared to those individuals receiving rewards framed as "Products".
4b	▪ When the loyalty reward is framed in terms of "Products", people would expect more positive reactions from recipients in loyalty schemes that share part of the reward with friends, compared to the schemes in which the reward is entirely kept by the customers.
5b	▪ Loyalty schemes offering to share part of the incentive with other people would be more attractive when the loyalty reward is framed in terms of "Products" (non-monetary incentive), instead of framed as a "Cash" incentive.
6b	▪ Peoples' predisposition to fear negative evaluations from others will influence both their willingness to favour loyalty schemes that share part of the reward with friends, and their expectations about how others may react after sharing the loyalty reward with them.

In the following sections, we will develop and justify the above hypotheses based on the relevant theoretical background of the variables being considered.

3.1.1- Reward size and willingness to give

The literature in economics has shown particular interest in exploring social preferences, in other words, in understanding why people show regard for others while sacrificing their benefits. The dictator game is one of the main tools that have been traditionally used to explore such behaviours. As we have described in Chapter two, in the dictator game, participants are given the option of sharing a certain amount of money between themselves and a second player (recipient). The second player has a passive role and has no choice but to accept any amount that the participant decides to share (it can be zero). The extent to which participants are willing to share part of their endowment is typically considered a measure of social preferences. The loyalty schemes explored in the present study resemble a dictator-

game type of situation because customers are provided with a reward and because they can choose to share part of it with someone else. Therefore, the insights obtained after more than 30 years in research focusing on the dictator game may also be relevant in understanding the type of reward schemes proposed in this research.

The results observed in the dictator game have varied depending on the conditions been controlled. The simplicity of the game has allowed to test more than 600 experimental conditions in order to understand social preferences (Engel, 2011). A clearly relevant variable to explore is the size of the stake in place. In other words, the amount that participants are expected to split between themselves and the recipients. Surprisingly, the studies based on dictator game focusing on the effect that the size of the stake can have on prosocial behaviours have been relatively few despite the level of the attention given to it in the literature regarding other experimental economic games (Carpenter, Verhoogen, & Burks, 2005).

Intuitively, we should expect people who have more resources to be more willing to share many of their possessions with others. The crucial question is whether the proportion of the endowment that people are willing to share increases proportionally with their resources. For instance, let say that a person has £10 of which he or she is willing to share £3 with someone else. Such action implies that the individual intends to give away 30% of the initial endowment. Now, imagine that the same person has £100 instead of £10. Would this person still be willing to share 30% of the endowment which represents £30? or would the person be willing to give away only the same £3 regardless of the increase in the endowment? We will explore this idea as a part of our experiment.

In the context of the loyalty schemes considered in this study, the previous questions would translate into wondering whether the size of the loyalty reward

being offered by a firm would affect customers' preferences for participating in schemes that allow the sharing of part of the incentive with friends. Understanding the impact of the size of the stake on prosocial behaviours is particularly relevant for this type of applied settings in which organisations need to identify the most cost-effective ways to implement incentive schemes.

Mixed evidence has been found regarding the willingness of people to give away their belongings when they have more resources. For instance, some authors argue that wealthier people are more likely to engage in charitable giving and contribute a higher proportion of their wealth to philanthropic programmes compared to poorer people (Korndorfer, Egloff, & Schmukle, 2015). On the contrary, some studies claim that the poorest individuals are more willing to engage in prosocial behaviours and sacrifice a higher proportion of their wealth to help others (Piff, Kraus, Cote, Cheng, & Keltner, 2010). In the specific context of the studies approaching prosocial behaviours based on the dictator game, the same type of contradictory results is not uncommon.

One of the classic and most cited studies in which the size of the endowment in dictator games was manipulated is the research performed by Forsythe, Horowitz, Savin, and Sefton (1994). The authors compared the willingness of individuals to share an endowment of either $5 or $10. They found no significant differences between the two conditions. Similarly, more recent studies have compared stakes as large as $100 with conditions providing a stake of $10 (Carpenter et al., 2005) or $20 (List & Cherry, 2008). Again, no significant differences were found between the proportions of the endowment allocated by the participants in the experimental conditions with a high or low stake. On the contrary, there are studies in which the proportion of the endowment that participants are willing to give away decreases when the stake provided in the game is larger (e.g. Bechler, Green, & Myerson,

2015; Novakova & Flegr, 2013). Moreover, in a remarkable meta-analysis, Engel (2011) evaluated a large number of studies which considered stakes ranging from $0 to $130 with a mean of $27.77. The results from his regression analysis showed no differences in the proportion of the endowment being shared when the stake was increased. Nonetheless, when the same author excluded from his analysis those studies that did not directly manipulate the size of the stake, the regression became significant (although the effect was very small). Put simply, higher stakes slightly decreased the proportions of the reward being shared.

The inconsistencies in the behaviours observed in the dictator game when varying the stake available could be partially explained by the differences observed across several studies in terms of experimental designs and controlled variables, among other factors. However, even when maintaining the same experimental conditions, variations in the willingness of people to share their rewards have been found when testing different samples. For instance, Raihani, Mace and Lamba (2013) compared the endowments of $1, $5 and $10 in two different samples; one was from the United States and the other from India. They found that the proportion of the stake shared by participants in the US was roughly the same regardless of the size of the stake, whereas in the Indian sample, participants were less generous in the condition providing the largest endowment. The authors of the study could not provide a conclusive explanation to account for these results. However, they mentioned as a potential justification that the Indian population has a significantly lower annual income; therefore, they would value more the endowment in the game. In other words, for this subsample, giving away part of the stake would be more painful. Nonetheless, if that were the case, we would expect to consistently observe less generous behaviours in samples from high-income countries when the stake reached very high values, like the $100 used by Carpenter, et al. (2005) or by List

and Cherry (2008). Consequently, there should be other variables producing the variations among different samples.

Our preferred interpretation is that the expectations that people have about how others may react when they give their friends something have a crucial impact on prosocial behaviours. For instance, a person would not expect a positive reaction from a friend if such individual gives a £1 gift during the friend's birthday. Nevertheless, the same friend may be extremely happy if the same person gives him or her £1 to pay for the parking when he or she had no money. Therefore, a person may be more likely to give the £1 away in the second situation because of the expected positive reaction from the friend. Similarly, regarding the study conducted by Raihani, et al. (2013), sharing $1 would probably produce more positive reactions in a low-income Indian sample than in a more wealthy American sample. In this regard, previous research is consistent with this idea. A good example was presented by Ellingsen and Johannesson (2008) who allowed recipients in a dictator game to send an unrestricted anonymous message to the participant responsible for dividing the stake. The authors found that the anticipation of the feedback from the recipient significantly increased donations, compared to the control treatment in which such feedback was not allowed. It is worth noting that in any of the conditions, reciprocal behaviours were expected because identities remained anonymous. Therefore, the expected feedback from recipients seems to be the main factor driving the results.

In terms of the size of the stake, overall, we could intuitively expect more positive reactions from recipients that received larger amounts of money. Therefore, in the specific context of loyalty schemes, customers should expect more positive reactions from their friends when they can share a larger loyalty reward. In this sense, we formalise our first hypothesis as follows:

Hypothesis 1b: People will expect more positive reactions from friends (recipients) when they face loyalty schemes that share a larger proportion of the reward, compare to the situation in which the proportion being shared is smaller.

We have previously argued that more positive expectations about how others may react should increase the preferences for engaging in prosocial behaviours like giving. As stated in Hypothesis 1b, larger amounts should generally translate into more positive expectations about recipients' reactions and consequently higher willingness to share the reward. Nevertheless, we also propose that once the expectations of others' reactions are positive enough, a further increase in the amount being shared will not produce a proportional increase in expectations nor in willingness to share the reward. For example, we can imagine that surprising someone with a £100 dinner would produce a reaction in the recipient significantly more positive that a £1 chocolate. Nevertheless, we would not necessarily expect a reaction significantly more positive for a £150 surprise-dinner compared to one costing £100.

The idea underlying our proposal is related to the "satiation" concept studied in other contexts. It suggests that people's drive decreases when their needs are met. For instance, an individual who has not eaten will have an increasing desire for food. Once, the person is allowed to consume the required amount of food, the desire is satiated; consequently, the wish for additional food will disappear (at least in the short term). The satiation cycle is expected to occur not only in physiological processes like hunger but also in any general motivational process (Baumeister, 2016). In this sense, we propose that when others' expectations seem to be fulfilled and our need for behaving "altruistically" is satiated, and then the motivation to give

away larger amounts of money to others will be reduced. Therefore, in our experiment, we do not expect changes in the reward amount to affect participants' preferences for the loyalty schemes, especially in the case of individuals who have very positive expectations about how friends may react after sharing their loyalty reward with such friends, because from their perspective even a small gift will result in positive reactions from others. The first part of the second hypothesis is as follows:

> *Hypothesis 2b.1: Changes in the amount of the reward will not affect participants' preferences for loyalty schemes when sharing the loyalty reward with friends is associated with expectations about recipients' reactions that are sufficiently positive.*

On the contrary, expecting that giving something away to others will result in a negative reaction (or not sufficiently positive reaction) should make the size of the amount available for sharing more relevant. For instance, imagine that you wish to tip a waiter and you know they would be unhappy with the gratuities that they receive. If you have only two pence to tip the waiter, you may prefer leaving no gratuity at all, instead of the two pence, because such small amount is expected to cause a very negative reaction from the waiter. Similarly, in our experiment, when the amount available for sharing is too small, it is very likely that sharing it with someone would not produce the expected outcome (a positive feedback); therefore, being selfish could be considered a better strategy. In summary, we propose the second part of the second hypothesis as follows:

> *Hypothesis 2b.2: When sharing the loyalty reward with a friend is not associated with sufficiently positive reactions from the recipient(s),*

> *smaller rewards will encourage people to prefer loyalty schemes in*
>
> *which they keep the entire incentive for themselves, whereas larger*
>
> *rewards will make them more inclined to prefer schemes that allow*
>
> *them to share the reward with friends.*

In the next section, we will focus our discussion not on the size of the loyalty reward available but on how such reward is framed.

3.1.2- Reward framing and willingness to give

Under the circumstances hypothesised in the previous section, the magnitude of the reward provided is expected to affect participants' preferences for loyalty schemes. Also, we are interested in clarifying whether incentives of similar magnitudes can produce different effects on customers' preferences depending on the way in which they are presented.

Behavioural economists have largely argued that the way in which an incentive is framed affects its perceived value. For example, contrary to the traditional views from standard economics which assume that people care only about final outcomes, behavioural economics argue that the perceived value depends on our perspectives; consequently, changes in the reference point can drastically affect people's preferences (Dolan et al., 2012). In other words, subjective preferences are prone to context effects and can make our choices inconsistent (Bown, 2007). Under this assumption, a £2 incentive would be highly valued if in the recent past, the person received a £1 reward for a similar action. However, the same £2 would probably be considered unattractive if a £5 incentive has been provided in the past for doing a comparable action. Therefore, making more salient different reference points may change the perceived value of a given incentive. Moreover, even very

small changes in the framework in which a decision is presented can alter the perceived value of a given prospect. For instance, Bertrand, Karlan, Mullainathan, Shafir and Zinman (2010) offered loans to real customers from a South African bank, and they found that small manipulations such as suggesting a particular use for the loan or adding the picture of an attractive woman in the offering can increase loans demand in a proportion equivalent to the effect of reducing about 25% of the interest rate. In the present study, we explore whether a subtle change in the way in which the reward is presented can affect people's preferences for different loyalty schemes. Specifically, we compare rewards framed as incentives in "Cash" (e.g. £2) with rewards of equivalent value presented as "Products" (e.g. A Coffee worth £2). In our experiment, we expect the type of framing to affect participants' preferences differently depending on the number of people with which each scheme allows the sharing of the loyalty reward.

Below, we will first discuss the case of the scheme in which people keep the entire reward for themselves (selfish schemes). After that, we will examine the schemes in which people are allowed to share part of the incentive with either one or two friends (unselfish schemes).

3.1.2.1- Reward framing and selfish loyalty schemes

Firms and organisations encouraging the adoption of products have traditionally relied on incentive schemes that directly reward customers for their loyalty. In this regard, the type of reward being offered is one of the large numbers of variables that have been approached in order to understand what makes this type of initiatives more effective (for a review see Dorotic et al., 2012). A first insight from the literature suggests that incentives framed as pleasurable experiences or things on which people would not normally spend money (e.g. luxury spa treatment) have

been found to be more effective than utilitarian incentives (Nunes & Dreze, 2006b). In the case of the type of incentives being considered in our experiment, both the Cash and Products types of reward framing could be considered utilitarian rewards; therefore, based on this characteristic, no differences should be expected between conditions.

Classic studies have also differentiated between primary and secondary rewards used to promote products and services (Rothschild & Gaidis, 1981). The former refers to those incentives of intrinsic utility that can be directly enjoyed by customers (e.g. a product), whereas the latter involves rewards that have no such utility and need to be converted (e.g. vouchers and coupons). In this regard, the two types of rewards presented in our experiment can be framed within the "secondary" type of incentive; consequently, no differences should be expected based on this criterion. Moreover, previous research has compared the nature of loyalty rewards based on their level of tangibility; findings show that abstract and intangible rewards (e.g. club membership) tend to be less preferred by customers than other material incentives (e.g. a product) that are more palpable (Meyer-Waarden, 2015). However, Roehm, Pullins, and Roehm (2002) argue that more tangible rewards undermine loyalty in the long term because they may interfere with brand associations. In our experiment, neither the reward framed in terms of Cash nor the one presented as Products involves the relational, psychological or emotional benefits associated with intangible rewards; therefore, both types of incentives can be considered equivalents in terms of their tangibility.

Among the limited number of previous studies in which the types of reward have been experimentally manipulated, the research from Nunes and Park (2003) was the closest approach to our experimental paradigm that we are aware of, even though that research was not framed within the context of loyalty schemes. In this

regard, the authors of the study compared the perceived value of marketing promotions presented in monetary and non-monetary terms. Specifically, they contrasted, among other aspects, a first condition offering $10, the second promotion of a free umbrella (which was estimated to cost $10), and a third condition offering the same free umbrella but stating that it "costs the retailer $10". The offering in cash and the umbrella in which the cost was stated were equally attractive; on the other hand, the umbrella in which the monetary value was not stated was perceived as less beneficial in relation to the product price. Considering that both the Cash framing (e.g. £2) and the Products framing (e.g. a coffee worth £2) compared in our experiment show the monetary value of the offering, we would expect, based on this evidence, that the schemes in which the customers keep the entire incentive will be equally attractive regardless of the types of reward framing.

The previous evidence regarding the experimental manipulation of reward framing does not allow us to assume a clear direction in the results of our experiments, among other reasons because the number of relevant studies is very limited and not closely related to our research design. Nevertheless, we can intuitively assume that the Cash framing may be more attractive. The reason is that in the Cash framing, participants have the freedom to choose their preferred alternative from the store, whereas in the case of the Products framing, customers are constrained to a specific alternative that may or may not matches their preferences. It means that if the participants do not like the products being offered, they may be more open to sharing the loyalty reward with others. Consequently, we hypothesise the following:

> *Hypothesis 3b: People receiving a reward framed in terms of "Cash"*
> *will be more likely to prefer loyalty schemes in which customers*
> *keep the entire reward for themselves, compared to those*
> *individuals receiving rewards framed as "Products".*

On the contrary, In the case of the loyalty schemes that allow the sharing of part of the reward with friends, we expect different results. In the next section, we will develop the corresponding hypotheses.

3.1.2.2- Reward framing and unselfish loyalty schemes

Unlike the "selfish loyalty schemes", the programmes that allow the sharing of part of the reward with other people involve the social concerns that emerge in gift giving. Not every gift seems to be appropriate at any circumstance; therefore, the decision of giving depends heavily on those who receive the reward as well as social norms. For instance, Anton, Camarero, and Gil (2014) found that depending on whether the occasion was a commercial situation (dates marked by retailers in which most people give gifts) or a personal situation (dates given by private celebrations), gifts generated different expectations on recipients; hence, the extent to which the gift is appropriate may change. In our experiment, we aim to explore whether offering rewards framed either in terms of Cash or Products would be perceived as more appropriate; consequently, they would be more attractive in the context of loyalty schemes that allow the sharing of part of the rewards with others.

From the standard economics point of view, people should always give cash (or monetary rewards) instead of non-monetary gifts (if anything) because it is more economically efficient to do so (C. Camerer, 1988). Since we do not perfectly know people's preferences, it is very common to give away things that others end up not liking. Similarly, we commonly find ourselves in the situation of receiving gifts that we never use. Such gesture represents an inefficiency from an economic perspective because money is being wasted in the gift-giving process. In contrast, giving cash allows recipients to buy something that perfectly matches their preferences, thus maximising the use of resources. Surprisingly, most people prefer to give away non-monetary gifts rather than monetary presents. In fact, it was

estimated that only about 10% to 15% of all gifts were provided in the form of money (Prendergast & Stole, 2001).

When gift giving occurs within a commercial context, it helps participants to preserve or enhance their relationships by meeting or exceeding their friends' expectations (Ruffle, 1999). In this regard, people engaging in such giving are mainly driven by a desire to generate positive feelings of surprise and gratitude on the recipients. An advantage of in-kind gifts in this context is that they allow donors to signal how much they know about recipients' preferences, and consequently, how much the receivers care about them (Prendergast & Stole, 2001). This approach implies that people with closer ties between one another would be more inclined to provide non-monetary gifts because they would be able to predict more accurately recipients' tastes. For that reason, we expect participants in our experiment to be in general more willing to share part of their loyalty reward with friends when the incentives are framed in terms of Products instead of Cash because in that way, they will be able to signal their knowledge about the recipients' preferences. Also, such trend should be equally observed in both the scheme in which participants share the reward with one friend and the programme in which two friends receive part of the reward.

In addition, previous research on dictator game has revealed that givers' behaviour is driven by a desire not only to surprise the recipient but also to avoid feelings of guilt (Khalmetski, Ockenfels, & Werner, 2015; Ruffle, 1999). In this regard, giving away amounts in cash that may be perceived as "too small" by recipients are likely to produce feelings of guilt on the giver because they may not fulfil what is socially acceptable as a monetary gift. However, we argue that gifts presented in terms of non-monetary rewards are governed by different social norms. Specifically, we claim that the social cost of sharing a small reward is reduced when incentives are framed as a non-monetary reward compared to a cash (monetary) incentive. For

example, we may not feel comfortable surprising a colleague with a £1 gift because such amount of gift is very uncommon or probably because it is not socially acceptable. On the contrary, we are likely to be happy sharing a chocolate worth £1 to give a positive surprise to the same colleague. In short, we hypothesise the following:

Hypothesis 4b: When the loyalty reward is framed in terms of "Products", people would expect more positive reactions from recipients in loyalty schemes that share part of the reward with friends, compared to the schemes in which the reward is entirely kept by the customers.

In the developing of the hypotheses 2b.1 and 2b.2, we have suggested that the expectations about how others may react after sharing part of a loyalty reward with them are closely related to the willingness of people to engage in this type of behaviour. In addition, previous studies based on the dictator game (Franzen & Pointner, 2012; Ockenfels & Werner, 2012, 2014) and other experimental paradigms (Charness & Dufwenberg, 2006; Dufwenberg, Gachter, & Hennig-Schmidt, 2011) have also shown a link between the willingness to give to others and the expectations about how they may react. Consequently, we anticipate that the differences in expectations based on the reward framing proposed in Hypothesis 4b will translate into similar differences in terms of the preferences for the loyalty schemes. Our next hypothesis is as follows:

Hypothesis 5b: Loyalty schemes offering to share part of the incentive with other people would be more attractive when the loyalty reward is framed in terms of "Products" (non-monetary incentive), instead of framed as a "Cash" incentive.

