Personality Traits, Fair Division Strategy Equity Preferences and Levels of Trust.

Chris Quinn

Submitted in partial fulfilment of the requirements of the B.A. Hons in Psychology at Dublin Business School, School of Arts, Dublin.

Supervisor: Dr. Gary Prentice
Head of Department: Dr. S. Eccles

March 2014
Department of Psychology
Dublin Business School.
## Table of Contents

Acknowledgements .............................................................................................................................. 3  
Abstract ................................................................................................................................................ 4  
1 Introduction ....................................................................................................................................... 5  
  1.1 Fair division ...................................................................................................................................... 6  
  1.2 Personality Traits .............................................................................................................................. 8  
  1.3 Economic Theories of Personality ............................................................................................... 9  
  1.4 Economic Preferences and Personality Traits ............................................................................ 10  
  1.5 Rationale ....................................................................................................................................... 12  
  1.6 Hypotheses ...................................................................................................................................... 13  
2 Methods ........................................................................................................................................... 15  
  2.1 Participants ..................................................................................................................................... 15  
     2.1.1 Sampling ................................................................................................................................. 15  
     2.1.2 Inclusion Criteria .................................................................................................................... 16  
     2.1.3 Exclusion Criteria ................................................................................................................... 16  
  2.2 Design ......................................................................................................................................... 16  
  2.3 Materials ..................................................................................................................................... 16  
  2.4 Procedure .................................................................................................................................... 18  
3 Results ............................................................................................................................................. 21  
  3.1 Descriptive Statistics .................................................................................................................... 21  
  3.2 Inferential Statistics ....................................................................................................................... 23  
4 Discussion ....................................................................................................................................... 28  
  4.1 Aims ............................................................................................................................................... 28  
  4.2 Summary of Findings ....................................................................................................................... 28  
  4.3 Strengths and Limitations ............................................................................................................... 31  
  4.4 Implications and possible applications ....................................................................................... 32  
  4.5 Conclusion ................................................................................................................................. 32  
5 References ....................................................................................................................................... 34  
6 Appendices ....................................................................................................................................... 38  
  Appendix A: Questionnaire Introduction ......................................................................................... 38  
  Appendix B: Questionnaire Demographic Questions ...................................................................... 39  
  Appendix C: Big Five Inventory .......................................................................................................... 40  
  Appendix D: Experimental Scenarios ............................................................................................... 42  
  Appendix E: Questionnaire Debriefing ............................................................................................. 44  
  Appendix F: Normality Histograms ................................................................................................... 45
Acknowledgements

I would like to thank my supervisor, Dr. Garry Prentice for all his help and suggestions throughout the project, as well as the rest of the teaching staff of DBS.

Many thanks go out to all those who volunteered to participate in the study.

I'd also like to thank my wife Lucy for her understanding and support throughout the study, as well as her patience, encouragement and tolerance, and to Dave Curran whose conversations helped contribute to and clarify the original ideas behind the study.

Finally I'd like to thank my cat Edison who made sure to keep my notes warm for me, encouraged a healthy work-play ratio and was constantly offering to help with typing.
Abstract

Fair division strategies involve the splitting up of resources in such a way that each participant receives a fair or equitable share. Factors which may influence the preference of these strategies have been the subject of much research in both the economical and psychological fields. These include the big five traits of agreeableness, extraversion and gender, age and education levels. 110 participants completed a questionnaire measuring big five trait levels and measuring equity of division strategy preferences in partner, network and general trust level scenarios. The study showed a positive relationship between extraversion and higher education levels with equity of fair division strategies and a preference for more equitable strategies for closer trust levels.
1 Introduction

Fair division of resources is one of the most fundamental issues in any social society. It involves the division of goods or resources amongst multiple people in such a way that each person receives a fair share (Schneider & Krämer, 2004). This can apply to many different situations, such as divorce proceedings, inheritances, allocation of mining rights, cost sharing in communication networks, cutting a birthday cake or sharing a taxi cab. Due to this, there has been a significant amount of research in the economic and mathematical fields around different types of strategies which may be used in fair division tasks, although as of yet, there is no universally accepted method (Daniel & Parco, 2005). Various solutions for divisible goods (such as cash) have been proposed, such as proportional payment based on usage (Littlechild & Owen, 1973), proportional savings based on surplus (Shapley, 1973), or simply splitting costs equally regardless of other considerations. These solutions can have varying degrees of equity or fairness depending on the circumstances of the participants.

These strategies can be modelled mathematically in game theory through games such as the Dictator Game where one person is responsible for the division of resources between themselves and other participants (Bolton, Katok & Zwick, 1998). Economic and game theory strategies assume that participants would attempt to maximise their own shares, however research has shown this to not be the case (Bardsley, 2008; Fehr & Schmidt, 2006; Heinrich et al, 2001; List 2007). Recent research has suggested that psychological traits of personality need also be taken into account when determining choice of division strategy (Borghans et al, 2008). Agreeableness from the Big Five personality trait model (Costa & McCrae, 1992) has been positively linked with more equitable division strategies (Ben-Ner, Kong & Putterman, 2004) while extraversion has been negatively linked (Brandstatter & Guth, 2002).

Another important factor in the choice of fair division strategy is the context of the
relationship between participants. Studies have shown that higher levels of trust between participants lead to the selection of more equitable division strategies (Bohnert & Zeckhauser, 2004; Cox, 2004). Other factors which may influence the choice of division strategy are gender and age, where females and older participants are both positively associated with more equitable division strategies (Dohmen et al, 2008), and education level where higher levels of education are positively associated with more equitable division strategies (Bekkers, 2007).

The aims of this research therefore are to investigate the relationships between the choice of fair division strategy and personality traits, taking into account the levels of trust between participants and other factors such as gender, age and education level which may also influence this choice. The results from the research should help contribute to the literature within the fields of psychology and economics and may produce useful information for further research.

1.1 Fair division

A fair division problem can be defined as a situation with a set of \( N \) participants (\( P_1, P_2 \ldots P_N \)) and a set of goods or resources \( S \). \( S \) should be divided into \( N \) shares, such that each participant receives a fair share of \( S \), where fairness is defined as having the criteria of proportionality, envy-freeness, equitability, efficiency and truthfulness (Schneider & Krämer, 2004). A fair division strategy is a set of rules that when applied properly should produce a fair division of \( S \). The more criteria that the strategy meets, the fairer it is. Proportionality refers to the participant’s receiving a share of \( S \) according to their relative importance. Envy-freeness refers to the participant’s acceptance of their share of \( S \); they would not want to trade their share with any other participants. Equitability is a subjective criterion. Brams & Taylor, 1996, p241 define equitability as “An allocation is equitable for two players if each player thinks that the portion he or she receives is worth the same, in terms of his or her valuation, as the portion that the other player receives in terms of that player’s valuation.” Efficiency refers to pareto efficiency, whereby \( S \) is divided in such a way that it is
impossible to increase any individual participant's share without decreasing another’s (Crawford, 1977). Efficiency does not guarantee fairness on its own however, a 90-5-5 split between three participants would be efficient, but it may not be fair. Truthfulness assumes that participants express their preferences honestly and are not lying about their preferences in order to obtain a larger share.

It is also assumed that the participants are capable of determining that their share is fair, and that they can assign values to $S$ and to subdivisions of $S$. A fair division strategy should have the following characteristics - it should be decisive (following the rules should ensure a fair division of $S$), it should involve only the participants and require no outside intervention, participants should have no knowledge of each other's value systems and participants should be rational and make logical decisions. Strategies can also be applied to different types of fair division problems. Continuous fair division strategies apply to situations where $S$ is composed of divisible goods such as money or land, while discrete fair division strategies apply to situations where $S$ is composed of non-divisible goods such as a house or a car.

Modern research into fair division began in the late 1940s with Knaster, 1946 and Steinhaus, 1948 who looked at fair division strategies for more than two participants. Research continued in this area with Shapley, 1953 and Littlechild & Owen, 1973. Shapley, 1953 developed the concept of the Shapley value, whereby a surplus is generated through the coalition of multiple participants. The different participants may have different contributions or have different bargaining power within the coalition. The Shapley value gives a value to how the surplus may be divided up amongst the participants and has applications in real world fair division scenarios such as ISP traffic sharing agreements (Ma et al, 2010), power transmission costs (Tan & Lie, 2002) and pollution cost reduction (Petrosjan & Zaccour, 2003). Littlechild & Owen, 1973 developed a solution for a type of fair division problem known as the airport problem. This can be defined as a class of problem whereby participant’s needs are ordered and if one participant’s needs are met, so are those with smaller needs. In Littlechild & Owen, 1973 the example used was the distribution of costs of an
airport runway among different airlines that require runways of different lengths; however this could also be generalized to include access to irrigation from a river (Ambec & Sprumont, 2002) or similar types of issue.

1.2 Personality Traits

The Big Five model of personality specifies five personality dimensions or traits – openness, conscientiousness, extraversion, agreeableness, and neuroticism (Costa & McCrae, 1992). These five dimensions broadly represent an abstract view of personality, with each dimension containing six lower level facets of more narrowly defined traits (Coasta & McCrae, 1992). The Big Five model was based on the lexical hypothesis by Allport & Odbert, 1936 who suggested that the most important individual differences in personality were likely to have been encoded in language. They used dictionaries to determine that there were 17,953 words which could be used to describe personality. This was later reduced to 4,505 adjectives which described personality. When the statistical technique of factor analysis (a method of determining what common "factors" exist between a set of related variables), it was found that these personality descriptions could be reduced down to the five super-factors mentioned above.

The Big Five model is considered a comprehensive framework for personality (McCrae & John, 1992). It is based on some of the tenets of trait theory, whereby it states that individuals can be characterised in terms of relatively enduring patterns of thoughts, feelings and actions, that traits can be quantitatively assessed and that they show some degree of cross-situational consistency (McCrae & Costa, 1999, p160). Research has shown the Big Five model to be relatively consistent across cultures with one study showing similar results in 56 countries (Schmidt et al, 2007). Some researchers have argued that this may be a “biologically based human universal” which is independent of language or other culture differences (McCrae & Costa, 1997; Yamagata et al, 2006). Some support for a link between personality traits and neurological regions has been shown
(DeYoung et al, 2010; Taki et al, 2013) however this may apply only to literate, urban populations. 