3.1.3- Fears of negative evaluations (FNE)

We have previously argued that the expectations about how others may react after sharing a loyalty reward with them is a crucial driver for people to engage in the type of "unselfish" loyalty schemes that we have proposed. The expectations created as a consequence of a giving behaviour can be the result of social norms as well as factors related to the context in which the decision is made. Such factors are the reward size or the reward framing experimentally manipulated in our study and many other aspects, including the social distance between givers and recipients (Bohnet & Frey, 1999; Charness & Gneezy, 2008), the type of occasion in which the giving behaviour occurs (Anton et al., 2014) and scale variations in the possible values to be given away (Ockenfels & Werner, 2014), among many other variables. Nonetheless, we believe that factors not related to the decision context but associated with personal predispositions to make judgements in certain ways can also influence peoples' preferences for engaging in this type of behaviours. Specifically, we argue that personality traits, which affect how sensitive people are about the feedback from other individuals, may play a key role in their willingness to engage in commercial initiatives that promote prosocial behaviours towards friends.

People prone to have high concerns about being perceived or judged in a negative way would probably be more inclined to behave in ways that avoid the possibility of receiving unfavourable evaluations (Leary, 1983). Therefore, these individuals are more likely to be sensitive to the relevant contextual factors that increase negative judgements from others, compared to people who show less apprehension regarding other people's evaluations about them. For instance, if we assume that sharing "very small" rewards with friends is likely to result in negative feedback from others, people with high Fears of Negative Evaluations (FNE) should be less likely to share such amounts than do people with low concerns for receiving negative

feedback. Moreover, it is logical to presume that some people's personal predisposition to fear negative evaluations from other individuals is related to the expectations that are created by others' reactions during such giving. In summary, we anticipate that the predisposition to fear negative evaluations from others will be related to both the expectations about friends' reactions after sharing the reward with them and, in general, with the willingness to share part of a loyalty reward with others. Below is our next hypothesis:

> *Hypothesis 6b: Peoples' predisposition to fear negative evaluations*
> *from others will influence both their willingness to favour loyalty*
> *schemes that share part of the reward with friends and their*
> *expectations about how others may react after sharing the loyalty*
> *reward with them.*

The details of the experiment performed in the current study are presented in the following section.

3.2- Method

3.2.1- Participants and Data Collection

A total of 401 participants took part in the experiment, and they were recruited using the same online platform provided by Bilendi Ltd. (formerly known as Maximiles) and implemented in the experiments from Chapter 2. They were randomly assigned to different experimental conditions in which the size of the reward being provided (large or small) and the framing of the reward (Cash or Products) were manipulated. Participants in the sample had an average age of 52.1 years old and consisted of 183 males and 218 females. Additional details regarding the distribution of participants' age, gender, income and employment status can be appreciated in

Appendix 36. Like in the experiments from the previous chapter, the data was collected by using Qualtrics, and the R coding regarding the data cleansing (http://rpubs.com/carpio_ucv/213245), data exploration and inferential analysis (http://rpubs.com/carpio_ucv/213252), and choices modelling (http://rpubs.com/carpio_ucv/213253) is available on line in the links just provided.

3.2.2- Experimental design and variables

The experiment in the present study was characterised by a 2x2 design; in other words, two independent variables, with two possible values each, were manipulated, resulting in four experimental conditions. First, the size of the proportion of the loyalty reward available to be shared with friends could be either small (£2, equivalent to 20% of the total reward) or large (£5, equivalent to 50% of the total reward). Second, the framing of these rewards could be presented in terms of either Cash (e.g. £2 rewards) or Products (e.g. a Biscuit worth £2). It is important to note that in the product type of framing, the cost of the reward (in British pounds) was provided alongside the product description in order to guarantee that the perceived value of the two types of rewards was the same (although in a real world setting, that would not be necessary). In other words, we aim to avoid people assuming that the in-kind reward had a higher or lower monetary value than it had.

The manipulations of the two independent variables previously described were expected to affect participants' preferences for three different loyalty schemes, which represented our dependent variable. Specifically, participants had to rank the three loyalty schemes from 1 to 3. The features of the loyalty schemes were as follows:

1- Scheme in which the participants keep the entire loyalty reward for themselves.

2- Scheme in which a proportion of the loyalty reward is available to be shared with one friend.

3- Scheme in which a proportion of the loyalty reward is available to be shared with two friends (who receive the same amount each).

In addition to the dependent variable just presented, three additional measures were taken in the experiment. The first measure was the expectations about how others may react after sharing the loyalty reward with them. In particular, participants were asked to indicate, in their opinion, what their friends might think of them after sharing part of the reward via e-mail. Participants had to indicate their position on a 9-point scale between two bipolar adjectives. In total, four pairs of adjectives (Kind/Unkind, Thoughtful/Inconsiderate, Selfish/Giving, and Generous/Greedy) were used in the experiment, although a larger number of adjectives were piloted and those that were the clearest and discriminative between participants were finally retained for the final version.

The measure of Expectations about Friends' Reactions was taken twice. The first measure was to evaluate the reactions to the possibility of sharing the available reward with two friends, and the second was to assess the reactions after potentially sharing part of the incentive with only one person. These measures were taken regardless of the preferences for the three loyalty schemes previously described. Moreover, for the purpose of our analyses, we estimated the average score for both 4-item scales in order to obtain one single measure of expectations when sharing was expected to occur with two friends (alpha= 0.94) and the other for the case in which the incentive was meant to be shared with only one person (alpha=0.95).

The second additional measure considered in the experiment intended to capture participants' apprehension to the prospects of being evaluated in a negative way by others. In this regard, the scale of FNE proposed by Watson and Friend (1969) is

widely used in many fields, especially in studies approaching personality and social psychology. However, the fact that the scale consists of 58 items has limited its utility in some contexts because of its length (Leary, 1983). For that reason, Leary (1983) have proposed a shorter version of the same scale containing only 12 items, which shows a high correlation with the original scale (r = 0.96, p<0.001) and an internal reliability index as high as the ones in the original scale (alpha FNE= 0.92, alpha Brief-FNE= 0.90). In our experiment, we presented the brief version of the FNE scale to participants across conditions, and we obtained very high internal reliability levels (alpha=0.90).

Finally, the third measure considered in the experiment was represented by socio-demographic information. In particular, we collected information regarding gender, income, employment and age. In the following section, we will provide further details about how the experiment was conducted.

3.2.3- Procedure

Participants who enrolled for the experiment in the online platform described in Section 3.2.1 commenced the task with a screen providing general information regarding the characteristics of the experiment. People had to hit a button to accept the conditions and continue with the experimental task (see Appendix 14). In the next screen, two items were presented with the purpose of screen out participants who were not part of the target audience. First, we asked whether they lived in the UK or outside the UK, and those not living in the country were excluded because they may not be familiar with the products and amounts presented in the experiment. Second, in order to exclude participants clicking the options randomly, we added an item stating the following: *"Please click on the Strongly Agree option. This is just to screen out random clicking".* Individuals who did not choose the indicated option out of the six possible alternatives were excluded from the

experiment (See Appendix 15). This type of items, also known as instrumental manipulation checks, was designed to detect participants who were not reading the instructions, and its use has been found to increase statistical power and reliability of data sets (Oppenheimer, Meyvis, & Davidenko, 2009). In total, 128 people were excluded from the experiment for one of the above reasons.

The experiment continues with a screen in which participants needed to type their names (which were used later to personalised a message). Then, they were presented with a hypothetical scenario in which participants needed to imagine that they visited coffee shops regularly, and these shops were offering certain loyalty reward schemes, relatively similar to the scenarios used in the experiments from Chapter 2 (see Appendix 16). In the next screen, further details regarding the loyalty reward were provided as shown in Appendix 17. Next, the details of the offerings of each of the three stores were randomly presented on individual screens. The characteristic of the incentive schemes just mentioned were varied depending on which of the four possible experimental conditions described in Section 3.2.2, and the subjects were randomly assigned by the platform (see Appendices from 18 to 26).

After seeing the details of each loyalty scheme, participants were asked to rank them from 1 to 3 based on their preferences, following the format shown in Appendix 27. The order, in which the incentive programmes from each store were displayed when participants had to rank them, was random because we wanted to avoid any order effect. Once participants indicated the rankings, they were told in a subsequent screen that regardless of their preferences for the different loyalty schemes, they needed to indicate how their friends might react after receiving part of their reward via e-mail (see Appendix 28). Specifically, they were presented with bipolar adjectives in which they had to mark on a 9-point scale where their position

lied in relation to their prediction regarding friends' reactions. The same list of bipolar adjectives was presented twice in separated screens; one was for expressing the expectations about sharing the reward with only one friend (see Appendix 29 for an example), and the other was for the case in which two friends were expected to receive part of a loyalty reward (see Appendix 30 for an example).

The scale of FNE was the next screen that participants faced in the experimental task. In particular, they had to indicate how their characteristics were a list of 12 statements according to a 5-point scale provided for each item (see Appendices 30 and 31). Finally, in the last few screens, participants were required to complete socio-demographic information such as gender, income, employment and age (similar to the information collected in the experiments from Chapter 2).

The next section will specify in detail how the data collected were processed and analysed.

3.2.3- Analytical strategy

We have previously mentioned that the main objective of the present study is to understand what are the most important variables predicting preferences for different types of loyalty schemes. Usually, multiple regression is the default approach to answering this sort of questions. However, the type of data collected as the dependent variable is not suitable for this approach because of its ordinal nature. Stated another way, preferences have been measured in terms of a ranking that does not have an absolute meaning, but it indicates the order among the options. In addition, since most people decided to rank the same alternative as their first choice, the answers distribution is highly skewed and violates the normality assumption required in the variables of multiple regression. Such distribution can distort relationships and significance tests (Osborne & Waters, 2002). Therefore, a generalised linear model seems more suitable for our data.

The ordinal logistic regression is a possible generalised linear model that can be implemented in our data set. Nonetheless, a key assumption required for this method seems not to be met. The outcome of this approach is represented by odds ratios, which in this case inform the extent to which a unit increases (decreases) in a given predictor and which affect the odds of moving from a lower (higher) to a higher (lower) category in the ordinal variable been predicted (e.g. from ranking programs in the third place to ranking them in the second place). A crucial assumption for this type of models is that such odds are proportional (Hosmer Jr & Lemeshow, 2004). That is, the odd ratios remain the same across ratings because the effects of the predictors are expected to be consistent with all the different levels of the ordinal outcome variable. In the case of our data, it would involve, for instance, assuming that predictors would impact in the same way the likelihood of changing from ranking 3 to 2, rather than from ranking 2 to 1, given a unit change in one of the predictors. The exploratory analysis of our data shows that it is not possible to hold this assumption.

Furthermore, analysing the rankings given to each of the three incentive schemes presented and estimating the odds ratio of changing from one level to another in the ordinal outcomes may not be the most appealing approach to address our research questions. Instead, it would be more desirable to understand the level of attractiveness of the untraditional loyalty schemes proposed in our study in comparison to the traditional selfish schemes in which customers keep the entire reward for themselves. For that reason (and the justification previously mentioned), a multinomial logistic regression represents a more suitable approach for our data. This method allows us to predict the odds of preferring a given alternative within a set of three or more categories. In this regard, we have defined the first choice (ranking = 1) of each participant as a categorical outcome variable to be predicted by all the variables measured or manipulated in the experiment. Since the

multinomial regression provides odds ratio of each outcome category in relation to a reference point, we have set the scheme in which customers keep the entire reward for themselves as a reference category. That reference category is then compared with the other two schemes in which part of the incentive can be shared with either one or two friends. In this way, it is easier to shed some light to understand the circumstance that may lead people to prefer engaging in initiatives in which part of an endowment is given away, instead of favouring traditional selfish reward programmes. Moreover, the multinomial regression does not hold any assumptions regarding the odds ratio or the distribution of the variables; therefore, the robustness of its results is less likely to be challenged, compared to other linear models or generalised linear models.

For the reasons just stated, in the result section presented later in this chapter, a multinomial model was developed and the most important predictors were identified. Additionally, based on the final model, the probabilities of selecting each type of scheme were plotted varying the values of some predictors while keeping others constant with the purpose of appreciating clearly the predictions and trends of the model.

A drawback from the multinomial regression just described was that we lost information when only the first choice made by each participant was taken into account, while neglecting the data regarding the second and third choices. Because of that, as a complementary analysis, we explored the impact of relevant individual predictors on the ranking made by participants for each type of incentive scheme. In particular, we implemented a non-parametric Mann–Whitney U test to compare the rankings of each type of schemes based on the reward (large vs. small) and the reward framing (Cash vs. Products). Also explored was the possible interaction of these two independent variables. Finally, by performing a Kruskal-Wallis rank sum

test, we analysed whether the rankings given to each type of incentive scheme differed according to the "Income" categories to which participants belong.

In a similar fashion to the analyses performed with the ranking scores, we compared the effects of the different levels of the independent variables on the scores of both the measures regarding Expectations about Friends' Reactions and the outcome from the scale of FNE. We also explored the correlation of these variables with other measures taken in the experiment. Moreover, a Mann–Whitney U test was utilised to compare the expectations about sharing the reward with two friends and sharing it with only one person. An additional comparison for both types of expectations was performed based on gender (which turned out to be relevant).

In the complementary analysis just described, we performed a few times the same statistical inference tests over the set of measures. For that reason, it may be claimed that we had the risk of incurring, what is called in statistics, multiplicity or the multiple testing problems. In other words, when we simultaneously tested the difference between two (or more) groups based on many attributes, the likelihood of finding differences between the groups by chance would increase with the number of attributes being compared (Bender & Lange, 2001; Bland & Altman, 1995). In the case of our results, a very limited number of what is known as planned comparisons was performed by testing very specific a priori hypotheses. This was unlikely to be a source of serious concerns compared to situations in which a very large number of post hoc comparisons were made. When multiplicity is a high risk, many techniques can be applied to correct the thresholds for statistical significance. Probably the most popular and common method is the Bonferroni correction in which the significance threshold (e.g. 0.05) is divided between the number of comparisons (tests) being made (Bland & Altman, 1995). Some authors have challenged the utility of this type of corrections (Perneger, 1998; Savitz & Olshan, 1998). However,

even if we adjust our significant thresholds based on the Bonferroni method, the differences found in our data were still statistically significant (p=.095). Therefore, we could consider our results fairly robust in that respect.

3.3- Results

We initially suggested that people find it very rewarding to engage in prosocial actions; therefore, such motives could be useful in encouraging other desirable behaviours. For that reason, we were generally expecting most participants in our experiment to favour the loyalty schemes that allowed people to share part of their loyalty reward with relevant peers. However, the preferences turned out to be entirely different from what we anticipated. Specifically, when participants had to rank loyalty schemes that offered to share the reward with one friend and two friends or that kept it for themselves, 84% of the people selected their first (favourite) choice as the option in which no reward was shared. On the other hand, the schemes offering to share the loyalty reward with one friend and two friends were selected 7% and 8% of the times respectively. Such differences among the three alternatives regarding the proportion of choices ranked in the first place were clearly statistically significant ($X^2 = 468.67$, df = 2, p = 0.000). In the following section, we model such decisions in order to understand better which of the variables considered in the experiment were the most relevant in explaining the preferences observed.

3.3.1- First choice preferences modelling

In this section, we aim to shed some light on why people find a given loyalty scheme more appealing than do others as well as estimating a statistical model to predict such preferences. Our results showed that both the expectation about other's reactions and the anticipation about people's income were particularly relevant in explaining participants' preferences.

The predicted outcome was represented by the selected loyalty scheme as the first option by each participant. Such decision embodied a variable that could be considered "categorical". In other words, each of the three schemes being selected could be characterised according to certain attributes but should not be considered as a continuous measure. As it was mentioned in the Methodology Section, a multinomial regression was the most suitable tool to predict categorical variables containing more than two possible outcomes; in our case, there were three possible loyalty schemes. In terms of the predictors, we considered in principle all the variables that were either manipulated or measured in the experiment. Specifically, the type of reward (Cash vs. Products of equivalent value) and the amount of the reward (£2 vs. £5) were varied in the different experimental conditions. Also measured were FNE and the Expectations about Friends' Reactions after sharing the reward. The latter variable represented two measures; the first considered the expectations of reactions when sharing the given reward with only one friend, and the second anticipated the reactions when sharing the same amount of reward with two individuals. Both measures were highly correlated (r =0.80, p=0.000). That can lead to multicollinearity, in other words, having one or more variables that can be accurately predicted by another variable in the model. High levels of multicollinearity are problematic when estimating regression models (Blalock, 1963; Marsh, Dowson, Pietsch, & Walker, 2004). Considering that the two measures of expectations are

capturing a similar construct, for the purpose of building the predictive model, we decided to join them into a single variable by averaging the two scores. However, the two measures are considered separately in other parts of the present work in which such analysis is methodologically appropriate. Finally, demographics variables such as income, employment status and gender were also considered as potential predictors.

3.3.1.1- Model selection and estimation

After identifying the potential predictors of the outcome variable, the main challenge was to decide which of the many variables should be included or excluded from the final model. Usually, the starting point was a full model containing all potential covariates, which were reduced to a simple model based on specific criteria. The rationale for minimising the number of covariates was to achieve a model numerically stable while keeping parsimony. The different methods and strategies available for selecting and comparing models were extremely vast, and its review was beyond the scope of this work. Such techniques usually varied from one discipline to another and even from one problem to the next. According to Hosmer and Lemeshow (2004), the variables' selection methods could be divided into those relying on automated and statistically driven algorithms, and those in which the researcher was in control of the decision process with the support of specific statistic criteria. Over the years, observing the later type of selection method, also known as "purposeful selection", has been increasingly more common. In our modelling of the participants' preferences, we adopted that kind of approach.

The first step taken to achieve the final model was to simultaneously exclude all terms whose elimination did not result in a significant reduction of the model fitness. One of the tools through which such goal could be achieved is by evaluating the Likelihood Ratio (LR) (Fox, 2015; Hosmer Jr & Lemeshow, 2004; Lewandowsky &

Farrell, 2010). This measure allows us to compare two nested models by estimating whether the addition of a specific term significantly increased the likelihood of the model to be an accurate representation of the data set. By nested model we refer to the situation in which one of the models being compared represents a reduced version of the other model, and therefore, all terms contained in the smaller model occur in the larger. By implementing the "Anova" function from the "car package" (see http://CRAN.R-project.org/package=car) in the software R, we could perform the so-called Type II test to estimate the LR for each of the potential covariates included in the full model. In particular, this method was used to calculate the LR by comparing a model that excluded each individual factor with a model that included all the other possible covariates (Fox & Weisberg, 2010). Those variables with a p-value lower the 0.05 were retained for the second step in the process of building the final model.

An alternative method to start the process of selecting the covariates for the final model consisted of performing the univariable regression analysis of each predictor. After following that method, Hosmer and Lemeshow (2004) recommend to retain in the model those variable with a LR below 0.25. When performing the two different types of variables' selection process previously described, we found convergent results. Specifically, "Reward Framing", "Expectations about Friends' Reactions" and "Income" were in both cases the variables to be retained in the model. In Table 14, we present the p-values from the LR obtained for each predictor after following the two different types of methods of filtering the number of covariates.

Table 14: p-values from Likelihood Ratio test, calculated based on Type II test and
Univariate analyses

Predictor	Selection Criteria	
	Type II test	Univariate Analysis
Type of Reward (Product vs Cash)	0.0198*	0.0126*
Expectations about friends' raction	0.0990*	0.1136*
Income	0.0668*	0.0355*
Employmeny Status	0.3658	0.3815
Reward Amount (£2 vs £5)	0.3894	0.6254
Gender	0.4916	0.6475
Concerns about Negative Evaluations	0.5561	0.7270

*Variable to be retained in the model

After reducing the model to only three predictors, some of the coefficients varied by more than 20%. When that happens, it is likely that one or more of the excluded variables might be relevant in adjusting the effects that the remaining variables had in the model. In such circumstance, Hosmer and Lemeshow (2004) suggest that as an additional step in the purposeful selection of the model, the eliminated variables should be assessed to decide whether they needed to be included again based on the statistical and theoretical criteria. Moreover, the addition of interaction terms should also be considered based on similar standards.

The main criterion for evaluating the improvement of a given model after adding or deleting variables is its goodness of fit, in other words, the level of accuracy of the model representing the outcome observed in the data. In this regard, the Akaike's Information Criteria or AIC is one of the most commonly used criteria to compare the fitness of different statistical models (Fox, 2015). Developing a detailed explanation of the mathematical background underpinning this measure is beyond our analysis (see Fox, 2015; Lewandowsky & Farrell, 2010). However, it is worth

mentioning that it provides a measure of how much information is lost when a specific model is implemented as a representation of the outcome in the data. In this regard, the AIC value is not interpretable and does not represent an indicator of the model's quality in absolute terms. Instead, different models can be compared based on that value, and the model with the smallest AIC can be considered as the preferred model (Fox, 2015; Fox & Weisberg, 2010).

In order to identify the final predictors, we compared in Table 15 the goodness of fit of several models. The Model 1 contains all possible predictors considered in the experiment, whereas Model 2 involved only the variables: Reward Framing, Expectations about Friend's Reactions, and Income, all of which were previously identified as important covariates to be retained. Table 15 shows that Model 2 resulted in a much better goodness of fitness in relation to the initial model. In Models 3 to 7, we considered the three variables included in Model 2, and in addition, we individually included back each of the variables that were initially excluded from Model 2. As observed in Table 15, none of the models in which we included again one variable had a better goodness of fit compared to Model 2.

In Table 15, we also assessed models containing interaction terms that were theoretically relevant. Specifically, apart from the three predictors presented in Model 2, Model 8 included a term with an interaction between "Reward Amount" and Expectations about Friend's Reactions, and also the Reward Amount as an independent covariate was added (because it was found to improve model fitness when added alongside the interaction term). The inclusion of the terms just described was associated with a highly significant LR (LR chisq = 12.09, df = 2, p = 0.002). Moreover, Model 8 significantly outperformed Model 2 in terms of AIC and reduction of Residual Deviance.

In Model 9, we intended to improve Model 8 even more by adding an interaction term between Reward Amount and Reward Framing. However, that addition did not result in a better goodness of fit. In Model 10, we assessed the addition of a different interaction term. That was the interaction between Reward Framing and Expectations about Friends' Reactions, all of which were also theoretically relevant. Incorporating such interaction reduced importantly the residual deviance, but still the AIC was not better than that from Model 8. Furthermore, the LR associated with the addition of the interaction term was insignificant (LR chisq = 3.013, df = 2, p =0.222). Therefore, we considered Model 8 as our winning model.

Finally, in Model 11, we wanted to assess the consequences of extracting the covariate Income from Model 8 because it was relevant to understanding the impact of the only demographic variable being considered in the model. After dropping that variable, we observed small changes in the model coefficients, and the AIC showed a minor improvement. Nonetheless, the Residual Deviance from Model 10 was larger than that from Model 8. Since AIC was an indicator that penalised more complex models (Hosmer Jr & Lemeshow, 2004; Lewandowsky & Farrell, 2010), the slight improvement in AIC was caused by a reduction in the number of parameters in comparison with Model 8, not as a consequence of a significant improvement in terms of Residual Deviance. Therefore, we selected Model 8 as our preferred predictive model.

Table 15: Goodness of fit of comparison of different models based on AIC.

Model	Model Covariates	Residual Deviance	AIC
1	Reward_Type + Friends_Expectations + Income + Employment_Status + Reward_amount + Gender + Fears_Neg._Evaluations	392.982	452.982
2	Reward_Type + Friends_Expectations + Income	408.333	436.333
3	Reward_Type + Friends_Expectations + Income + Reward_Amount	406.063	438.063
4	Reward_Type + Friends_Expectations + Income + Fears_Neg._Evaluations	407.578	439.578
5	Reward_Type + Friends_Expectations + Income + Gender	407.072	439.072
6	Reward_Type + Friends_Expectations + Income +Age	407.110	439.110
7	Reward_Type + Friends_Expectations + Income + Employment_status	397.208	445.208
8*	Reward_Type + Friends_Expectations + Income + Reward_Amount + Reward_amount*Friends_Expectations	393.969	429.969*
9	Reward_Type + Friends_Expectations + Reward_amount*Friends_Expectations + Reward_amount*Reward_type	393.248	433.248
10	Reward_Type + Friends_Expectations + Reward_amount*Friends_Expectations + Friends_Expectations*Reward_type	390.957	430.957
11	Reward_Type + Friends_Expectations + Reward_amount*Friends_Expectations	409.186	429.186

*Final model

Table 16 depicts the parameters estimated after fitting our preferred predictive model (Model 8).

Table 16: Multinomial fit of selected model.

Condition	Variable	Coeff.	Sd.Error	z.value	p.(2-Tails)	odds
1_Friend	(Intercept)	-4.339	1.605	-2.704	0.007*	0.013
	Reward_type(Product)	-1.117	0.435	-2.57	0.010*	0.327
	Friends_Expectations	0.382	0.202	1.886	0.059*	1.465
	Income15k-19k	-0.627	0.624	-1.005	0.315	0.534
	Income20k-29k	-0.533	0.545	-0.979	0.328	0.587
	Iincome> 30k	-0.596	0.535	-1.112	0.266	0.551
	Income_No.Ans	-1.018	0.798	-1.275	0.202	0.361
	Reward_amount(£5)	4.211	1.959	2.15	0.032*	67.439
	F.Expectations:R_amount(£5)	-0.573	0.26	-2.2	0.028*	0.564
2_Friends	(Intercept)	-5.940	1.641	-3.619	0.000*	0.003
	Reward_type(Product)	0.254	0.391	0.651	0.515	1.290
	Friends_Expectations	0.565	0.199	2.834	0.005*	1.759
	Income15k-19k	-2.217	1.057	-2.098	0.036*	0.109
	Income20k-29k	-1.755	0.779	-2.253	0.024*	0.173
	Iincome> 30k	-0.288	0.460	-0.626	0.531	0.750
	Income_No.Ans	-0.207	0.563	-0.368	0.713	0.813
	Reward_amount(£5)	5.442	2.173	2.504	0.012*	230.819
	F.Expectations:R_amount(£5)	-0.795	0.284	-2.802	0.005*	0.452

*Statistically significant

The multinomial regression offers parameters that reflect the probability of a specific outcome in relation to a baseline established by the researcher. In terms of the outcome been predicted, that is, the preferences for sharing the reward with two, one or no friends, we set the option of "not sharing the reward" as a baseline because it represented the null hypothesis being tested. In the case of the variable Reward Framing, the reward framed as a Cash gift has been established as a baseline. Regarding the covariate Income, the category of people earning "less than £15,000 a year" was established as a baseline. This group represented the largest proportion of people in the sample and the ones with the lowest annual income. Finally, for the variable Reward Amount, the smallest amount (£2 reward) was established as a baseline.

The coefficients offered in the model represent the rate of change in the "log odds" as the predictor change. These types of coefficients are not very intuitive. However,

when estimating the exponential of these coefficients we could obtain the "odds ratios", which are much more easy to interpret (Hosmer Jr & Lemeshow, 2004). We described below the trends observed in the odds ratios for the coefficients that showed significant p-values.

In general, the impact of varying the reward framing was different across conditions. Particularly, the relative probability of preferring to share the reward with one friend, instead of not sharing it at all, was 0.327 times lower in the condition in which the incentive was framed as Products than when it was presented as Cash, keeping all other variables in the model constant. On the contrary, preferring to share the reward with two friends rather than not sharing it at all was 1.29 times more likely when the reward was framed as Products instead of being presented as Cash. In other words, the preference for Products or Cash depended on the number of friends with which the reward was expected to be shared. These results were consistent with Hypothesis 5b.

The expectations about how other people may react if part of a loyalty reward was shared with them also resulted in being highly relevant when predicting participants' preferences for loyalty schemes. Indeed, the model supported the prediction from Hypothesis 1b. Specifically, the more positive the expectations about others' reactions, the more people were likely to favour schemes in which part of the reward was shared. More specifically, augmenting in one unit our measure regarding others' expectations increased the odds of selecting the programme in which the reward was shared with one friend by 46.5% compared to the scheme in which no reward was shared, keeping constant all other variables in the model. Also, a one-unit increase in positive Expectations about Friends' Reactions increased by 75.9% the odds of preferring the scheme in which the reward was shared with two friends compared to the scheme in which no reward was shared.

Our model also found the differences to be statistically significant in the case of middle-income groups. In particular, the odds of preferring a loyalty scheme in which the reward was shared with two friends to the scheme in which the reward was not shared at all decreased by a rate of 0.109 times for people earning between £15,000 and £19,000 a year compared to those earning less than £15,000 a year. In the same way, after controlling for the other covariates in the model, the relative probability of preferring to share with two friends rather than not sharing at all was 0.173 times lower in people earning between £20,000 and £29,000 a year compared to the reference group. In other words, the middle-income groups were less likely to share part of their rewards with two people.

In terms of the Reward Amount, it turns out to be the variable with the highest weight when predicting participants' preferences. In short, the bigger the reward, the more likely there was a preference for sharing part of the loyalty incentive with friends. Particularly, the relative probability of preferring to share the reward with one friend rather than not sharing it at all was 67.44 times higher when the amount was £5 compared to a £2 reward. Moreover, the relative odds of sharing the reward with two friends against not sharing it with anyone were 230.82 times higher when the amount available was £5 compared to the situation in which only £2 were provided as an incentive, after controlling for the other covariates in the model. In other words, we should expect about 230 people preferring to share the reward with two friends for every such person who prefers to share nothing when the reward was £5 instead of £2.

The interaction effect between Expectations about Friends' Reactions and Reward Amount was also significant, meaning that the effects that changes in expectations have on participants' preferences depended on the size of the amount available for sharing. If a person preferred to share the incentive with one individual instead of

not sharing it with anyone, the odds ratio of such interaction occurring increased by a factor of 0.56. For people who favoured the scheme in which the incentive was shared with two friends, the odds of the interaction increased by a factor of 0.45 compared to individuals not sharing the reward with anyone.

The direction of the interaction just described, as well as the tendencies associated with the coefficients in the model, is presented in a more intuitive way in the next section where the predicted probabilities of each of the three possible outcomes (loyalty scheme preferences) are estimated and plotted.

3.3.1.2- Model predictions

In the previous section, we have presented the odds ratio associated with the estimates of the Final model. Such estimates consider the variation of a given variable by keeping constant all other variables in the model. In this section, we will plot the predictions of the model when varying more than one variable simultaneously. This analysis will allow us to assess visually how predictions may behave in a more dynamic modelling. However, unlike the odds ratios, this approach represents an exploratory examination that cannot establish whether the differences observed are statistically significant.

In Figures 13 and 14, we varied all the variables in the model while keeping the Income constant. Specifically, the income category of people with "annual income lower than £15.000 per year" was kept unchanged because it represented our baseline in the model, and it was the category that contained more participants from the sample. Additionally, in our data exploration, we found that regardless of the income level kept constant, the general trends in the graph remained, but the magnitudes may vary slightly. It is worth noting that both Figure 13 and 14 were

based on the same information, but they are presented in different ways. We found that by doing so, the insights from the trends could be more easily appreciated by the reader.
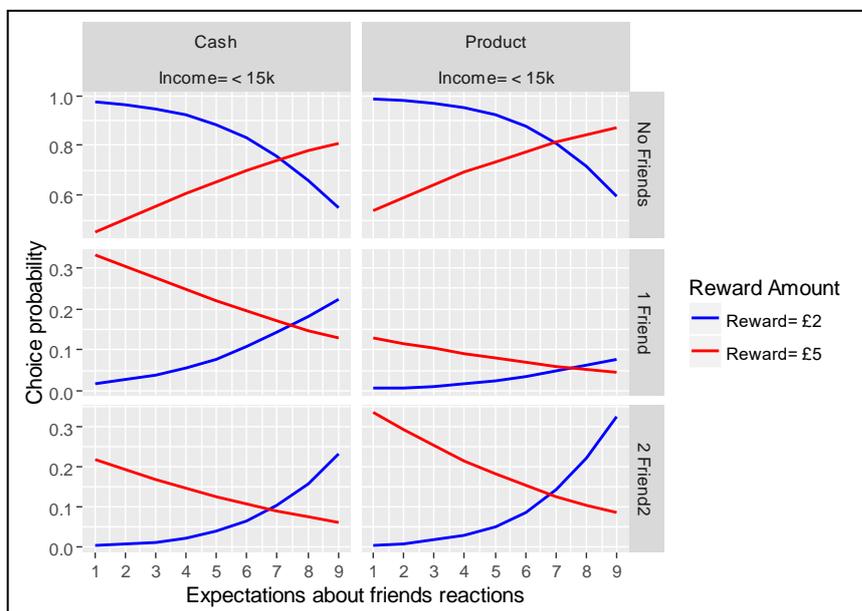
Figure 13: Estimated probabilities of the fitted model keeping "Income" constant, and comparing the "Reward amount" within each group.
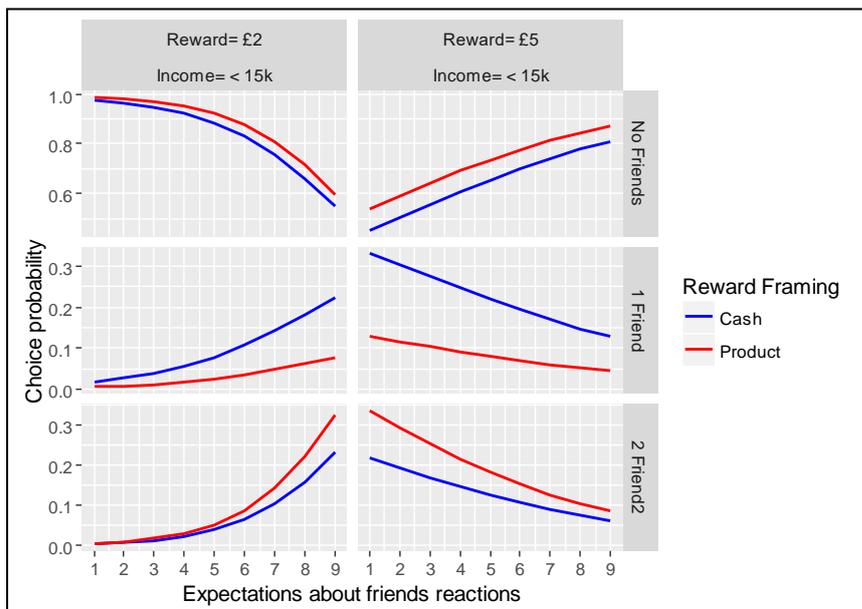
Figure 14: Estimated probabilities of the fitted model keeping "Income" constant and comparing the "Reward Framing" within each group.

In the previous two figures, we can observe how preferences for the different loyalty schemes were predicted to chance when expectations about positive friends' reaction increased or decreased. Particularly in Figure 13, we can appreciate that such differences diverged depending on the amount available for sharing. In the case of the smallest amount (£2), when expectations about other people's reactions were more positive, the probabilities of selecting the scheme in which no reward was shared decreased. However, the probabilities of choosing any of the schemes that allowed the sharing of part of the incentive increased. The opposite trend was observed when a large incentive was available (£5). That is, more positive expectations about the reactions from friends were predicted to increase preferences for the scheme in which the reward was not shared; however, in such circumstances, the appeal for schemes that allowed the sharing of the incentive with others tended to decrease.

An additional observation from Figure 13 was that changes in the amount of the reward produced small differences in participants' preferences when Expectations about Friends' Reactions were sufficiently positive. In contrast, larger differences in participants' preferences were appreciated when such expectations tended to be more negative. This finding aligned with what we have predicted in Hypothesis 2b.1. Moreover, having more negative Expectations about Friends' Reactions made people with smaller amounts available to be shared with others more likely to prefer the "selfish scheme", whereas having a larger proportion of the reward available to be shared made participants more likely to select schemes in which part of the incentive was given away to friends. This is what we were expecting based on Hypothesis 2b.2.

Regarding the Reward Framing, the predictions trend can be clearly appreciated in Figure 14. For both the scheme in which no reward was shared and that in which the incentive was shared with two people, the general trend was similar. Specifically, rewards framed as Products were more appealing than those framed as amounts in Cash, although the differences seemed to be very small for the selfish scheme. This result supports Hypothesis 5b but contradicts Hypothesis 3b because we predicted that the scheme not sharing the incentive with anyone would be more appealing in the case of the Cash framing. In the case of the loyalty scheme in which the reward was allowed to be shared with only one friend, rewards framed as Cash were more appealing than were the Products framing. This result is against Hypothesis 5b.

Furthermore, when the Reward Amount and Reward Framing are appreciated simultaneously, we observed that the differences between the Cash and Products framings previously described varied as the Expectations about Friends' Reactions changed. In particular, we noticed that more positive Expectations about Friends' Reactions tended to make such differences bigger if a £2 reward was available to be shared. Conversely, when the incentive represented a larger amount (£5), the opposite trend was observed. In other words, differences between the two types of reward framings decreased as the Expectations about Friends' Reactions were more positives.

As it was mentioned at the beginning of this section, the figures previously presented showed the choice probabilities for each possible outcome when varying all the variables in the model, but keeping Income constant. In Figure 15, we explored the effects of choice probabilities when varying

Income and other variables in the model, but we ensured that the value of

Expectations about Friends' Reactions was fixed at 7, which was the

closest entire number to the average score observed in the sample.
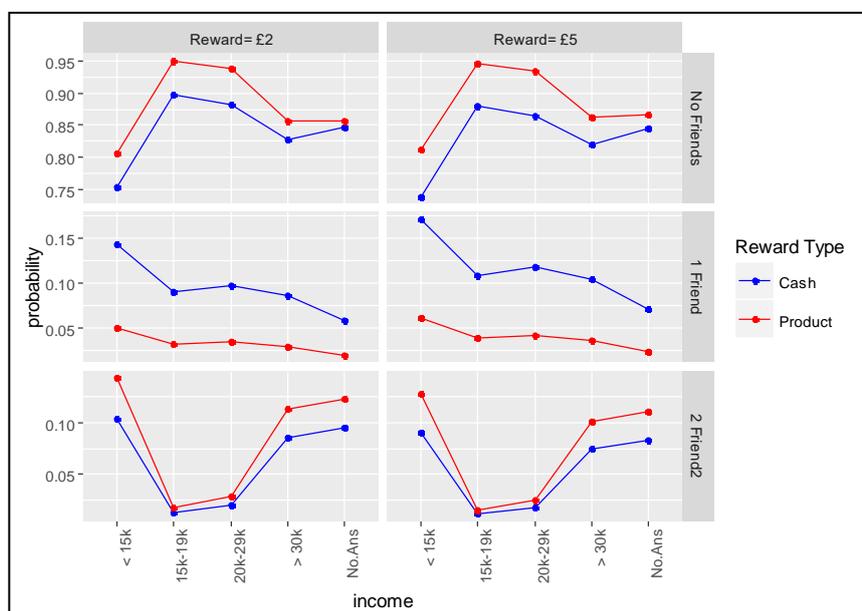
*Figure 15: Estimated probabilities of the fitted model keeping
"Expectations about Friends" constant.*

Probably, the most remarkable tendency that could be appreciated in

Figure 15 were the values for the group of people earning less than

£15,000 a year (the lowest). In particular, people who decided to share part

of their reward with either one or two friends were more likely to be within

the income category of "less than £15,000 a year", which represented the

lowest earners group. Conversely, people who preferred the scheme in

which the reward was not shared with anyone had the lowest probability of

being part of the lowest earners category. This finding contradicted the

natural intuition to assume that people with higher income would be abler

and more inclined to give away part of their endowment. Figure 15 also

allows us to visually observe the differences in middle-income groups

described in the model discussion. Specifically, people earning between £15,000 and £29,000 were significantly less likely to prefer to share the reward with two friends compared to the baseline option represented by the scheme in which the reward was not shared with anyone.