Research on an indigenous, preliterate society in Bolivia did not show strong support for the Big Five model (Gurven et al, 2013). There has also been debate about the number of factors that the model should contain, with a three factor model consisting of psychoticism, extraversion and neuroticism also suggested (Eysenck, 1991).

Research into the stability of the big five traits has shown that they are relatively stable over long periods of times (Hampson & Goldbery, 2006; Soldz & Vailant, 1999), although they are less stable when transitioning from late teens to early adulthood (Hopwood et al, 2011). Some do tend to drift over time, for example agreeableness is positively correlated with age (Lucas & Donnellan, 2009). Measures of the big five traits have also shown to successfully predict behaviour based on the descriptions of their component facets (Paunonen, 2003; Paunonen & Ashton, 2001). Criticisms of the big five model include the fact that the model is atheoretical, i.e., it is derived from factor analysis of self-reported tests and not from an underlying theory explaining how and why the traits exist (Eysenck, 1992) and that factor analysis involves a subjective grouping of factors together (Block, 1995).

1.3 Economic Theories of Personality

Unlike the Big 5 model above, economic models of personality tend to believe personality is almost entirely situational, determined entirely by constraints and incentives within that situation. Any stability seen in personality is due to the similarity of situations that the individual finds themselves in. This is similar to theories out forward in the psychology field by Mischel, 1968. This extreme situation-behaviour model is not currently accepted by psychologists, newer models include cognitive-affective aspects as determining personality (Mischel, 2008; Mischel & Shoda, 2009) and where behaviour is consistent across specific if-situation, then-behaviour scenarios (Mischel, 2004).

Economic views of the individual focus on how individuals choose to fulfil their wants and
needs with limited resources, and what factors influence those choices. It assumes individuals are rational in these decisions and operate purely out of self-interest (Rabin, 1998). Utility is the economic term referring to the satisfaction received from consuming goods or products. As a consumer consumes a good however, they receive less and less utility from each additional increase in consumption. Economic theories assume that individuals seek to maximise their utility whilst operating under a system of preferences, constraints and expectations (Rabin, 1998). Traits in these models are aspects of individuals which affect productivity in skills (Heckman, Stixrud & Urza, 2006), and can include not only personality characteristics but other aspects such as height or problem solving ability. The individual can perform a task with a certain level of productivity, which depends on the traits of the individual, and the effort they put in. Effort is assumed to be a fixed amount, so different levels of traits can lead to advantages for certain individuals in particular tasks (Heckman et al, 2006). Productivity can also be affected by the context of the situation, and the constraints of the actions available. This will lead to a preference for particular tasks for an individual (Almund et al, 2011). These tasks lead to a particular output, which can then be spent on goods or products to be consumed. A utility function can then be written in such a way to take all these factors into account (Almund et al, 2011). Behaviour then is defined as pattern of responses that individuals engage in response to constraints, traits and situations that they find themselves in, and it is the actions that the individuals engage in that identifies the traits (Almund et al, 2011), a model which is comparable to that of Mischel's if-then model (Mischel, 2004).

1.4 Economic Preferences and Personality Traits

Various attempts have been made to link economic preference parameters such as altruism, reciprocity and trust to personality traits. Altruistic actions are unselfish actions which the individual does not directly benefit from (Andreoni & Miller, 2002) According to standard economic self-interest theories, these actions should occur at much lower rates than are seen in laboratory experiments or in real life as individuals seek to maximise their own outputs (Charness
Theories of altruism then assume that the utility of others can influence an individual's utility either directly (pure altruism), through the feel-good factor of helping others (impure altruism) or because of a desire to decrease inequality between well-beings of the individual and others (Meier, 2006). These are used to explain a number of behaviours such as charitable donations (DellaVigna, List & Malmendier, 2012), volunteering for fire fighting (Carpenter & Meyers, 2010) and behaviour in laboratory experiments like dictator games (Andreoni & Miller, 2002). Altruism is also context specific, individuals will act altruistically towards others who are worse off than themselves, but punish those who are better off (Fehr & Schmidt, 1999). Altruism has also been examined by evolutionary psychologists who believe that altruistic behaviour is an evolutionary strategy. Higher levels of altruism exist between individuals who are more closely related (Curry, Roberts & Dunbar, 2013). Research into links between personality traits and altruism has found positive correlations between agreeableness and altruism (Ben-Ner, Kong & Putterman, 2004; Ben-Ner & Kramer, 2011; Osinski, 2009), and between extraversion and altruism (Ben-Ner & Kramer, 2011, Oda et al, 2014). Altruism is also shown to increase with age (Freund & Blanchard-Fields, 2013) as well as education level (Bekkers, 2007). Bellemare, Kröger and van Soest, 2011 however found strong inequity aversion for lower educated and older respondents so these findings may also be context specific.