Table 17 depicts the hypotheses being tested in the present research, including a summary of the results offered by the previous modelling.

Table 17: Results summary for the "First choice preference" analysis.

No.	Hypothesis statement	Results summary
1b	• People will expect more positive reactions from friends (recipients) when they face loyalty schemes that share a larger proportion of the reward, compare to the situation in which the proportion being shared is smaller.	• The hypothesis was supported by the Estimates from the model.
2b.1	• Changes in the amount of the reward will not affect participants' preferences for loyalty schemes when sharing the loyalty reward with friends is associated with expectations about recipients' reactions that are sufficiently positive.	• The results were alligned with the hypothesis' prediction.
2b.2	• When sharing the loyalty reward with a friend is not associated with sufficiently positive reactions from the recipient(s), smaller rewards will encourage people to prefer loyalty schemes in which they keep the entire incentive for themselves, whereas larger rewards will make them more inclined to prefer schemes that allow them to share the reward with friends.	• The results were alligned with the hypothesis' prediction.
3b	• People receiving a reward framed in terms of "Cash" will be more likely to prefer loyalty schemes in which customers keep the entire reward for themselves, compared to those individuals receiving rewards framed as "Products".	• The results do not support the hypothesis.
4b	• When the loyalty reward is framed in terms of "Products", people would expect more positive reactions from recipients in loyalty schemes that share part of the reward with friends, compared to the schemes in which the reward is entirely kept by the customers.	• The hypothesis was supported by the Estimates from the model.
5b	• Loyalty schemes offering to share part of the incentive with other people would be more attractive when the loyalty reward is framed in terms of "Products" (non-monetary incentive), instead of framed as a "Cash" incentive.	• The hypothesis was supported by the Estimates from the model. However, the predictions' plot in which multiple variables where simultaniously varied suggests that the hypothesis may not be valid for participants selecting the scheme in which the reward was shared with only one friend.
6b	• Peoples' predisposition to fear negative evaluations from others will influence both their willingness to favour loyalty schemes that share part of the reward with friends, and their expectations about how others may react after sharing the loyalty reward with them.	• Results do not support the hypothesis. Fears of negative evaluations was not relevant as a preferences' predictor.

The model predictions presented in this section were based on the alternative that each participant selected as their first choice. However, the information regarding the schemes that were ranked as the second and third option when each participant was asked to state their preferences was not being taken into account in the analysis. In the next section, we will analyse the impact of each individual predictor on participants' preferences considering all the schemes' rankings. Moreover, we will explore further the most relevant bivariate relationships.

3.3.2- Scheme rankings and Reward Amount

In order to test whether the size of the reward being offered affects participants' preferences, in this section, we evaluate the way in which people ranked each of the three types of incentive schemes and compare the differences in rankings between the condition in which the reward amount was £5 with the group receiving only a £2 reward. After performing a Mann-Whitney U Test to compare the rankings between the two types of conditions, we found no significant differences between the scheme in which the reward was not shared (W = 19632, p = 0.524), the scheme sharing the reward with one friend (W = 20045, p = 0.958), or the loyalty programme in which the reward was shared with two people (W = 21335, p= 0.236).

In the previous section, participants' preferences were modelled based on their first choice, and expectations about how friends might react when a reward was shared with them were identified as a highly relevant variable. For that reason, we explored further the differences in rankings between the Reward Amount by taking into account the expectations about how friends may react after receiving the rewards. In particular, we split the sample into two groups: those with "high positives expectations" about friends' reactions and those with "low positives expectations".

Converting a continuous variable into a dichotomous measure by assigning participants above or below a given point in the scale is a practice widely found in the literature in a large variety of fields such as medicine (Kastrati et al., 2011; Lemanske et al., 2010), psychology (Buchner et al., 2015; Wang et al., 2013), finance (Hsu, 2013; Kalteier & Posch, 2013), among many others (for a review see Iacobucci, Posavac, Kardes, Schneider, &

Popovich, 2015b). However, this technique has been frequently criticised for having negative consequences such as the loss of information and statistical power (MacCallum, Zhang, Preacher, & Rucker, 2002; McClelland, Lynch, Irwin, Spiller, & Fitzsimons, 2015; Rucker, McShane, & Preacher, 2015). Instead, a regression analysis has been identified as the most suitable method to evaluate the impact of continues independent variables on a given outcome. In the case of the present research, the dichotomisation of the variable measuring "expectations about friends' reactions" aim to complement, not to replace, the regression analysis performed in section 3.3.1. In particular, the purpose is to simplify the presentation of the results regarding the potential interaction of the "expectations about friends' reactions" with other individual variables considered in the experiment.

There are different criteria to establish the cut-off point in the dichotomisation of the continuous variable previously described. For example, it is possible to establish a threshold based on the data by using the median or mean of the participants' scores (Iacobucci, Posavac, Kardes, Schneider, & Popovich, 2015a; Iacobucci et al., 2015b) , or based on the scale by setting the cut-off threshold in the midpoint of the scale (Ames et al., 2015; Wiggins, Elliott, & Cooper, 2012). Both possibilities have their advantages and disadvantages. On the one hand, using the median value would allow to compare two groups of equal size, but skewed distributions would bunch half of the observations into a small range of scores which produces further losses of information. In addition, such dichotomisation would not recognise the participants' decision to locate themselves in a given point of the continuous that was presented to them when making the decision. On the other hand, selecting the midpoint of the

scale as a threshold may create too unequal distributions of the participants in each of the two groups, but it would consider the score that is conceptually the middle response that participants faced when completing the scale.

For the purpose of the present analysis, we assume that people who position themselves below or above the conceptual middle response are part of distinct groups of individuals. Therefore, the cut-off point for the dichotomisation has been set to the score 4.5, which represented the medium point of the scales used to measure expectations. In other words, people with scores below the threshold were considered in the category "low expectations" and scores above that point would make people fall within the category "high expectations".

It is worth remembering that after participants stated their preferences about the schemes in the experiment, they were asked to indicate their expectations about: 1) "sharing the reward with one friend" and 2) "sharing the reward with two friends". In this regard, we have divided the analysis based on the two types of expectations measured. In total, we were able to perform 12 comparisons between £2 and £5 reward. It involved considering the three different types of incentive schemes being compared based on the two types of expectations measured (sharing with one or two friends) and the subgroups of participants created based on each expectation measured (high and low positive expectations). In Figure 16, we present the average ranking obtained for each of the three incentive schemes and compare subgroups based on the measure of Expectations about Friends' Reactions when the reward was shared with only "one friend". On the other

hand, Figure 17 show similar comparisons but based on the measure of expectations when the reward was shared with "two people".
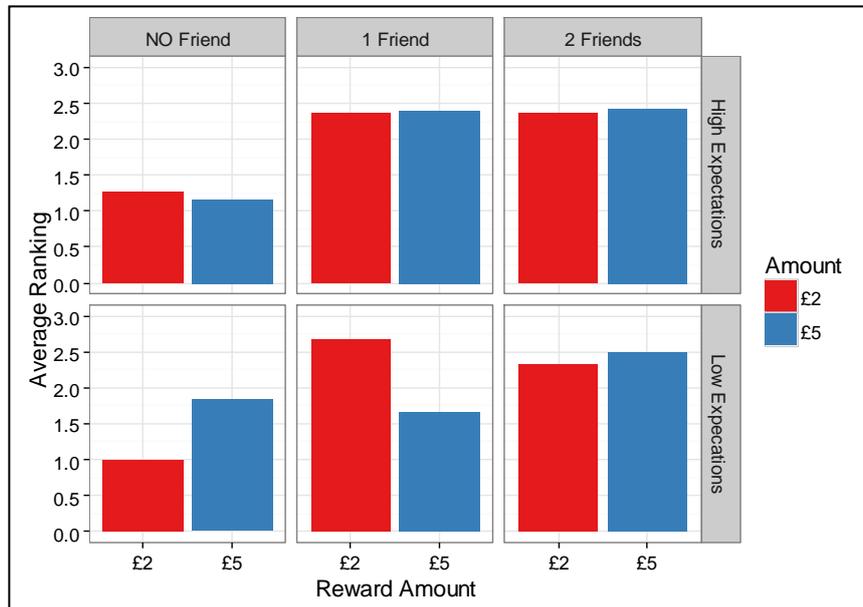
Figure 16: Average ranking of each incentive scheme comparing the "Reward Amount" based on the expectations about sharing the reward with one friend.
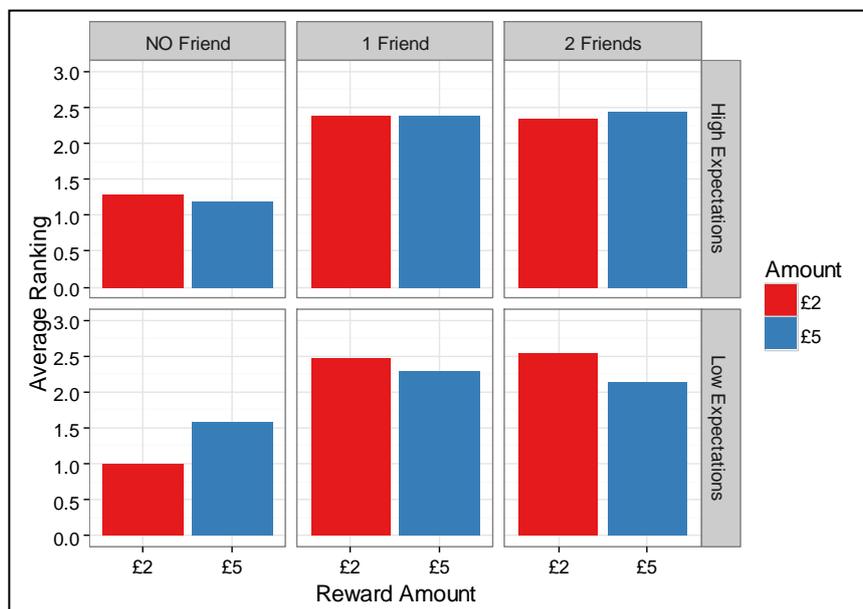
Figure 17: Average ranking of each incentive scheme comparing the "Reward Amount" based on the expectations about sharing the reward with two friends.

In both of the figures previously presented, the y-axis represents the average ranking given to each scheme. It means that lower bars indicate that the given loyalty programme was more appealing because it was closer to the rank 1 (most preferred). In Figure 16, the subgroup with "high expectations" about friends' reactions, on the upper part of the graph, shows no differences between the condition in which the money available to be shared was £5 and the condition with £2, as it was expected according to Hypothesis 2b.1. Nonetheless, when we examined the subgroup that was categorised as "low expectations", we appreciated that the scheme in which the reward was not shared with anyone was significantly more preferred when the available reward was £2 instead of £5 ($W = 45$, $p = 0.021$). In other words, participants were less willing to share a larger reward when the expectations about sharing the incentive with one friend were low, as it was stated in Hypothesis 2b.2.

Furthermore, Figure 16 shows significant differences in the preferences for the scheme in which the reward was shared with one person ($W = 8$, $p = 0.010$). Specifically, as we predicted in Hypothesis 2b.2, the scheme sharing the incentive with "one person" was more appealing when the reward was larger (£5) but only in the cases in which participants had low expectations about how the receiver may react if the reward was shared with one friend. Put simply, when the Expectations about Friends' Reactions was not positive, people were still willing to give away part of their reward to one friend but only when that reward was large enough.

In the case of Figure 17, we observed a similar trend to Figure 16 regarding the scheme in which the reward was not shared with any friend. In particular, that scheme was significantly more appealing when the incentive available was smaller, but only if expectations about sharing the reward with two friends were low ($W = 76.5$, $p = 0.029$). It means that with larger incentives, people might be more inclined

to give away part of the reward even if the Expectations about Friends' Reactions was not completely positive. Moreover, we observed a trend to favour the scheme that allowed the sharing of the incentive with two friends when the reward available was larger (£5), but only in the case of the subgroup of people with low expectations about sharing the reward with two friends. Nonetheless, this difference was not large enough to be considered statistically significant (W= 38, p= 0.131). None of the other comparisons between the two types of reward presented in Figure 17 were significant. Interestingly, the trends just described regarding Figures 16 and 17 were consistent with the results displayed in Figure 13 and 14 from Section 3.3.1, in which the model predictions were displayed.

In summary, the size of the Reward Amount affected participant's preferences only when they had low expectations about how others may react after sharing the reward. In the following section, we will further explore the relationship between the size of the reward and the Expectations about Friends' Reactions but without considering the participants' preferences for each scheme.

3.3.3- Reward Amount and Expectations about Friend's Reactions

In Hypothesis 1b, we predicted that, overall, when the amount available to be shared was larger, people would have more positive expectations about how their friends would react if the incentive was shared with them. Our results confirmed this hypothesis. That is, the availability of a larger reward improved the expectations of positive feeling from the friends with which the reward is expected to be shared. Figure 18 presents the differences between the conditions.
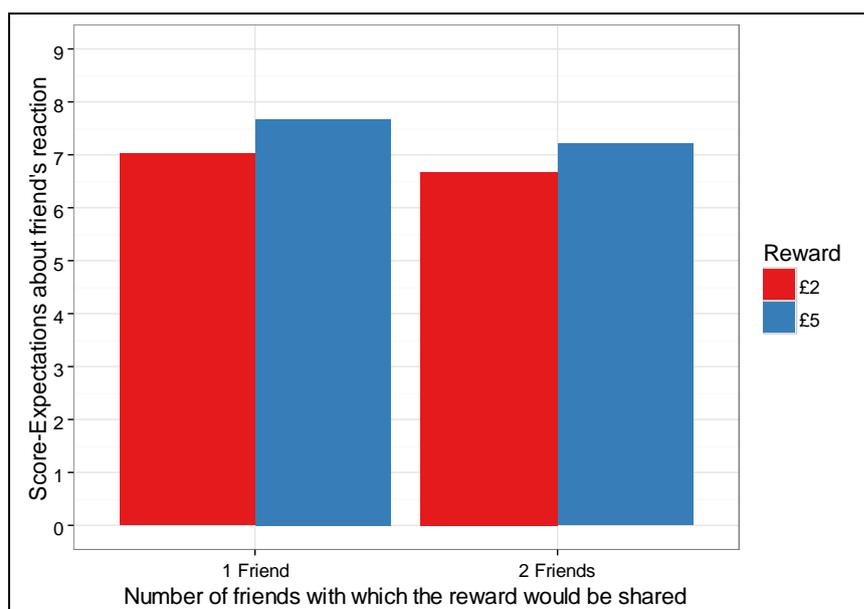
Figure 18: Differences between "Reward Amount" and expectations about sharing the reward with one or two friends.

To obtain the measures regarding friends' expectations, participants were shown the hypothetical messages that friends would receive when customers selected the scheme sharing the reward either with one friend or with two friends. In both cases, participants were asked how their friends would feel after receiving such messages based on four bipolar adjectives. In this regard, when the reward was expected to be shared with one friend, people expected more positive feelings from their friends in the condition in which £5 were given away (median = 8, mean = 7.67) compared to only £2 (median = 7, mean = 7.03). That difference was statistically significant based on Mann-Whitney U Test (W = 15590, p= 0.000). Similarly, when participants were asked about friends' expectations regarding the scheme in which part of the incentive was shared with two friends, more positive feeling were found when the amount was £5 (median = 7.25, mean = 7.23) than with a £2 reward (median = 6.75, mean = 6.69). Again, the differences observed were considered statistically significant (W = 16456, p = 0.002).

We have previously observed that the size of the reward could affect both participants' preferences regarding sharing part of their loyalty reward and the expectations about how their friends may react after doing so. In the next section, we will discuss whether the way in which the reward is framed also affect participants' preferences and expectations.

3.3.4- Scheme rankings and Reward Framing

We were expecting different reward framings to have a dissimilar impact on how participants rank the loyalty schemes, depending on the number of people with which each scheme offers to share the reward. In Figure 19, the trends observed in the results can be appreciated.
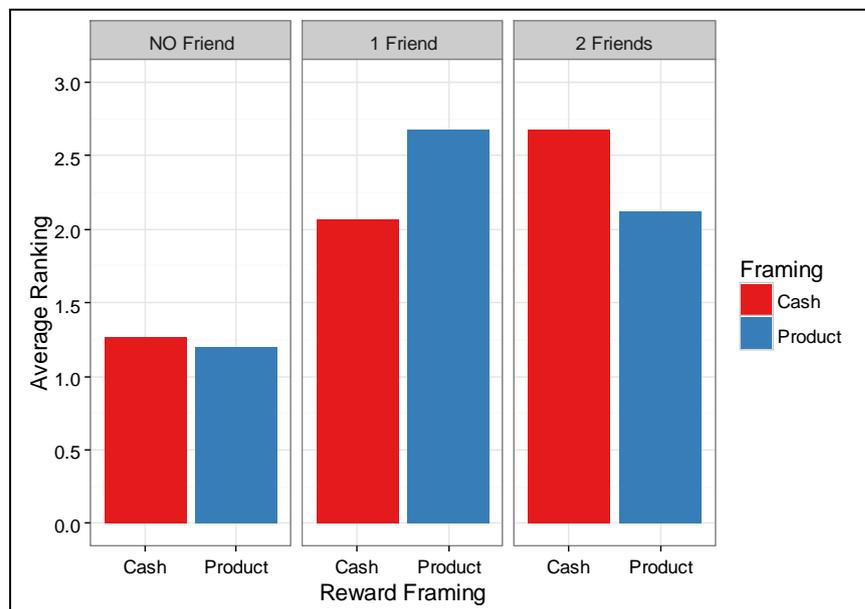
Figure 19: Average ranking of each incentive scheme comparing the "Reward Framing".

As it was the case for the Reward Amount plots in Section 3.3.3, in Figure 19 we presented the average ranking given to each loyalty scheme, considering that lower bars involved higher preferences because it meant that the average rank was closer to one (1). In this sense, we can appreciate that, for the scheme in which the reward was not shared with anyone, no significant differences (W = 20934, p= 0.253) were observed between rewards framed as Cash (Avg. Ranking= 1.26) or Products (Avg. Ranking= 1.19), which contradicts Hypothesis 3b. Moreover, when the incentive to be shared was framed in terms of Cash, people significantly ranked higher (closer to 1) the scheme sharing the reward with only one friend (Avg. Ranking=2.06) compared to the situation in which an incentive of equivalent value was offered but framed as "Products" (Avg. Ranking=2.68), which was also unexpected according to Hypothesis 5b. This difference was statistically significant based on the Mann-Whitney U Test (W = 9107.5, p= 0.000). In other words, people favouring the scheme in which the reward was shared with only one friend preferred to give away rewards in cash that could be spent in the store, instead of providing a voucher to enjoy a specific product from the coffee shop.

The situation was different in the case of the loyalty scheme offering to share part of the reward with two friends because each friend was expected to receive a smaller incentive. In this regard, we expected this scheme to be more popular when the reward was framed as Products instead of Cash because it might reduce the social cost of giving away a small reward. That was exactly what we observed in the results, as we anticipated in Hypothesis 5b. Specifically, the two-friends-share scheme was ranked better (closer to 1) when the reward was framed as Products (Avg. Ranking= 2.12) rather than "Cash" (Avg. Ranking=2.68). That difference was statistically significant (W = 30030, p= 0.000). In summary, our Hypothesis 5b was valid in the case of the scheme offering to share part of the reward with two friends, but not when the incentive was expected to be shared with only one person.

We were also interested in exploring whether incorporating in the analysis the variable Expectations about Friends' reaction would change the observed trends, as it happened when we analysed the impact of the Reward Amount. In this regard, we split again the sample between participants with "High positive expectations" about how their friends might react, which involved those with scores higher than 4.5 in the expectation scales, and those with "Low positive expectations", which consists of participants with a score below 4.5 out of 9. In Figure 20, we present the comparisons between the condition Cash framing and Products framing considering the expectations about sharing the reward with only "one friend", whereas Figure 21 shows a similar comparison but taking into account the measure of expectations about sharing the reward with "two friends".
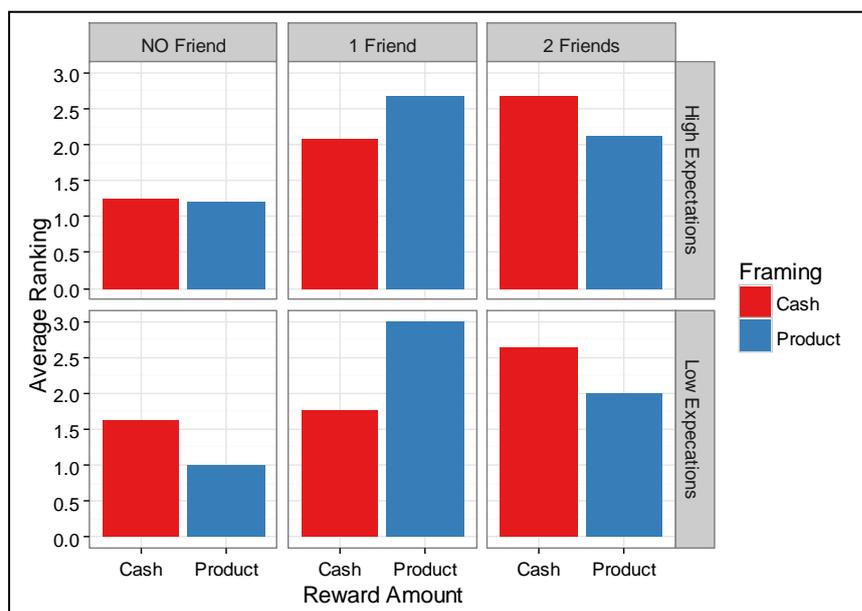
Figure 20: Average ranking of each incentive scheme comparing the "Reward Framing" based on the expectations about sharing the reward with one friend.
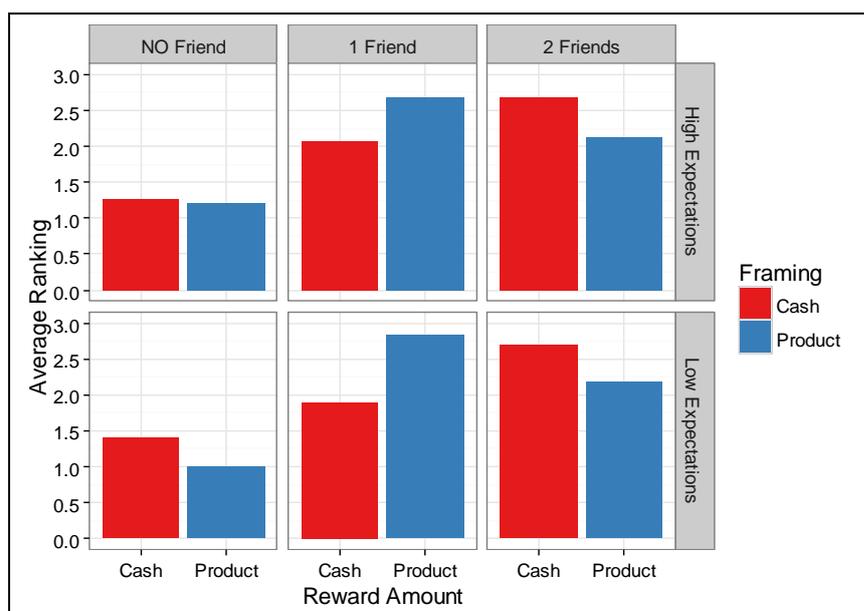
Figure 21: Average ranking of each incentive scheme comparing the "Reward Framing" based on the expectations about sharing the reward with two friends.

In Figures 20 and 21, it can be appreciated that the general trends observed for the schemes involving the sharing of the incentive with "one friend" and sharing it with "two friends" remain almost the same after considering the variable Expectations about Friends' Reactions. Regarding the scheme in which no reward was shared, in both Figures 20 and 21, there was a difference between Products and Cash for those participants who reported low positive Expectations about Friends' Reactions. Nevertheless, these differences were not statistically significant when splitting the group based on friends' expectations about sharing the incentive with "one friend" (W = 42, p= 0.120) nor for the expectations about sharing rewards with "two friends" (W= 84, p= 0.166).

In summary, we can confirm that the variable Expectations about Friends' Reaction does not affect the relationship observed between scheme preferences and Reward Framing. In the next section, we will explore directly the bivariate relation between Expectations about Friends' Reactions and Reward Framing, but without taking into account participants' preferences for each scheme.

3.3.5- Reward Framing and Expectations about Friends' Reactions

We predicted in Hypothesis 4b that rewards framed in terms of Products would be linked to more positive Expectations about Friends' Reactions after sharing the reward with them. Such claim could not be confirmed in this analysis. We were surprised to find that the differences between the two types of framings were not statistically significant neither for the expectations about sharing the incentive with one friend ($W = 18776$, $p = 0.246$) nor for the case of sharing it with two people ($W = 18350$, $p = 0.130$). Figure 22 illustrates these results.
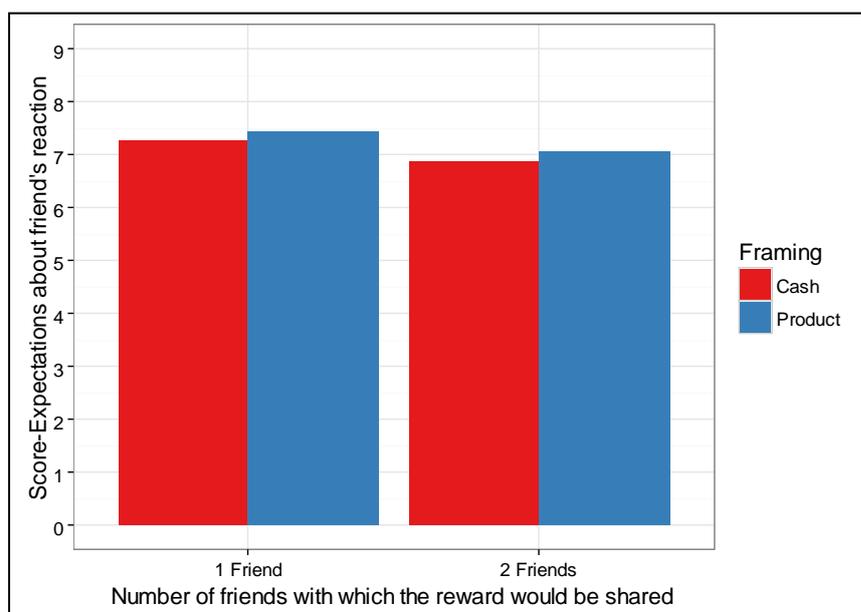
Figure 22: Differences between "Reward Framing" in terms of expectations about sharing the reward with either one or two friends.

3.3.6- Interaction between "Reward Amount" and "Reward Framing"

In Section 3.3.1, we performed a preferences modelling based on the first choice made by participants, and we found no support to add an interaction term between the variables Reward Framing and Reward Amount in the final model. In other

words, assuming that the effect of the Reward Framing on participants' preferences for loyalty schemes would vary depending on the size of the reward available was not found to be relevant to improve the predictive power of the model. In this regard, we wanted to explore whether the interaction between the two variables previously mentioned would become significant when analysing participants' preferences based on the rankings scores of each scheme, instead of the first choice only. As it can be appreciated in Figure 23, that was not the case. The average ranking for each loyalty scheme in the conditions Cash framing or Products framing was almost identical when the reward available to be shared was either £2 or £5.
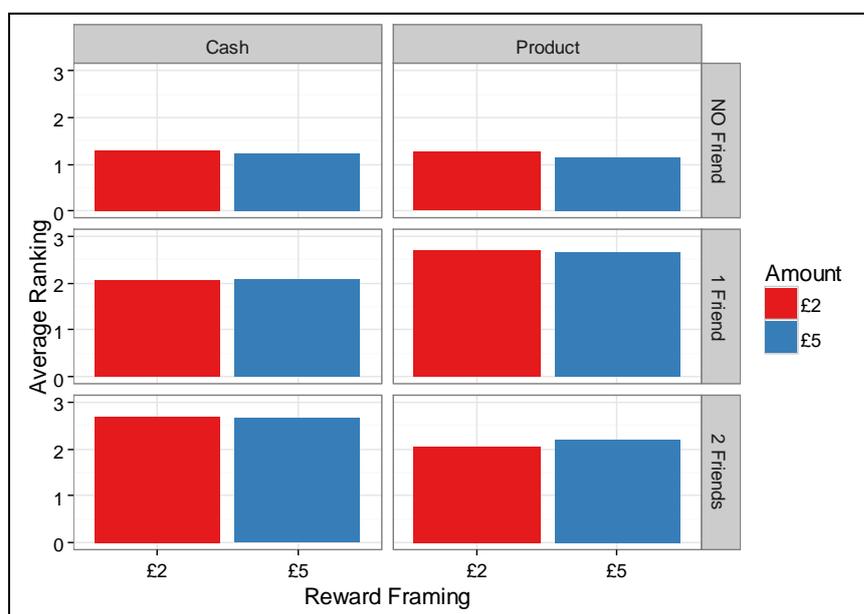
Figure 23: Differences between "Reward Framing" and "Reward Amount".

3.3.7- Fear of Negative Evaluations (FNE)

The scale of FNE measures a personality trait that we were expecting to have an important impact on participants' preferences for loyalty schemes, in particular on those schemes offering to share part of their loyalty rewards with relevant peers. Nonetheless, we found that the correlations between the FNE scale and the

rankings given to each of the incentive schemes were virtually zero and were not

statistically significant (sharing with no friends, p = 0.84; sharing with one friend, p =

0.38; sharing with two friends, p = 0.28). Similarly, the correlations between the

scale of FNE and the measure evaluating the expectations of sharing the reward

with one (p = 0.65) and two friends (p = 0.62) were insignificant and with values

close to zero. These results were consistent with the exclusion of the FNE measure

in the preferences modelling presented in Section 3.3.1 and contradicted what we

were expecting in Hypothesis 6b.

Neither the preferences for the different loyalty schemes nor the expectations about

how others may react after sharing the loyalty reward were directly correlated to the

FNE scale. However, it could be the case that the FNE scale mediated the

relationship between expectations about others' reactions and preferences for

loyalty schemes. In this regard, one of the main steps to establish the possibility of a

mediation effect is to regress the mediator on the independent variable. According

to Baron and Kenny (1986), if no association is found between independent variable

and mediator, then the possibility of mediation has to be ruled out. After regressing

the FNE scale on the measures of Expectations about Friends' Reactions, we found

that neither the expectations of sharing the reward with one friend (Coef.= -0.011, p

= 0.646) nor that with two people (Coef.= 0.012, p=0.616) resulted in a significant

association. Therefore, based on this method, the scale of FNE cannot possibly

mediate the relationship between expectations and preferences for loyalty schemes.

More robust methods than the one mentioned from Baron and Kenny (1986) have

been recently developed in order to evaluate mediation (and moderation) by

performing bootstraps (resamples). In particular, Hayes (2013) offered a popular

tool known as the "Process macro" able to estimate mediation effects by running a

bootstrapping routine in statistical programmes like SPSS and SAS. In Figure 24,

we present a summary of the results of running the "Process Macro" for models in which the Expectations about Friends' reactions represents the Independent Variable, the FNE scale is the mediator, and the rankings given to each of the three different incentive schemes are the outcomes of three different models.
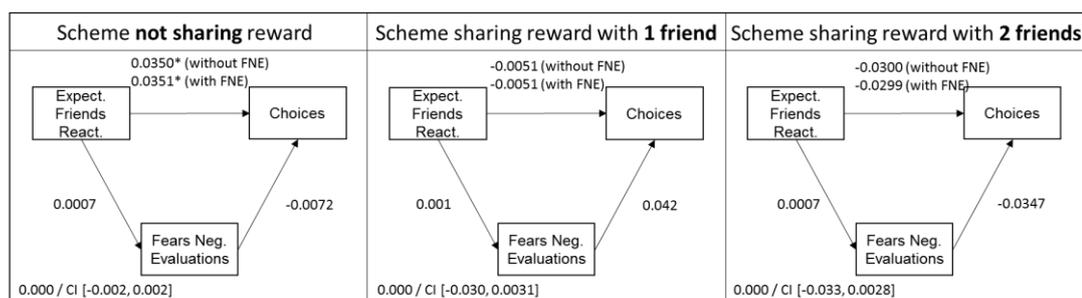
Figure 24: Mediation Analysis, bootstrap method from Hayes (2013).

No significant mediation effect was found by implementing the procedure from Hayes (2013). In this method, the estimation of the indirect effect (mediation) does not rely on comparing a parameter with a theoretical distribution (e.g. t distribution), instead, the bootstrapping process allows to build a sampling distribution by repeatedly randomly sampling observations with replacement from the data collected. Such process outputs a 95% confidence interval (CI), and cases in which zero falls within the interval are considered not significant mediation effects at the 0.05 level. That was the case for the results presented in Figure 24, consequently, Hypothesis 6b could not be confirmed. Furthermore, we explored whether being part of a particular experimental condition produced differences in the scores of the FNE scale. In this sense, we did not find significant differences neither when comparing the FNE scores between the two Reward Amount ($t = 0.241$, $df = 398.47$, $p = 0.810$) nor between the two types of reward framings ($t = 0.144$, $df = 398.17$, $p = 0.886$). Such finding was not unexpected given that the FNE scale measures a

personality trait that should be relatively stable despite the variations in the decision context.

The only significant differences observed in the FNE scale were found for the demographic variables. First, for the variable "Gender", males had a scored higher (Avg. = 3.55) than females (Avg. = 3.12) in the FNE scale. Put simply, women were reported to have significantly more concerns about being judged by others (t= 5.586, df = 398.75, p =0.000). Second, there was a significant positive correlation between age and scores in the FNE scale (r = 0.29, p = 0.000). This suggested that the younger the participants, the more fears about receiving negative evaluations from others were present. In Figure 25, we plotted the relationship between age and the FNE scale taking gender into account.
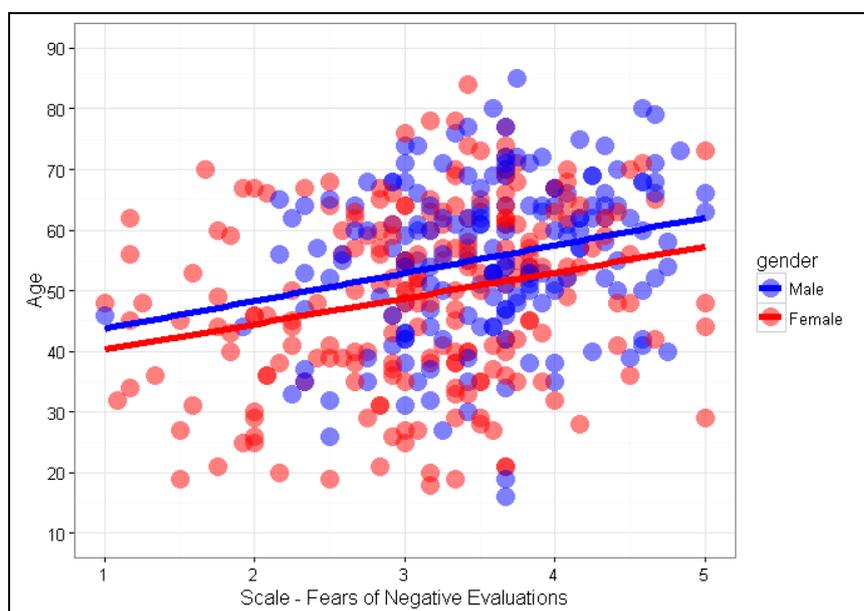
Figure 25: Relationship between age and the Fears of Negative Evaluations scale, considering Gender.

Figure 25 reveals that younger participants in the sample were female;
therefore, gender and age were also correlated. Consequently, it was
difficult to establish which variable was directly affecting the FNE scores.

3.3.8- Expectations about Friends' Reaction in general

We previously noted that participants were asked about the feelings of their friends
when hypothetically sharing part of their loyalty reward with either one or two of their
friends. As anticipated, we found that participants expected more positive reactions
when the reward was meant to be shared with one friend (median = 7.75, mean =
7.35) than with two friends (median = 7.00, mean = 6.96). That difference was
statistically significant (W = 91860, p= 0.000).

In previous sections, we explored the relationship between the scales measuring
Expectations about Friends' Reactions and the variables manipulated in the
different experimental conditions. Here, we will analyse whether these scales about
friends' expectations differ based on the demographic variables measured in the
experiment. In this regard, we found the variable Gender to be the only one showing
differences. Concretely, females (median = 7.75, mean = 7.43) were on average
more optimistic than males (median = 7.00, mean = 6.83) in terms of their
expectations about how friends might react after sharing part of the loyalty reward.
That difference was statistically significant for both the measure considering to
share with one friend (W = 15662, p= 0.000) and with two friends (W = 16220, p=
0.001). Figure 26 depicts the differences between expectations about sharing with
one or two friends taking Gender into account.
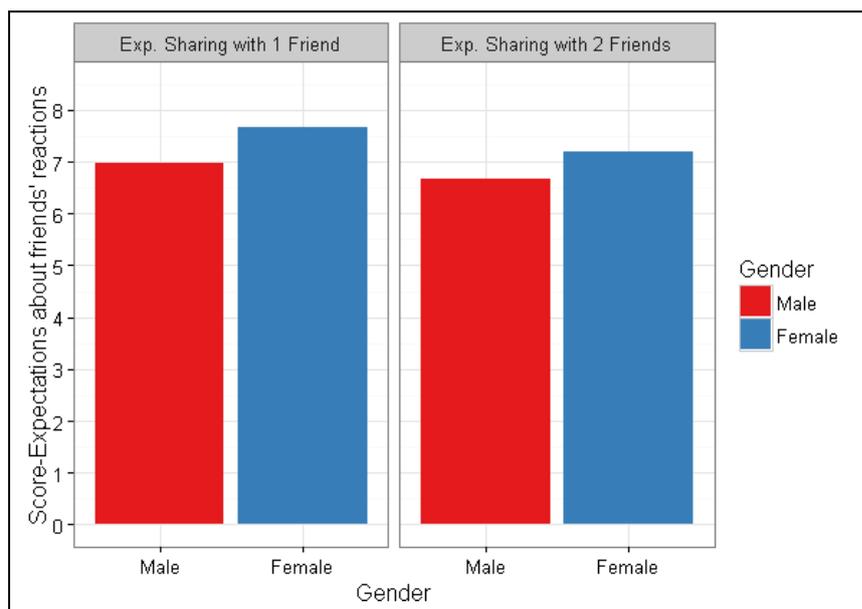
Figure 26: Differences between "Genders" in terms of expectations about sharing the reward with either one or two friends.