Related to altruism is the concept of reciprocity. Economic theories of altruism assume that individuals are concerned only with the utility of their own and other's choices, however theories of reciprocity also take into account the intentions behind other individual's choices. Individuals will react more positively than self-interest models would predict to friendly behaviour and more negatively to hostile behaviour (Fehr & Gächter, 2000). This has been shown in experiments where the pro-social behaviour of an individual increases if told other individual's pro-social behaviour increases also. Research into links between personality traits and reciprocity has suggested a positive relationship between agreeableness and reciprocal behaviour (Dohmens et al, 2008). Some
evidence suggests that there are gender differences between reciprocity with women showing showing higher levels of reciprocity and more equitable fair division strategies (Heinz, Juranek & Rau, 2012).

Another important concept in economic theories are the levels of trust between participants. Most economic transactions require some level of trust between participants, for example providing goods and services in exchange for future payment. These actions can take place at lower cost within higher trust environments (Knack & Keefer, 1997). Trust can be defined at a number of levels. These are partner level (partner and family members), network level (friends and acquaintances) and general trust (strangers) (Couch & Jones, 1997). Trust and reciprocity appear to be linked, studies have shown positive relationships between higher levels of trust and positive reciprocity (Altmann, Dohmen & Wibral, 2008). Research suggests that higher levels of trust between participants leads to higher levels of equity in division strategies (Bohnet & Zeckhauser, 2004; Cox, 2004). Research into links between trust and personality traits have suggested a positive relationship with agreeableness (Dohmen et al, 2008; Mooradian, Renzl & Matzler, 2006) although much of the research has focused on general trust as opposed to distinguishing between the different levels. Levels of trust have been shown to increase with age (Castle et al, 2012) and education level (Hooghe, Marien & de Vroome, 2012), although again these studies studied only general trust.

1.5 Rationale

Previous research on the effect of traits on fair division strategy preferences have taken the personal relationships between participants into account, implicitly assuming that no relationships existed between participants. However, Oda et al, 2014 has found that the effect of personality traits on altruism differs depending on the relationship between participants. Agreeableness contributed only towards altruistic behaviour towards friends and acquaintances (network trust level), while extraversion contributed to family (partner trust level), friends and acquaintances (network trust level) and strangers (general trust level). Similarly little research done on the effects of trust levels
on economic preferences has taken personality traits into account when doing so.

Research on the effects of extraversion on economic preferences has shown mixed results. Extraversion has been found to be positively linked with altruistic behaviour (Ben-Ner & Kramer, 2011, Oda et al, 2014) but also negatively linked with preferences for more equitable division strategies (Brandstatter & Guth, 2002). It may be that extraversion plays a context specific role with regards to preferences for fair division strategies. Agreeableness has also been shown to have positive relationships with economic preferences which tend towards more equitable division strategies (Ben-Ner & Kramer, 2011; Dohmen et al, 2008; Osinski, 2009).

It is hoped that by looking at both personality traits and levels of trust between participants together with regards to equity of fair division preferences as well as taking into account other factors shown to influence these preferences such as age, gender and education levels that this study can help contribute to the research literature and yield information for further research.

1.6 Hypotheses

Based on the above, it is therefore hypothesised that:

H1) There should be a significant positive correlation between the personality trait agreeableness, and preference for more equitable division strategies.

H2) There should be a significant difference between preference for more equitable division strategies in partner trust scenarios than in network trust or general trust scenarios.

H3) There should be a significant negative correlation between extraversion and preference for more equitable division strategies.

H4) There should be a significant positive correlation between age and preference for more equitable division strategies.

H5) There should be a significant difference in preference for more equitable division strategies between males and females.
H6) There should be a significant positive relationship between higher levels of education and preference for more equitable division strategies.
2 Methods

2.1 Participants

Participants from the general population were requested to participate by filling out an online questionnaire through social media. Invitations to participate with a link to the online questionnaire were posted on Facebook, Twitter and reddit. Participants were required to be over 18. Participants verified their willingness to participate by giving a positive confirmation on the first question in the questionnaire.

The total number of participants was 110. There were 46 (42%) males and 64 (58%) females participating. The participants were also asked to provide their education levels. The mean age of participants was 30.64 years (SD=9.21), with a range of 18 – 67 years of age. 2 participants (1.8%) had primary/elementary school as their highest completed level of education, 28 participants (25.5%) had secondary/high school as their highest level, 12 (10.9%) had a third level certificate or diploma, 37 (33.6%) had a third level bachelor’s degree and 31 (28%) had a Masters or Ph.D. degree.

2.1.1 Sampling.

Participants were self-selected. They were recruited using convenience and snowball sampling methods by posting links to the online questionnaire on various social media sites.

All participants were informed that participation was voluntary, that the results would be anonymous and that they could withdraw at any stage in the introduction to the questionnaire. No incentives were offered to participants to take part.
2.1.2 Inclusion Criteria.

The inclusion criteria used were that participants be over the age of 18 and give permission to participate.