3.3.9- Income and schemes' preferences

The variable Income resulted to be an important covariate to control in the preferences modelling performed in Section 3.3.1, in which participants' first choices were predicted. Similarly, we found that Income categories may also be relevant when analysing the rankings given to the different incentive schemes. Specifically, we found that the Income categories showed significant differences in terms of participants' rankings for the scheme in which the reward was not expected to be shared with anyone (chi.sq = 10.322, df = 4, p= 0.035). However, no significant differences were found for the schemes sharing part of the reward with one friend (chi.sq = 0.54003, df = 4, p= 0.970) or two friends (chi.sq = 6.8378, df = 4, p = 0.145) based on the Kruskal-Wallis rank sum test. In Figure 27, the differences in rankings taking Income into account can be appreciated.
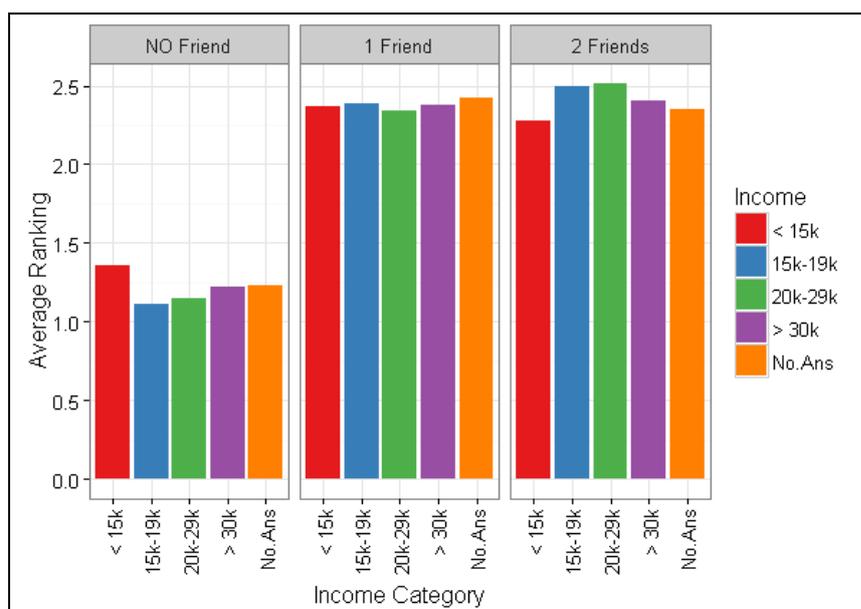
Figure 27: Income categories and schemes' average rankings.

Figure 27 clearly reveals that participants with the lowest income (< 15k) were those driving the differences between Income categories for the scheme sharing the reward with no friends. The result suggested that people with less economic resources were less inclined to participate in a scheme in which sharing the reward was not possible; instead, they preferred schemes in which they would have the opportunity to give away part of their endowment. This is contrary to our initial intuition of assuming that richer people would share their reward more than the poor individuals because they are in a better economic position to do so.

The results just described to be associated with how participants from different income groups expected their friends to react after sharing a loyalty reward with them. In Figure 28, we can appreciate that people differed on their expectations about sharing their rewards with either one or two friends depending on the income to which group they belong. More interestingly, if we compare, for instance, the bars regarding expectations about sharing the reward with two friends in Figure 28 with the bars in Figure 27 showing the average rankings given to the scheme in which

the reward was shared with two friends, we can observe that they almost mirror each other. In other words, lower bars in one graph corresponds to higher bars in the other and vice versa, thus suggesting that higher expectations (closer to 9) were linked to higher preferences (ranking closer to 1).
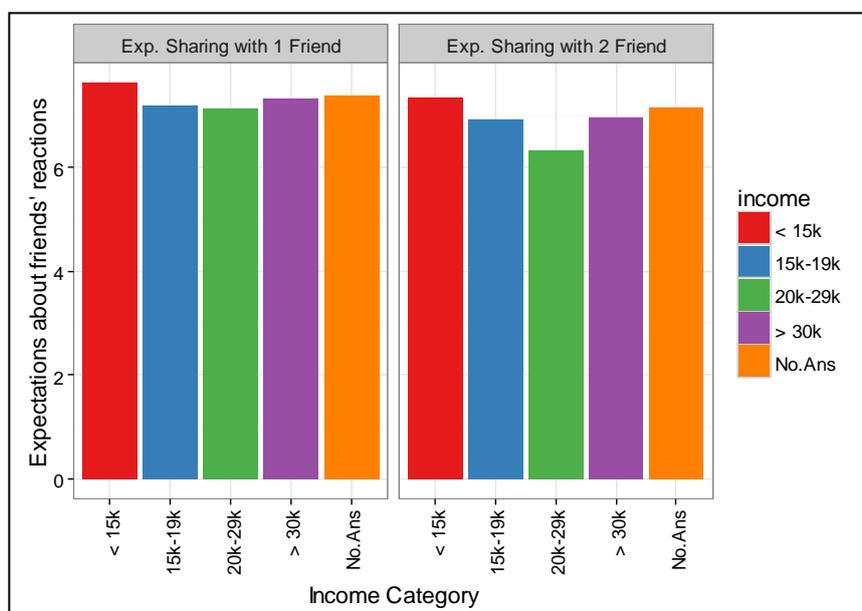

Figure 28: Income categories and expectations about friends' reactions.

We explored further the relationship between Income and expectations by estimating the correlation coefficients. Specifically, we transformed the Income categories into an ordinal scale ranging from 1 (lower income) to 4 (higher income), in which participants providing "No Answer" regarding their income were excluded from the analysis (52 in total). This ordinal scale was then correlated (using a Spearman coefficient) with the scores from the measures regarding expectations of sharing the reward with one and two friends. In this sense, we found that for those participants who selected as their first option the scheme in which the customer kept the entire reward for themselves, Income was negatively correlated with expectations about sharing the reward with one (r = -0.15, p=0.01) and two friends (r = -0.16, p=0.01). Moreover, as for the case of the scheme in which the reward

was shared with only one friend, we also found a significant correlation between Income and expectations about sharing with one friend (r=0.38, p=0.04). No other significant correlations were found, but this could be because the relationship between Income and expectations may not always be linear (as suggested in the trends from Figure 28).

As we did for the modelling analysis performed in Section 3.3.2, we present again in Table 18 our research hypotheses along with a summary of the results developed in this section.

Table 18: Results summary for the "Ranking preferences" analysis.

No.	Hypothesis statement	Results summary
1b	▪ People will expect more positive reactions from friends (recipients) when they face loyalty schemes that share a larger proportion of the reward, compare to the situation in which the proportion being shared is smaller.	▪ The results were alligned with hypothesis' prediction.
2b.1	▪ Changes in the amount of the reward will not affect participants' preferences for loyalty schemes when sharing the loyalty reward with friends is associated with expectations about recipients' reactions that are sufficiently positive.	▪ The results were alligned with hypothesis' prediction.
2b.2	▪ When sharing the loyalty reward with a friend is not associated with sufficiently positive reactions from the recipient(s), smaller rewards will encourage people to prefer loyalty schemes in which they keep the entire incentive for themselves, whereas larger rewards will make them more inclined to prefer schemes that allow them to share the reward with friends.	▪ The results were alligned with hypothesis' prediction. However, differences were statistically signifficant when people where asked about the expectations of sharing the reward with one fiend, but not in the case of the expectations about sharing with two people.
3b	▪ People receiving a reward framed in terms of "Cash" will be more likely to prefer loyalty schemes in which customers keep the entire reward for themselves, compared to those individuals receiving rewards framed as "Products".	▪ The results do not support the hypotnesis. No signifficant difference where found.
4b	▪ When the loyalty reward is framed in terms of "Products", people would expect more positive reactions from recipients in loyalty schemes that share part of the reward with friends, compared to the schemes in which the reward is entirely kept by the customers.	▪ The results do not support the hypothesis.
5b	▪ Loyalty schemes offering to share part of the incentive with other people would be more attractive when the loyalty reward is framed in terms of "Products" (non-monetary incentive), instead of framed as a "Cash" incentive.	▪ The results supprot the hypothesis in the case of the scheme sharing part of the reward with two friends, but not for the scheme dividing the incentive with only one person.
6b	▪ Peoples' predisposition to fear negative evaluations from others will influence both their willingness to favour loyalty schemes that share part of the reward with friends, and their expectations about how others may react after sharing the loyalty reward with them.	▪ The results do not support the hypothesis.

4- Discussion

The expectations about how others may perceive us after giving them away part of a loyalty reward turned out to be a critical aspect when showing this type of prosocial behaviour. Our results suggest that once the role of such expectations is understood, prosocial motives can be taken into account in order to design effective initiatives that aim to encourage the adoption of products or behaviours in general. In the last decade, evidence emerging from behavioural science has shown that

people can improve their well-being and happiness when they give away part of their wealth to others instead of focusing on selfish consumption (Aaker & Akutsu, 2009; Dunn et al., 2008). However, the fact that most people normally spend a very limited amount of their money or time on helping others may put in doubt the effectiveness of unselfish motives as a mechanism to encourage behaviours. Our results indicate that one of the reasons why prosocial behaviours are not more prevalent is because they occur only when givers believe that there is a high probability of fulfilling recipients' expectations. In this regard, the present study provides important insights that shed some lights on the conditions in which prosocial motives can be effective in driving behaviours in a commercial context and probably in other environments.

Our experiments challenge previous research suggesting that people engage in unselfish behaviours simply for the sake of helping others to improve the recipients' situation (e.g. Andreoni & Miller, 2002; Charness & Rabin, 2002). Instead, we argue that the possibility of fulfilling others' expectations and receiving positive feedback from them has crucial element on prosocial behaviours. This is probably related to the human need for boosting or strengthening the self-concept, maintaining self-esteem and reaching a positive image by behaving in ways that are likely to result in a positive reaction from others (Baumeister, 2010; De Angelis et al., 2012; Wien & Olsen, 2014). We have shown in our experiment that commercial initiatives like loyalty programmes can be more appealing to customers when they represent a mechanism for maintaining a positive image about themselves. This evaluation could be achieved by allowing customers to show prosocial behaviours towards relevant peers as part of the loyalty scheme.

The impact of allowing customers to share larger proportions of a loyalty reward with others was, overall, associated with more positive Expectations about Friend's

Reactions and higher preferences for this type of "unselfish schemes", compared to the traditional programmes in which the entire reward is kept by the customer. However, when we explored the possibility of an interactive effect between the Reward Amount and the Expectations about Friend's Reactions, the results took an interesting twist. Specifically, we found that participants expecting more negative (instead of positive) reactions from their friends were more likely to prefer sharing the loyalty incentive with others when the reward was large (£5) instead of small (£2). We claim that this contradictory results can be reconciled in light of the trends observed in our predictive model (particularly in Figure 13). To be precise, either positive or negative, more extreme Expectations about Friend's Reactions seems to increase people's preferences for a given option. In the case of the anticipation of extremely negative reactions, people may be more inclined to share larger amounts of the reward because in that way, they are more likely to fulfil recipients' expectations. On the contrary, smaller amounts may not be likely to fulfil the expectations of a friend who was already inclined to react negatively (or not positive enough) towards this type of gifts; therefore, participants may tend to keep the entire incentive for themselves in such circumstances. In the case of holding more positive expectations about recipients' reactions, a similar effect could be anticipated; in other words, participants should be more inclined to share larger proportions of the loyalty reward. On the contrary, more neutral expectations seemed to discourage people to give away part of their endowment.

The trends just described may relate to the literature on dictator game. This extensive literature approaching social preferences by implementing this methodological tool has found contradictory results when varying the size of the stake available. While some researchers have claimed that variations in the size of the reward do not affect significantly the proportion of the reward that participants are willing to give away (e.g. Carpenter et al., 2005; Forsythe et al., 1994; List &

Cherry, 2008), others suggest that increasing the stake reduces the proportion of the stake that people share with recipients in the game (e.g. Bechler et al., 2015; Novakova & Flegr, 2013). In this regard, we claim that the possibility of fulfilling recipients' expectations, and consequently, the chance of strengthening the self-concept, can account for this contradictory results. Nonetheless, we acknowledge that testing a larger range of reward amount and eliciting more extreme expectations about recipients' reactions is something needed in further research in order to be more confident regarding the plausibility of our explanation.

Another interesting result regarding the "unselfish" loyalty schemes proposed in the present study was related to the number of recipients with which the incentive was shared. In particular, we found in our predictive model that it was more likely to prefer to share a £5 reward than a £2 incentive. However, that likelihood was far larger when the reward was expected to be shared with two friends instead of one friend. In other words, people seemed to be concerned not only about giving away a gift to improve their friends' situation but also about giving an amount that was "large enough" for each recipient, thus suggesting a concern for friends' reactions. This result could account for the "identifiable victim effect" documented in the literature regarding charitable giving (Small & Loewenstein, 2003). Stated another way, people tend to care more about specific identifiable victims (e.g. one ill child) than about statistical victims (e.g. children with cancer). Our results suggest that having clearer expectations about the positive reactions that recipients may experience could help givers to strength the self-concept and self-esteem. Consequently, giving away something that is divided between too many people may feel as if the action is not making a significant impact in each recipient.

Beside the amount available to be shared, the way in which the incentives were framed resulted to be relevant when predicting participants' preferences. For

instance, giving the possibility of sharing a £2.5 voucher to purchase products in a coffee shop had a different effect on preferences compared to a situation in which a voucher for a biscuit (from the same store) worth £2.5 was made available for sharing with friends. It was particularly interesting to find that the Products framing (e.g. the biscuit worth £2.5) was more attractive than the Cash framing when the reward was expected to be shared with two people instead of one person; and therefore, each recipient would receive a smaller amount. We claim that this happens because it is more socially acceptable to give away small in-kind gifts than small amounts in the form of cash. This result suggests that organisations that aim to promote schemes in which the incentives can be shared with others will benefit from making available in-kind gift to share with friends when the incentives available are expected to be small.

The manipulation of the Reward Framing previously mentioned was also expected to be closely linked to the measures capturing the perception of the potential reactions from friends after sharing part of a loyalty reward with them. Surprisingly, we found that the two variables were unrelated. A potential explanation is that the preferences for sharing gifts with others in the form of cash or in-kind gifts are more governed by social norms than by the anticipation of how friends consider the level of generosity of the customers. In other words, we have measured Expectations about Friend's Reactions based on adjectives that assess whether friends would perceive customers like good and generous persons. However, it may be the case that measuring the extent to which friends were expected to see the customer like someone complying with what was socially acceptable in such situation (e.g. In which extent do you think your friend would consider that your gift is appropriate?) could produce a result closer to our prediction. However, we cannot be certain about this explanation; consequently, future studies can further explore this idea.

In addition to the size and framing of the reward, we hypothesised that the scale measuring FNE would be related to the preferences for the different types of loyalty schemes and also to the expectations regarding friends' reactions after sharing the reward with them. Unexpectedly, neither relationship was found. The FNE scale was the only variable considered in the present study linked to personality traits, and not to contextual factors. Our results may indicate that the preferences for engaging in initiatives that allow the sharing of part of a reward with relevant peers rely more on contextual factors in which organisations can intervene than on a personality predisposition. However, this claim should be explored in future research by measuring different personality traits.

Equally unexpected was the general trend observed in participants' first choices. Most of them selected, as their first alternative, the loyalty scheme in which customers kept the entire loyalty reward for themselves. That pattern was surprising, considering that a significant proportion of the participants from the set of studies presented in Chapter 1 was willing to give away part of their loyalty reward in an experimental setting with comparable scenarios. In this sense, differences in the way participants' preferences were measured may represent the source of variability. In the first two sets of experiments, preferences were measured by asking participants to state the specific amount of incentives that they were willing to share, or by presenting pairwise comparisons of different programs in which the proportions of the reward being given away was varied. These two methods produced fairly similar trends, but different to the preference observed in the present study in which participants were asked to rank a variety of schemes.

Although the differences previously described may exist due to the way in which preferences were measured, we claim instead that such differences are a consequence of the mechanism through which participants were meant to share the

loyalty reward in the present study. Specifically, friends were expected to receive a voucher from a coffee shop via e-mail on behalf of the customer (participant), representing the specific amount being shared. Even though participants were told that *"No additional information, apart from the gift voucher, will be sent to the friend by the shop"*, there could still be concerns regarding the way in which retailers managed private information (Demoulin & Zidda, 2009). In this regard, participants may refrain from sharing part of the loyalty reward not because they do not wish to do so but because they may expect recipients to be unhappy after realising that their personal email was given to a company. If that is the case, our data may be noisier and the effects weaker than we expected. For that reason, we anticipate that larger effects can be found in our experiment if the concerns about sharing private information, in this case the email, are controlled in future research.

In the present study, we did not establish hypotheses regarding the demographic information being measured. Nonetheless, we found a particularly curious link between participants' income and the willingness to favour schemes in which part of the loyalty reward was shared with other people. Intuitively, we might assume that people with a higher income should be in a better economic position to give away economic resources, whereas those with more economic constraints should be more reluctant to share their endowments with others. Unexpectedly, we found that those with the lowest annual income were, indeed, the people less inclined to find attractive the "selfish" loyalty scheme in which no reward was shared; instead, they tended to favour more the "unselfish" loyalty programmes. This result is consistent with previous research arguing that people with less economic resources are more likely to engage in prosocial behaviours (Piff et al., 2010). We claim that our result can be explained, at least in part, by the differences in which people with different income expect their friends to react after sharing with them a small reward. Simply put, when poorer individuals give something away, we should expect recipients to

have a more positive reaction compared to a situation in which givers are richer because such action involves a bigger scarify by the poorest. Moreover, previous research (e.g. Aral & Walker, 2011b; Christakis & Fowler, 2007) has shown that social networks are characterised by homophily, in other words, a tendency to link with others of similar characteristics (including similar income). In this sense, we can assume that poorer people are more likely to imagine having friends of a similar economic status. Then, a poorer recipient (friend) should be expected to show more gratitude towards the giver than a richer recipient because the gift may be less valuable for the friend with more economic resources. That could explain why, in this context, lower income participants were more unselfish. Although this explanation is aligned with other results from our experiment, it would be interesting to explore further our claim in future research.

A potential criticism of our study is that the decisions made by participants are not based on real incentives but related to hypothetical scenarios. In this regard, some studies have found that social preferences may change when participants are incentivised, and people will possibly be more selfish (Amir, Rand, & Gal, 2012; Buhren & Kundt, 2015; Dana, Weber, & Kuang, 2007). Nonetheless, other researchers claim that similar results can be found regardless of whether participants' decisions are incentivised; consequently, there is no basis to assume that the absence of incentive can make invalid the results from experiments evaluating social preferences (Ben-Ner, Kramer, & Levy, 2008). Future studies may well explore whether the variables and principles tested in our experiment can behave in the same way when participants are incentivised.

In brief, the insights obtained in the present study regarding the motives driving people's willingness to share an endowment with others represent an important contribution to the literature on prosocial behaviour. Moreover, proposing that such

motives can embody an opportunity to design more effective initiatives that

encourage the adoption of products and behaviour is an idea that can potentially

stimulate further research in marketing and the broader field of diffusion of

innovations.

CHAPTER 4- CONCLUSIONS

The focus of the present research has been to explore how unselfish motives can influence people's preferences, with the purpose of informing the design of initiatives promoting adoption behaviours. An enormous amount of empirical evidence has shown that even though new practices or products may be highly beneficial for people, such advantages do not necessarily lead to the adoption of the better solution (Rogers, 2003). This fact has encouraged both academics and practitioners to focus on understanding not only what makes a given innovation more advantageous but also which mechanisms can make a given innovation more likely to be adopted more rapidly, and for longer periods. In this regard, the insights provided by the present work regarding decision-making preferences represents a novel approach that can help to understand how adopting behaviours can be effectively promoted.

The interest is not new for understanding how and why products or behaviours are adopted. Indeed, for more than 60 years, researchers from a tremendous number of disciplines (e.g. sociology, marketing, public health, anthropology, among others), have approached the issue by implementing a variety of methodologies and by focusing on different aspects of the same phenomena. In this sense, Chapter 1 represents a useful tool provided by the present research, because it provides a succinct and cohesive review of the very extensive and diverse body of knowledge on the topic with the purpose of allowing people not familiar with the area to obtain a quick understanding of how the study of diffusion of innovations has been approached in the past decades. In addition, the chapter provides details about how some specific insights from behavioural science regarding judgement and decision making can be taking into account when promoting adoption behaviours.

One of the most common and probably simplest strategies that have been traditionally used to promote the adoption of specific behaviours has been the implementation of financial incentives. That is, anytime the adoption of behaviour occurs, rewards are offered to individuals under the assumption that making such offering would result in an increase of the perceived value and consequently the appeal for the specific practice. In the commercial context, a widely popular initiative of this type is represented by the implementation of the so-called Loyalty Programmes, in which firms attempt to retain customers or increase their consumption frequency by providing them with rewards associated with their behaviours. Unfortunately, the failures of this type of initiatives are not uncommon (e.g. Nunes & Dreze, 2006b; Obrien & Jones, 1995), and the evidence contradicting the positive effect that incentive can have on motivation has been increasingly frequent (Fehr & Falk, 2002; Frey & Jegen, 2001; Garnefeld et al., 2012; Heyman & Ariely, 2004). In this regard, the need for achieving a better understanding of the mechanisms influencing the failure or success of incentives as a tool to encourage the adoption of desirable behaviours has driven the present research. Specifically, the results obtained in the set of experiments have identified ways in which traditional incentive schemes can be reframed by taking into account insights from behavioural science. To my knowledge, this approach has not been considered before and, consequently, it may stimulate future research.

In the present work, four on-line experiments based on hypothetical scenarios have been run in order to evaluate participants' preferences regarding different incentive schemes aiming to encourage consumption in coffee shops. In the first experiment, participants were asked to split a "loyalty reward" between themselves and a relevant peer (friend). Contrary to common assumptions from standard economics, people were willing to give away a substantial part of their reward to relevant peers. However, the first experiment did not support the hypothesis that such preferences

were driven by the expectation of receiving something in return from the recipients (reciprocity).

In the second experiment, I decided to evaluate whether a change in the way in which preferences were elicited would affect the previous results. Specifically, different incentive schemes were presented in pairwise comparisons in which participants had to select their preferred option each time. The results were highly consistent with the first experiment, in terms of the preferences for sharing part of the reward with friends. In addition, a second stage of the second experiment identified the consequences of introducing uncertainty in the rewards being offered to the customers and their friends. By comparing schemes with different levels of risk but similar expected values for both the customer and their friend, I found that participants strongly preferred loyalty programmes in which elements of risk where not introduced, suggesting that risk aversion should be an element to considered in the "unselfish" incentive schemes proposed. Unlike the first experiment, the second study showed some support of the idea that the possibility of reciprocity drives the willingness to share part of the incentive with others. However, the participants' choices model was not robust enough, which suggest that additional variables needed to be considered in the model to improve its predictive power.

In an attempt to better understand the reasons underlying the preferences for sharing part of the loyalty reward, a third experiment was run varying the number of recipients with which a comparable loyalty reward was shared. Interestingly, the number of recipients had an important impact on participants' preferences. In particular, people were more incline to share larger amounts with two friends, but when the amount available to be shared was reduced participants strongly favours schemes sharing the incentive with only one friend instead of two. In addition, similar to the second experiment, the possibility of reciprocity seemed to influence participants' preferences for the loyalty schemes but it cannot fully account for the

results obtained. On the contrary, the preferences observed when varying the number of recipients suggested that people's motivation could be given by a meta-perception process in which they evaluate what others may think of their actions when deciding to share part of a loyalty reward. Such idea was explored in more detailed in the fourth and last experiment.

One of the key results from the third experiment was that people behaved as if they were willing to share part of their reward with others only when each individual recipient would receive a portion of the incentive "sufficiently large". It leaded me to assume that the expectations about how others may react after receiving the gift would have an important role in the tendency to engage in the type unselfish schemes proposed. However, such expectations were not directly measured on that study. In the fourth experiment, we incorporated this variable and found that the preferences for incentive schemes in which part of the reward was shared with others was strongly related to the expectations about friend's reactions. Moreover, the way in which the incentive was framed and the size of the incentive available affected participants' preferences for the unselfish incentive schemes. For instance, rewards framed as products (e.g. biscuit worth £2.5) was more attractive than an incentive framed in terms of cash (e.g. £2.5 to spend in the store) when the reward was expected to be shared with two people instead of one person; and consequently, each recipient would receive a smaller amount. Overall, our results suggest that people will be highly engaged with unselfish incentive schemes, and probably other prosocial behaviours, when positive reactions are expected from the recipients.

In the following section, I discuss in more detail how the outcomes from this work contribute to the current body of knowledge. Moreover, I will present some practical implications that can potential result from the research insights, and finally, I will

discuss the limitations of my work and suggest some topics worth exploring in future research.

4.1 - Theoretical Contributions

One of the main results observed in the set of experiments was that at least under certain circumstances, individuals showed stronger preferences for firms offering them loyalty incentives that were partially shared with friends on their behalf, instead of comparable incentives that they could keep entirely for themselves. That seems, in principle, a counterintuitive result considering that people are usually expected to make decisions that maximise their own benefits as assumed by standard economics. However, these results are consistent with the research from behavioural science which shows that individuals frequently take decisions that seem to be unselfish and show regard for others (Kahneman, 2011; Wilkinson & Klaes, 2012). Surprisingly, the possibility of designing initiatives that take into account such "prosocial" motives with the aim of promoting adoption has been neglected in the past by the different research traditions studying how products and behaviours can be diffused. Instead, they have focused, among other elements, on identifying ways in which the perceived cost of an offering can be reduced or its perceived benefits can be increased because it is assumed that individuals pursue only the maximisation of their own outcomes when making adoption decisions. One of the main contributions of this work is to introduce the possibility of incorporating prosocial motives as one of the tools in the repertoire of mechanisms useful for encouraging adoption and diffusion processes.

This research also contributes to improve the understanding of the motives driving prosocial behaviour, an important topic in such fields as economic and psychology. It is commonly assumed that altruistic or unselfish acts occur because individuals are motivated to improve the situation of others, and studies supporting that notion

are not uncommon (e.g. Andreoni & Miller, 2002; Charness & Rabin, 2002). The
present work, however, supports the idea that self-interested motives underlie
"altruistic" behaviours. In the second chapter, the possibility of reciprocity was
highlighted as a factor affecting the preferences for giving away part of a reward.
Nonetheless, the results could not fully explain the trends observed in the data. In
contrast, the results from the third chapter showed, more conclusively, that the
expectations about how the recipients of our unselfish acts might perceive us had a
crucial role in the preferences for giving away resources to others. In other words, I
argue that unselfish or altruistic motives are strongly linked to the need for fulfilling
others' expectations in order to strength the self-concept and maintain a positive
self-image.

These insights regarding the use of incentives and the role of expectations can also
be extended to other important areas in diffusion research such as "word-of-mouth",
in which interpersonal communications are encouraged in order to persuade others
to adopt new behaviours. As mentioned in the first chapter, these type of
recommendations are frequently externally incentivised by implementing the so-
called Reward Referral Programmes. Previous research on these initiatives has
shown that the willingness to give recommendations to others seem to be affected
by a meta-perception process in which the givers evaluate how the will be viewed
by the receivers (Wirtz et al., 2013; Xiao et al., 2011). Indeed, these types of
initiatives have been found to be more attractive when both the referral provider and
the receiver are incentivised (instead of only the referrer) and when symbolic
instead of monetary rewards are provided (Verlegh et al., 2013). These results are
highly consistent with what I have found in the present work. In this regard, I
strongly believe that the insights from the present research can contribute not only
to the understanding of variables affecting the effectiveness of Loyalty Schemes but

also to any other types of initiatives aiming to encourage adoption and diffusion processes in which incentives are used as a tool.

Another contribution from the current research is to highlight the importance of considering contextual factors in adoption decisions. While diffusion traditions have mainly focused on areas such as the characteristics of the adopters (Mansori et al., 2015; Rogers, 2003), social influence (Centola & Macy, 2007; Christakis & Fowler, 2007), or the attributes of the innovations (Greenhalgh et al., 2004; Rogers, 2003); the impact of small changes in the environment in which decisions are made has been largely ignored. However, behavioural science has provided increasing evidence during the last few years, suggesting that such changes can result in important effects on behaviour (Dolan et al., 2012; Kahneman, 2011; Sustein & Thaler, 2008). This research show, for instance, how a minor change in the way in which an incentive was framed (e.g. £2 vs. A coffee worth £2) significantly changed participants' preferences. This type of approach may open new possibilities when approaching option and diffusion processes.

I discuss briefly in the following section some practical implications that can result from the insights obtained in the present research.

4.2- Practical Implications

I have discussed in the first chapter how incentives have been widely used as a tool to encourage the adoption of behaviours because, among other reasons, they are relatively easy to implement and administrata compared to other mechanisms driving peoples' behaviours that depend more on internal motives. Nonetheless, I have also mentioned that such incentive schemes may not always be effective and could actually crowd out intrinsic motivation, and consequently, it may be desirable

to identify different strategies that do not rely on rewards that are external to individuals. One practical consequence of the proposed type of schemes is that organisations do not necessarily need to choose between internal and external mechanisms to influence behaviours. Instead, I have provided a clear example of initiatives in which the benefits of administrating external rewards can be effectively combined with internal sources of motivation such as the need for strengthening the self-image and self-concept.

From the commercial point of view, the "unselfish" loyalty schemes being proposed could present additional benefits. Specifically, this type of initiatives may help firms to introduce their products and services to friends of their customers that were not necessarily aware of them previously. Therefore, these "friends" can then potentially become part of their registered customers. Moreover, in terms of social influence, previous studies suggest that people are not only affected by specific behaviours adopted by their peers, but more importantly, by how frequently their peers use a given product (or show a given behaviour) (Iyengar et al., 2011). In this sense, the unselfish incentive schemes can encourage customers' friends to consume more by providing information on the volume of customers' purchases.

The set of experiments were framed in a very specific commercial setting in which different conditions affecting loyalty schemes were tested. However, I do not believe that the practical implications of this research are limited to the scope of this type of commercial initiatives. For instance, I have previously presented in Chapter 1 an interesting experiment from Mani et al. (2013) in which physical activity was encouraged by incentivising participant's based on the performance of two other peers, with the aim of promoting social pressure. That strategy outperformed a traditional incentive scheme in which people was directly rewarded by their own performance. This is an example of how incentive schemes can be reframed to

encourage desirable behaviours. In this sense, I claim that the insights from this research can inform the design of comparable schemes in a large variety of context that relies on incentives as an adoption and diffusion tool.

Furthermore, this research raises some questions about assuming that people show prosocial behaviours with the only purpose of helping others, and consequently, that challenge may affect the strategies to promote this type of actions. For instance, the results suggest that people are highly motivated to strength their self-image by fulfilling others' expectations. In this sense, organisations promoting prosocial behaviours could, for example, not only inform givers about how their actions will benefit the receivers but also make more salient the positive reaction that recipients may have after the prosocial action takes place. In short, some insights from the present work may be useful to inform the design of initiatives aiming to promote charitable giving and other prosocial behaviours.

4.3- Limitations and Suggestions for Future Research

A potential criticism of the present study is that the decisions made by participants are not based on real incentives but on hypothetical scenarios. In this regard, some studies have found that social preferences may change when participants are incentivised, and individuals will possibly be more selfish (Amir et al., 2012; Buhren & Kundt, 2015; Dana et al., 2007). On the contrary, other researchers claim that similar results can be found regardless of whether or not participants' decisions are incentivised; consequently, there is no basis to assume that the absence of incentive can invalidate the results from experiments evaluating social preferences (Ben-Ner et al., 2008; Engel, 2011). Future studies may explore whether the variables and principles tested in my experiments behave in the same way when

participants are incentivised. Even more interesting would be to run randomised controlled trials to evaluate, in a real-world setting, some of the ideas of the incentive scheme proposed in the experiments.

In addition, the size of the unselfish incentives offered in order to influence peoples' behaviours as well as it relation with the participants' socioeconomic status are topics that needs to be explored in more detail in the future. For instance, in my experiments only incentives ranging from £1 to £5 were considered. However, some studies approaching prosocial behaviours have found that the willingness to give away a given endowment was affected by significant changes in the magnitude of the amount being considered (e.g. Bechler et al., 2015; Novakova & Flegr, 2013). Similarly, unselfish behaviours have been found to differ when comparing participants from countries with different income levels and/or cultures (Raihani et al., 2013). Consequently, incorporating these types of manipulations in the assessment of unselfish incentive schemes, while measuring the expectations about recipients' reactions would be highly valuable to assess the robustness of my results.

The preferences for incentive schemes considering rewards under uncertainty was another topic explored in one of the experiments. The risky schemes considered in the study involved a probability of 0.5 of obtaining a given outcome either for the customer, or the friend. In this regard, classic literature on decisions under risk and ambiguity suggest that when the probability of receiving a given outcome is low, people would be more likely to seek uncertain rewards, whereas outcomes with high probabilities would make people more likely to avoid uncertain rewards (Ellsberg, 1961). For that reason, it would be worth testing in future studies the impact of introducing different levels of uncertainty on the preferences for unselfish schemes.

I have highlighted in this research how the link between our prosocial actions and the expectations about how others may perceive us can represent a useful driver of people's preferences, and consequently, this evidence can inform initiatives aiming to encourage adoption and diffusion processes. On this subject, I have provided some insights regarding the variables affecting that link. Nevertheless, I believe that future research can explore other variables in order to understand more deeply the conditions under which the need for fulfilling others' expectations and strengthening the self-concept may encourage preferences for unselfish incentive schemes. For instance, previous research suggested that when people's self-concept is threaten, they have a higher need of engaging in self-enhancing behaviours in order to recover the positive image of themselves (De Angelis et al., 2012). In this regard, it would be interesting to evaluate whether in such conditions the preferences for unselfish incentive schemes increases. Furthermore, I have previously mentioned that the present research evaluated, among other aspects, how small changes in the decision context affected participants' willingness to adopt specific products. In this regard, in the last few years, behavioural scientists have identified a large number of robust effects showing how peoples' behaviours are influenced when the context within which individual's act is modified (for an integrative review see Dolan et al., 2012). For example, in my fourth experiment I found that a small change in the way in which the loyalty reward was framed (product vs cash) affected the preferences for unselfish incentive schemes. Future research could assess other framing effects by manipulating additional elements such as the messages inviting people to participate in the incentive schemes, or the hypothetical message that the friend would receive after sharing the reward with them. In particular, such messages could be framed, for instance, in a way that produce feelings of self-enhancement in the referee. Besides the messages framing, other contextual elements could be manipulated such as the inclusion of pictures priming prosocial

behaviours. These types of contextual changes could help to understand more deeply the promotion of desirable behaviours based on prosocial motives.

I hope that the insights obtained in the present work have contributed to the understanding of how adoption and diffusion processes can be improved. In particular, I expect that the incentive schemes in which unselfish motives are incorporated will become part of the toolbox to influence behaviours.

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APPENDICES

Appendix 1: General Instructions – Experiment 1.

This is a short survey that takes approximately 4 minutes to complete. You will be asked to state your preference for reward schemes offered by coffee shops.

All responses will remain anonymous.

Please read the instructions and questions carefully.

Please refrain from talking to anyone else while taking this survey. We are simply interested in your opinion.

Thank you for participating!

When you are ready to begin hit the arrow button.

Appendix 2: Scenario Description – Experiment 1.

Imagine that your favourite coffee shop is planning to launch a loyalty scheme. In general, the scheme will have the following features:

- Every time clients consume, they receive a given amount of money on a loyalty card as a reward.

- Clients can select **one friend** to join a **"Coffee Partner"** programme. The chosen Coffee Partner will enjoy rewards and promotions from the Coffee Shop, and they will also **receive money** (in a loyalty card) **after the client's purchases**.

- **After accumulating £5 in rewards**, both the Client and the Coffee Partner can exchange the money received in the loyalty card for products in the shop.

Appendix 3: Reciprocity Condition – Experiment 1.

You should also consider that:

-Your friend (Coffee Partner) could participate in a similar promotion, and **choose you as his/her "Coffee Partner"** (if he/she wants) .

-Your friend (Coffee Partner) **will be notified** each time he/she receives a reward as a consequence of your purchases.

Appendix 4: No Reciprocity Condition – Experiment 1.

You should also consider that:

- Your friend (Coffee Partner) could participate in a similar promotion, but he/she **WILL NOT be allowed** to choose you as his/her "Coffee Partner".

- Your friend (Coffee Partner) **will be notified** each time he/she receives a reward as a consequence of your purchases.

Appendix 5: No Awareness Condition – Experiment 1.

You should also consider that:

-The rewards received by your Coffee Partner as a consequence of your consumption can not be distinguished from the other rewards that the Coffee Shop will give him/her. Therefore, there is **no way in which your Coffee Partner can tell if he/she is obtaining a specific reward thanks to you.**

Appendix 6: Dependent Variable – Experiment 1.

Each transaction greater than £2 will generate a £1 reward, that will be split between you (The Client) and your "Coffee Partner". In the next boxes, you need to define how the £1 reward should be split between you as The Client and the Coffee Partner (friend) in order to induce you as a Client to **buy more frequently from the coffee shop.**

Of course, the two values that you will choose have to sum up to £1

Client Reward (You)	£ 0
Coffee Partner Reward (Friend)	£ 0
Total	£ 0

>>

Appendix 7: Second Part, Scenario Description – Experiment 2.

Each transaction grater than £2 will generate a reward, that will be split between you (The Client) and your "Coffee Partner". In the next section you will see how the different coffee shop brands are planning to distribute the reward.

Appendix 8: Third Part, Scenario Description – Experiment 2 and 3.

In the next screens, pairwise comparisons between the different stores will be presented. Your task is to select in each case which store offers the most appealing incentive scheme, in order to induce you as a Client to **buy more frequently from a given coffee shop.**

Appendix 9: Pairwise Comparisons Format – Experiment 2 and 3.

Based on the reward scheme that they are offering, which shop would you prefer to visit?

○ **SHOP A:**

£0.5 reward for **you** and **£0.5** reward for your **friend** (Coffee Partner).

○ **SHOP B:**

£0.25 reward for **you** and **£0.75** reward for your **friend** (Coffee Partner).

Appendix 10: Introduction Stage 2– Experiment 2.

Some new coffee shops are also planning to offer similar incentive schemes. In the next section you will see how these stores intend to split the reward between you (The Client) and your "Coffee Partner" after each valid transaction.

Appendix 11: General Introductions – Experiment 3.

This is a 2 parts survey that takes approximately 7 minutes to complete. You will be asked to state your preference for reward schemes offered by coffee shops.

All responses will remain anonymous.

Please read the instructions and questions carefully.

Please refrain from talking to anyone else while taking this survey. We are simply interested in your opinion.

Thank you for participating!

When you are ready to begin hit the arrow button.

Appendix 12: Scenario Description – Experiment 3.