2.1.3 Exclusion Criteria.

The exclusion criteria used were being under the age of 18, refusing to give permission, and withdrawing before the questionnaire was completed.

2.2 Design

This research was a mixed model design, containing both within-subjects and between-subjects variables. A between subjects design was used when testing variables related to overall division strategy preferences (H1, H2 - H6), while a within-subjects design was used when testing participants division strategy preferences for different trust levels (H2). A survey design was used to collect quantitative data. Both correlations and differences were measured.

For H1, the PV was agreeableness score, while the CV was total scenario outcome. For H2, the IV was partner trust scenario outcome while the DVs were network trust scenario outcome and general trust outcome. For H3, the PV was extraversion score, while the CV was total scenario outcome. For H4, the PV was age, while the CV was total scenario outcome. For H5, the IV was gender, while the DV was total scenario outcome. For H6, the IVs were education levels, while the DV was total scenario outcome.

2.3 Materials

The materials consisted of an online self-reporting questionnaire consisting of five parts.
The first part was an introduction to the questionnaire, giving a brief overview of the aims of the study and the following sections (See Appendix A). There was one question prompting the participant to confirm that they were over 18, and that they gave consent to participate. If the participant replied no to this question, they were thanked and directed to a debriefing page.

The second part consisted of a brief section collecting demographic data. This was created by the researcher. Details on participant’s age, gender, nationality, job and education levels were collected (See Appendix B).

The third part consisted of The Big Five Inventory (John, Donahue & Kentle, 1991, John, Naumann & Soto, 2008), a short self-report inventory measuring the big five personality traits of openness, conscientiousness, agreeableness, extraversion and neuroticism (Costa & McCrae, 1992). It consists of 44 items and is designed to be a convenient trade-off between length and domain extent of coverage. Participants are requested to agree or disagree with a number of characteristics which may or may not apply to them, for example “Do you agree that you are someone who is talkative?” (See Appendix C). These characteristics are based on prototypical trait adjectives, which are markers of the big five traits and are presented along with clarifying or contextual information. In the example above, talkativeness is an adjective associated with the trait extraversion (John & Srivastava, 1999, p113). Participants then selected a response from a five point Likert scale with the values "Disagree Strongly" (1), "Disagree a little" (2), "Neither agree or disagree" (3), "Agree a Little" (4) and "Agree Strongly" (5). Separate subscales exist for each of the big five traits mentioned above. This inventory has been shown to have good reliability with alpha reliabilities ranging from 0.75 to .90 with an average of above .80 (John & Srivastava, 1999, p115) and convergent and divergent relations with peer ratings and other big five personality trait instruments (John & Srivastava, 1999, p115). Three month test-retest reliabilities had a mean of .85 with a range of .80 to .90.

The fourth part consisted of six hypothetical scenarios where the participants are asked to
select a division strategy from a choice of three with other participants of varying trust levels (See Appendix D). There are two scenarios for each of three trust levels, partner trust (e.g. friends and family), network trust (e.g. acquaintances) and generalized trust (e.g. strangers) as defined in Couch & Jones, 1997. Division strategies provided range in equity with a high and low strategy provided. Participants were also able to specify their own strategy for the third option. The other participants in the scenarios were given gender neutral names in order to avoid gender effects (Andreoni & Vesterlund, 2001). The hypothetical situations in the scenarios consisted of common every-day fair division tasks such as sharing a taxi, dividing petrol costs or splitting a drinks tab or restaurant bill.

An example scenario was:

"You are sharing a taxi home with your two siblings Jordan and Alex. Each of you is going to your own houses. Normally it would cost you 10 euro, Jordan 20 euro and Alex 30 euro, but as you are sharing, the total cost is only 30 euro, leading to 30 euros saved by sharing. You are getting out at the first stop with 10 euro on the meter.

How would you split the cost of the taxi fare?

1. Offer to pay your siblings at a later date.
2. Split the total cost on the meter (€10) evenly
3. Other (Please specify euro amount) [ ]"

The fifth part consisted of a final debriefing section (See Appendix E), thanking the participants for taking part and providing more information on the research. Contact details were provided again, along with information on how the participant's data would be stored in an encrypted format and destroyed after a year.

2.4 Procedure

Data was collected via an online questionnaire on http://www.kwiksurveys.com. Questions were
uploaded and links to the survey were placed on social media sites such as Facebook, Twitter and reddit. Participants were encouraged to share the link to the questionnaire themselves in order to benefit from a snowball effect. All data was collected via the online questionnaire.

The questionnaire was designed so that it was mandatory to answer each question and skipping questions was not permitted. The questionnaire took between 5 to 15 minutes to complete depending on the participant, including an introduction and debriefing. Participants were informed of the aims of the research and their right to withdraw at any stage during the introduction. Due to the online nature of the questionnaire, the answers of the participants who withdrew were included in the initial dataset downloaded; however this information was removed before beginning analysis. Participants were also informed that once the questionnaire was completed, it would not be possible to withdraw, given the anonymous nature of the questionnaire and confirmed their acceptance of these conditions. Upon finishing the questionnaire, participants were thanked and contact details provided for further information about results.