As in the previous section, imagine that your favourite coffee shop is planning to launch a loyalty scheme. In general, the scheme will have the following features:

- Every time clients buy a coffee, they receive a given amount of money on a loyalty card as a reward.

- Clients can select **ONE OR TWO FRIENDS** to join a **"Coffee Partner"** programme. The chosen Coffee Partner will enjoy rewards and promotions from the Coffee Shop, and they will also **receive money** (in a loyalty card) **after the client's purchases**.

- **After accruing £5 in rewards**, both the Client and the Coffee Partner can exchange the money received in the loyalty card for products in the shop.

Appendix 13: Second Part, Scenario Description – Experiment 3.

Each transaction grater than £2 will generate a reward, that will be split between you (The Client) and your "Coffee Partners". In the next section you will see how the different coffee shops are planning to distribute the reward.

Appendix 14: General Instructions – Experiment 4.

Dear Participant,

This survey is for academic purposes only and takes approximately **7 minutes** to complete. You will be asked to state your preferences for reward schemes offered by coffee shops.

Please answer all questions openly and truthfully, there are no right or wrong answers. All responses will remain anonymous.

Read the instructions and questions carefully and refrain from talking to anyone else while taking this survey. We are simply interested in your opinion.

Your decision to participate is voluntary; you are free to withdraw from the study at any time.

If you agree to take part in this study, please hit the arrow button.

Appendix 15: Instrumental Manipulation Checks – Experiment 4.

Where do you live:

In the United Kingdom (England, Scotland, Nothern Ireland).

Out of the United Kingdom (England, Scotland, Northern Ireland).

Please click on the Strongly Agree option. This is just to screen out random clicking.

Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree

Appendix 16: Scenario Description – Experiment 4.

Imagine that you visit coffee shops regularly. Close to your workplace, there are three (3) different stores that offer comparable products and facilities.

The only difference between the three stores is the type of **Loyalty Scheme** they offer to their customers. These schemes consist of adding points to clients' Loyalty Cards after each purchase. After accumulating 100 points (similar in the three stores), clients can redeem the points to obtain different rewards.

Appendix 17: Second Part, Scenario Description – Experiment 4.

The three shops offer in total a **£10 Loyalty Reward** after reaching the specified target. Some of the shops allow customers to share part of that reward with other people by sending on-line vouchers on behalf of the customer.

In the following screens you will see how exactly each of the stores will share the £10 Loyalty Rewards between customers and customers' friends.

Appendix 18: "Selfish" Scheme Message – Experiment 4.

Shop A

Shop A offers the entire **£10 Reward** to the customer. This amount can be redeemed at anytime by showing the "Loyalty Card" when paying in the shop.

Appendix 19: Message for condition £5 Reward / Cash Framing / 1 Recipient – Experiment 4.

Shop B

Shop B offers a **£5 Reward** to the customer. This amount can be redeemed at anytime by showing the "Loyalty Card" when paying in the shop.

In addition, **one friend** will receive by e-mail a **£5 voucher**, based on an e-mail address provided by the customer. No additional information, apart from the gift voucher will be sent to the friend by the shop. Specifically, the friend will receive the following message:

Hi!

Your friend **Juan** has decided to share with you part of her/his £10 pounds Loyalty Reward from the shop "Good Coffee".

Gift Voucher

Valid for:
£5 at any *"Good Coffee"* shop

Enjoy it!

Appendix 20: Message for condition £5 Reward / Cash Framing / 2 Recipients – Experiment 4.

Appendix 21: Message for condition £5 Reward / Product Framing / 1 Recipient – Experiment 4.

Appendix 22: Message for condition £5 Reward / Product Framing / 2 Recipients – Experiment 4.

Shop C

Shop C offers the a **£5 Reward** to the customer. This amount can be redeemed at anytime by showing the "Loyalty Card" when paying in the shop.

In addition, **two friends** will receive by e-mail a **voucher valid for a Free Small Coffee or Biscuit** (worth £2.5 each), based on e-mail addresses provided by the customer. No additional information, apart from the gift voucher will be sent to the friend by the shop. Specifically, **each of the friends** will receive the following message:

Hi!

Your friend **Juan** has decided to share with you part of her/his £10 pounds Loyalty Reward from the shop "Good Coffee".

Gift Voucher
Valid for:
Free Small Hot Drink or Biscuit
at any "Good Coffee" shop
(Worth £2.5)

Enjoy it!

Appendix 23: Message for condition £2 Reward / Cash Framing / 1 Recipient – Experiment 4.

Shop B

Shop B offers a **£8 Reward** to the customer. This amount can be redeemed at anytime by showing the "Loyalty Card" when paying in the shop.

In addition, **one friend** will receive by e-mail a **£2 voucher**, based on an e-mail address provided by the customer. No additional information, apart from the gift voucher will be sent to the friend by the shop. Specifically, the friend will receive the following message:

Hi!

Your friend **Juan** has decided to share with you part of her/his £10 pounds Loyalty Reward from the shop "Good Coffee".

Gift Voucher
Valid for:
£2 at any "Good Coffee" shop

Enjoy it!

Appendix 24: Message for condition £2 Reward / Cash Framing / 2 Recipients – Experiment 4.

Appendix 25: Message for condition £2 Reward / Product Framing / 1 Recipient – Experiment 4.

Appendix 26: Message for condition £2 Reward / Product Framing / 2 Recipients – Experiment 4.

Appendix 27: Dependent Variable Format (Scheme rank) – Experiment 4.

Appendix 28: Measure of Expectations Instructions – Experiment 4.

Now, you will see two of the messages again.

Regardless of the ranking of the Loyalty Programmes that you have previously made, you need to give your opinion about how the friends may react after receiving the different gift vouchers.

In each case, different pairs of adjectives will be presented, and you have to indicate a point between each of them that reflects your opinion.

Appendix 29: Example, measure of expectations about sharing the reward with only "One Friend" – Experiment 4.

Hi!

Your friend **Juan** has decided to share with you part of her/his £10 pounds Loyalty Reward from the shop "Good Coffee".

Gift Voucher

Valid for:
£5 at any *"Good Coffee"* shop

After reading the previous message containing the "gift voucher", in your opinion, **your friend may think that you are:**

Thoughtful	O O O O O O O O O	Inconsiderate
Kind	O O O O O O O O O	Unkind
Generous	O O O O O O O O O	Greedy
Selfish	O O O O O O O O O	Giving

Appendix 30: Example, measure of expectations about sharing the reward with "Two Friends" – Experiment 4.

Hi!

Your friend **Juan** has decided to share with you part of her/his £10 pounds Loyalty Reward from the shop "Good Coffee".

Gift Voucher

Valid for:
£2.5 at any *"Good Coffee"* shop

After reading the previous message containing the "gift voucher", in your opinion, **your friend may think that you are:**

Kind	○ ○ ○ ○ ○ ○ ○ ○ ○	Unkind
Generous	○ ○ ○ ○ ○ ○ ○ ○ ○	Greedy
Selfish	○ ○ ○ ○ ○ ○ ○ ○ ○	Giving
Thoughtful	○ ○ ○ ○ ○ ○ ○ ○ ○	Inconsiderate

Appendix 31: Fears of Negative Evaluations Scale, Part 1 – Experiment 4.

In the following section, you need to read each of the following statements carefully and indicate how characteristic it is of you according to the scale presented:

|	Not at all characteristic of me	Slightly characteristic of me	Moderately characteristic of me	Very characteristic of me	Extremely characteristic of me
I worry about what other people will think of me even when I know it doesn't make any difference.	○	○	○	○	○
I am unconcerned even if I know people are forming an unfavorable impression of me.	○	○	○	○	○
I am frequently afraid of other people noticing my shortcomings.	○	○	○	○	○
I rarely worry about what kind of impression I am making on someone.	○	○	○	○	○

Appendix 32: Fears of Negative Evaluations Scale, Part 2 – Experiment 4.

	Not at all characteristic of me	Slightly characteristic of me	Moderately characteristic of me	Very characteristic of me	Extremely characteristic of me
I am afraid others will not approve of me.	○	○	○	○	○
I am afraid that people will find fault with me.	○	○	○	○	○
Other people's opinions of me do not bother me.	○	○	○	○	○
When I am talking to someone, I worry about what they may be thinking about me.	○	○	○	○	○
	Not at all characteristic of me	Slightly characteristic of me	Moderately characteristic of me	Very characteristic of me	Extremely characteristic of me
I am usually worried about what kind of impression I make.	○	○	○	○	○
If I know someone is judging me, it has little effect on me.	○	○	○	○	○
Sometimes I think I am too concerned with what other people think of me.	○	○	○	○	○
I often worry that I will say or do the wrong things.	○	○	○	○	○

Appendix 33: Sample explorative figures - Experiment 1.
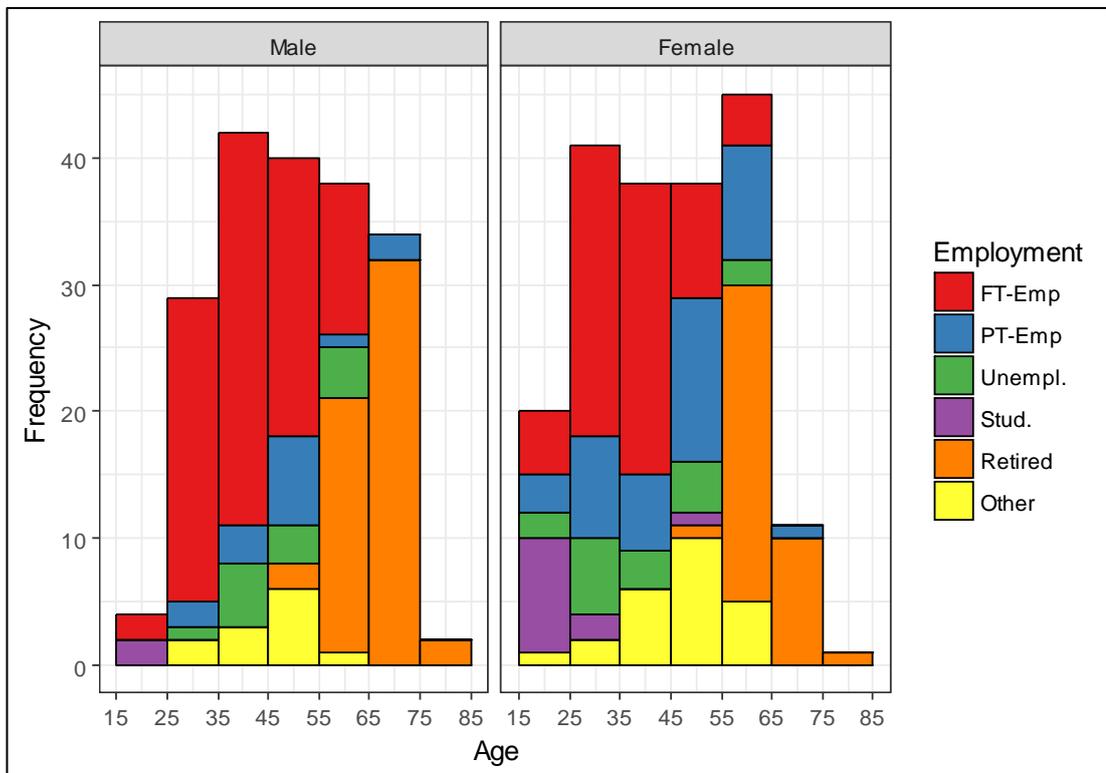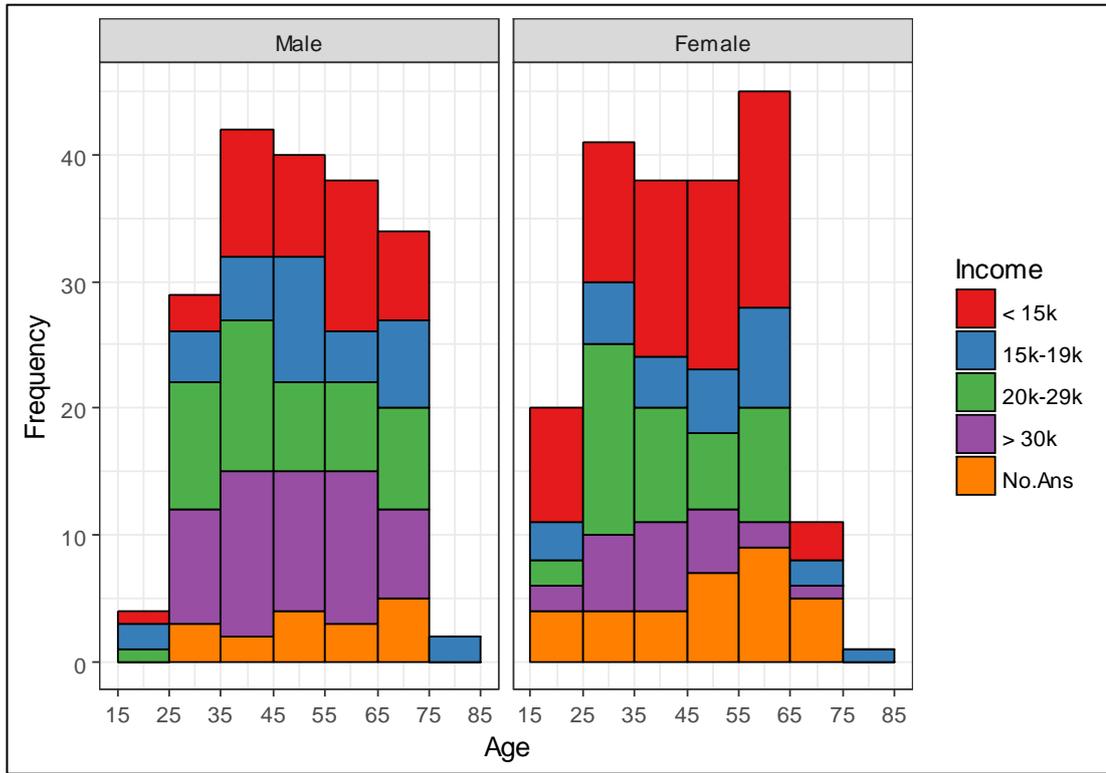
Appendix 34: Sample explorative figures - Experiment 2.
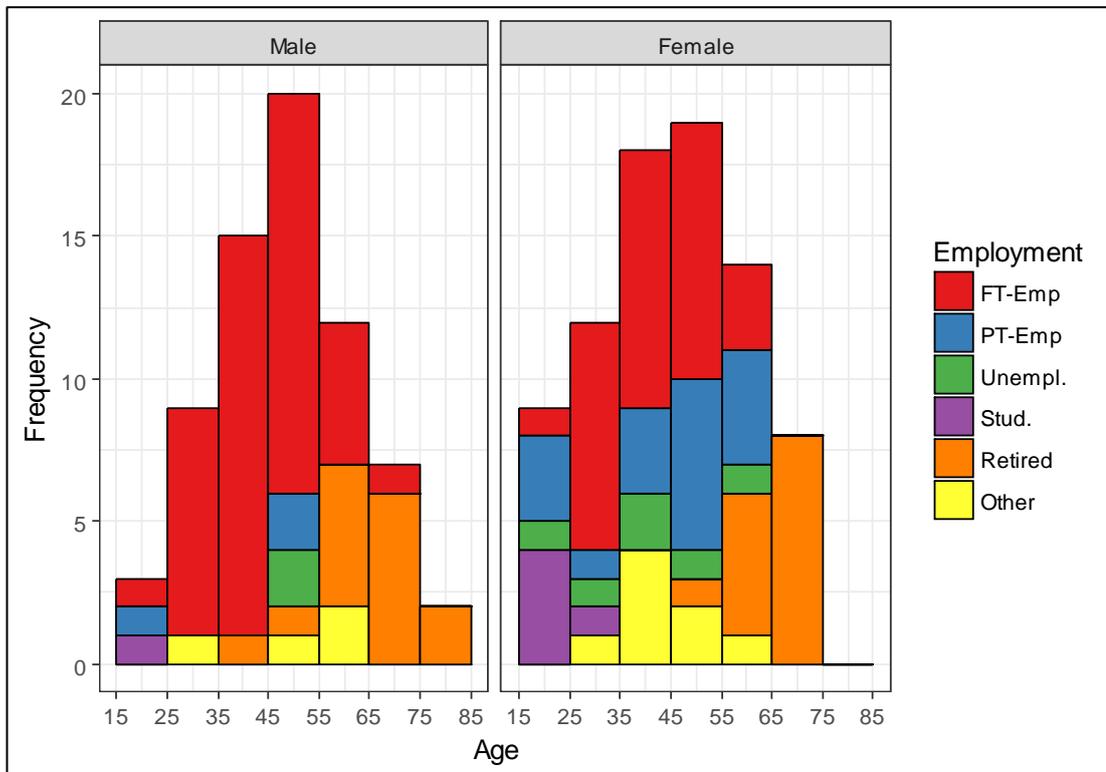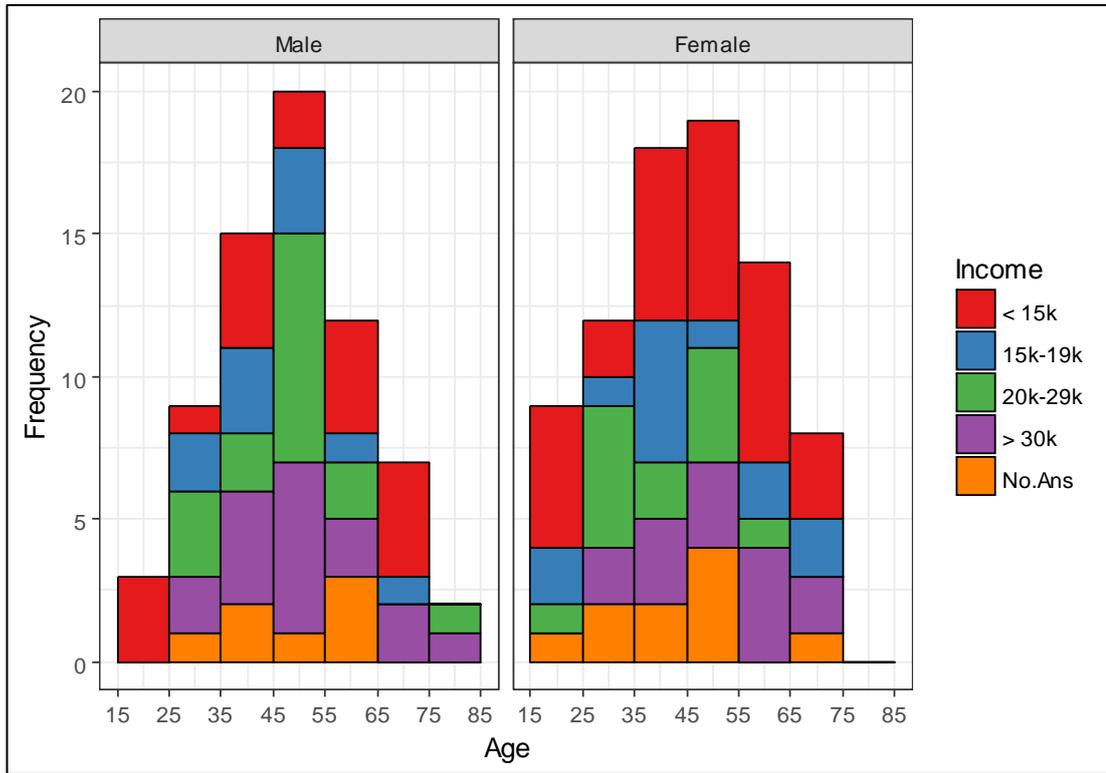
Appendix 35: Sample explorative figures - Experiment 3.

Appendix 36: Sample explorative figures - Experiment 4.