The dataset from the questionnaire was downloaded in Microsoft Excel format. At this stage, incomplete answers were removed and the dataset was imported into SPSS format (version 21). Recoding of data then took place for certain items of the Big Five Inventory which required reverse scoring (See Appendix C). Recoding also took place for the hypothetical scenario sections in order to convert text answers into numerical answers. The total amount of money offered in the hypothetical scenario outcomes was calculated, along with the amounts for the partner trust (scenarios 1 and 5), network trust (scenarios 2 and 3) and general trust (scenarios 4 and 6) scenarios. For the low equity answers where a number was not provided, the outcome was assumed to be 0. This included the answers for:

Scenario 1, answer 1 - Offer to pay your siblings at a later date.
Scenario 2, answer 1 – Wait to see what their offer is first.
Scenario 3, answer 1 – Wait to see what their offer is first.

Scenario 4, answer 1 – Wait to see what their offer is first.

Scenario 5, answer 1 – Wait for someone else to bring it up.

Scenario 6, answer 1 – Wait to see what their offer is first.

Following recoding, analysis was carried out on the dataset. Post analysis, the dataset was encrypted and stored in a secure location.
3 Results

3.1 Descriptive Statistics

110 participants took part in the study. Of these, there were 46 (42%) males and 64 (58%) females. The mean age of participants was 30.64 years (SD=9.21), with a range of 18 to 67 years of age. A check for normality of age distribution showed a positive skew amongst participants, indicating non-parametric tests should be used for analysis of age-related hypotheses (see Figure 1).

Figure 1 shows a histogram of the age distribution of participants. The mean age is 30.64 years with a standard deviation of 9.21, and the sample size is 110.

Figure 2 shows a pie chart showing the distribution of completed educational levels amongst participants. The majority of participants had at least a third level certificate or diploma or higher, with only 30 (27%) of participants having only completed secondary school or lower.
Table 1 shows the means, medians, standard deviations, skewness and minimum and maximum scores of the big 5 personality traits, openness, conscientiousness, extraversion, agreeableness and neuroticism. The possible scores ranged from between 1 to 5. Mean and median scores were all quite similar and the amount of skewness was between -1 and 1 for all five variables implying that all the variables were approximately normally distributed.

Table 1: Descriptive statistics for Big 5 Personality Traits

<table>
<thead>
<tr>
<th>Variables</th>
<th>N</th>
<th>Mean</th>
<th>Median</th>
<th>SD</th>
<th>Skewness</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agreeableness</td>
<td>110</td>
<td>3.71</td>
<td>3.77</td>
<td>.61</td>
<td>-0.50</td>
<td>1.89</td>
<td>4.89</td>
</tr>
<tr>
<td>Extraversion</td>
<td>110</td>
<td>3.07</td>
<td>3.13</td>
<td>.88</td>
<td>-0.14</td>
<td>1.25</td>
<td>4.75</td>
</tr>
<tr>
<td>Conscientiousness</td>
<td>110</td>
<td>3.47</td>
<td>3.50</td>
<td>.78</td>
<td>-0.33</td>
<td>1.44</td>
<td>4.89</td>
</tr>
<tr>
<td>Neuroticism</td>
<td>110</td>
<td>3.03</td>
<td>3.13</td>
<td>.78</td>
<td>-0.11</td>
<td>1.13</td>
<td>4.88</td>
</tr>
<tr>
<td>Openness</td>
<td>110</td>
<td>3.76</td>
<td>3.85</td>
<td>.62</td>
<td>-0.40</td>
<td>2.00</td>
<td>4.90</td>
</tr>
</tbody>
</table>
Table 2 shows the means, medians, standard deviations, skewness and minimum and maximum values of the money offered in the 6 hypothetical scenarios, shown by total amount, partner trust scenarios, network trust scenarios, and general trust scenarios. Similarly to the personality traits mean and median scores were quite similar, and skewness levels were between -1 and 1 for all variables, implying normal distribution. For partner trust, the minimum score was 3.33 implying that no participants selected the answer associated with the lowest equity division strategy for scenario 1.

Table 2: Descriptive statistics for Hypothetical Scenario Outcomes

<table>
<thead>
<tr>
<th>Variables</th>
<th>N</th>
<th>Mean</th>
<th>Median</th>
<th>SD</th>
<th>Skewness</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>110</td>
<td>66.50</td>
<td>68.33</td>
<td>22.42</td>
<td>-.15</td>
<td>3.33</td>
<td>140.33</td>
</tr>
<tr>
<td>Partner Trust</td>
<td>110</td>
<td>25.79</td>
<td>23.33</td>
<td>9.83</td>
<td>.35</td>
<td>3.33</td>
<td>53.33</td>
</tr>
<tr>
<td>Network Trust</td>
<td>110</td>
<td>13.64</td>
<td>16.00</td>
<td>8.30</td>
<td>.07</td>
<td>0</td>
<td>37</td>
</tr>
<tr>
<td>General Trust</td>
<td>110</td>
<td>27.07</td>
<td>30.00</td>
<td>13.89</td>
<td>-.76</td>
<td>0</td>
<td>60</td>
</tr>
</tbody>
</table>

3.2 Inferential Statistics

Initially, the distributions of age, agreeableness, extraversion, total trust, partner trust, network trust and general trust were checked for normality, using histograms and checking skewness values (See Appendix F). Age was found to be positively skewed so non-parametric tests were used for testing hypotheses related to age. The other variables were found to be approximately normally distributed, so parametric tests were used during analysis.

Once the shape of the distributions had been determined, various statistical tests were carried out to determine which if any hypotheses could be accepted. A Pearson’s correlation was carried out to investigate if significant relationships existed between agreeableness and total scenario amounts (H1) and extraversion and total scenario amounts (H3). For significant
relationships, follow-up Pearson’s correlations were also carried out on the three types of trust level, partner trust, network trust and general trust. As age was not normally distributed, a Kendall’s tau correlation was carried out to investigate if a significant relationship existed between age and total scenario amount (H4). One-way ANOVAs were carried out to determine if there were significant differences between the equity levels of partner trust scenario outcomes and network and general trust scenarios (H2). An independent samples t-test was carried out to investigate if there was a significant difference between gender and total scenario amount (H5). After performing a scatterplot to check if the relationship between education levels and total scenario amount was monotonic, a spearman's rho test was performed to check if there was a significant relationship between education levels and total scenario amounts (H6). Significant results were found for H2, H3 and H6, implying that there is a significant difference in equity preference between partner trust scenarios and other trust level scenarios, that there is a relationship between extraversion and more equitable division strategies, and that there is a relationship between education levels and more equitable division strategies, although the direction of the relationship between extraversion and equity of division strategies was found to be positive, not negative as predicted. Tests for H1, H4 and H5 did not find significant results.

In order to check H6 - that there is a significant positive relationship between higher levels of education and equity of division strategies, a check for a monotonic relationship between education levels and total scenario amount was first carried out using a scatterplot. Following that, a spearman's rho test was performed. This showed a weak positive correlation between education levels and total scenario amount (rs(108) = 0.248, p = .004). Following this, a one-way ANOVA was carried out to look more closely at the differences between the different education levels and the total scenario amount, partner trust, network trust and general trust levels. Table 3 shows the means, standard deviations, 95% confidence intervals for the mean, minimum and maximum values for total scenario amounts split by education level.
The one way ANOVA showed that there was a significant difference between the five levels of education and the total scenario amount ($F(4, 105) = 2.77, p = .031$). Tukey HSD post hoc analysis showed that the differences were significant in nature between the secondary/high school group and the masters or Ph.D. group (mean difference = $-18.76, p = .031$, CI(95%) $-34.89 - -2.95$).

Table 4 shows the means, standard deviations, 95% confidence intervals for the mean, minimum and maximum values for partner trust scenario amounts split by education level.

The one-way ANOVA showed that there was a significant difference between the five levels of education and the partner trust scenario amount ($F(4, 105) = 4.94, p = .001$). Tukey HSD post hoc analysis showed that the differences were significant in nature between the secondary/high school
level and the third level certificate or diploma level (mean difference = -9.88, p = .02, CI(95%) = -18.68 - -1.08), the third level bachelor's degree level (mean difference = -7.70, p = .01, CI(95%) = -14.08 - -1.31) and the masters or Ph.D. level (mean difference = -9.58, p = .001, CI(95%) = -16.23 - -2.94). No significant differences were found between education levels for the network trust scenario (F(4, 105) = 1.90, p > .05) or general trust scenario (F(4, 105) = 0.74, p > .05).

A Pearson’s correlation was carried out in order to test H3 - which a significant negative relationship existed between extraversion and total outcome. However a significant weak positive correlation was found between extraversion (M=3.07, SD=.88) and total outcome (M=66.50, SD=22.42) (r(108) = 0.176, p = .033). This explained 3% of the variance seen. Further tests were carried out to determine if significant relationships existed between extraversion and the three trust scenarios tested, partner trust, network trust and general trust. Significant weak positive correlations were found between extraversion and partner trust scenario outcomes (M=25.79, SD=9.83) (r(108) = 0.191, p = .023) and between extraversion and network trust scenario outcomes (M=13.64, SD=9.83) (r(108) = 0.159, p = .048) explaining 3.6% and 2.5% of the variance seen respectively. No significant relationship was seen between extraversion and general trust scenario outcomes (M=27.07, SD=13.89) (r(108) = .053, p > .05).

A Pearson’s correlation was carried out in order to test H1 - that a significant positive relationship existed between agreeableness and total outcome. No significant relationship was found between agreeableness (M=3.71, SD=.61) and total outcome (M=66.50, SD=22.42) (r(108) = 0.06, p > .05).

A Kendall’s tau b correlation was carried out in order to test H4 - that a significant positive relationship existed between age and total outcome. No significant relationship was found between age (M=30.64, SD=9.21) and total outcome (M=66.50, SD=22.42) (tau b(108) = 0.09, p > .05).

An independent samples t-test was carried out to test H5 - that a significant difference would exist between the total outcome of males and females. No significant difference was found between
the total outcomes of males (M=71.27, SD=25.87) and females (M=63.07, SD=19.04) (t(108) = 1.91, p > .05).
4 Discussion

4.1 Aims

The aim of the research was to investigate the relationships between personality traits, fair division strategy preferences and levels of trust between participants, whilst also taking into account other factors which could potentially have an influence such as gender, age and education levels.

4.2 Summary of Findings

Six hypotheses were developed at the beginning of the study, and significant results were found in three of them. The results showed that there was a significant difference between fair division strategy preferences in partner trust scenarios and other trust level scenarios; that a significant relationship existed between the personality trait of extraversion and fair division strategy preference and that there was a significant difference between education levels and fair division strategy preferences. The significant relationship between extraversion and fair division strategy preference was in the opposite direction (positive) to that which was predicted in the hypothesis however. For education levels, significant differences were found between those whose highest completed form of education was second level (secondary school/high school) and those who had completed some form of third level education (certificate or diploma, bachelor’s degree, masters or Ph.D.) There were no significant results found for the other hypotheses tested, that a significant positive relationship would exist between agreeableness and fair division strategy preference; that there would be a significant positive relationship between age and fair division strategy preference and that there would be significant differences between genders and equity of fair division strategy preferences.
H1 stated that there should be a significant positive relationship between the personality trait agreeableness and a preference for more equitable fair division strategies. Unlike what previous research had suggested (Ben-Ner, Kong & Putterman, 2004), no significant relationship was found between agreeableness (M=3.71, SD=.61) and total outcome (M=66.50, SD=22.42) (r(108) = 0.06, p > .05), so the hypothesis was rejected. Recent research has suggested that agreeableness may be only be a factor for dealing with the network level of trust (Oda et al, 2014), however no relationship was seen at that level either during a followup test comparing agreeableness with network trust (r(108) = 0.03, p > .05).

H2 stated that there should be a significant difference between equity of partner trust level scenarios and between network and general trust level scenarios. Due to the different amounts in the hypothetical scenarios, a direct comparison between the means was not possible. However one-way ANOVAs with education as the factor did show that significant differences were seen for the partner trust level and other trust levels and that the means for the partner trust level were significantly higher. This is in line with previous research (Bohnet & Zeckhauser, 2004; Cox, 2004). As a significant difference was seen between partner trust and the other trust levels, the hypothesis was accepted.

H3 stated that there should be a significant negative correlation between extraversion and preference for more equitable fair division strategies. A significant result was found, however unlike what previous research suggested (Brandstatter & Guth, 2002), a weak positive correlation was found instead (r(108) = 0.176, p = .033). Examining this further, positive weak correlations were found between extraversion and partner trust level scenario outcomes (r(108) = 0.191, p = .023) and between extraversion and network trust level scenario outcomes (r(108) = 0.159, p = .048). No correlation was found between extraversion and general trust level scenario outcomes (r(108) = .053, p > .05). These results are more in line with the relationship between extraversion and altruism which were suggested by Ben-Ner & Kramer, 2011 and Oda et al, 2014. As the result seen was in
the opposite direction to the prediction in the hypothesis, it was rejected, although it may point towards altruism having a larger effect on division strategy preferences than previously thought.

H4 stated that a significant positive relationship should exist between age and preference for more equitable fair division strategies. Contrary to what previous research suggested (Dohmen et al, 2008), no significant relationship was seen between age and total outcome (\(\tau_b(108) = 0.09, p > .05\)), so the hypothesis was rejected. This could be related to the outcome for H1, where a relationship between agreeableness and age was also not seen. Agreeableness has also been shown to increase with age (Lucas & Donnellan 2009), so a non significant result for one of these hypotheses could result in a non significant result for the other which is what was seen here.

H5 stated that there should be a significant difference between the equity of division strategy preferences of males and females. This was based on previous research by Dohmen et al, 2008. While we did see differences between males (71.27, SD=25.87) and females (M=63.07, SD=19.04) regarding their total outcomes, the difference was not significant (\(t(108) = 1.91, p > .05\)). Due to this, the hypothesis was rejected.

H6 stated that there should be a significant positive relationship between higher levels of education and between the equity of division strategy preferences. This was seen in previous research by Bekkers, 2007. A weak positive correlation was seen between higher levels of education and total outcome (\(r_s(108) = 0.248, p = .004\)). Looking more closely, we saw significant differences existed between the masters or Ph.D. level and the secondary/high school level (mean difference = -18.76, \(p = .031\), CI(95%) = -34.89 - -2.95). Looking at education levels and partner trust scenario outcomes, again significant differences were seen between the secondary/high school level, and that of third level certificate or diploma level (mean difference = -9.88, \(p = .02\), CI(95%) = -18.68 - -1.08), third level bachelor's degree level (mean difference = -7.70, \(p = .01\), CI(95%) = -14.08 - -1.31) and the masters or Ph.D. level (mean difference = -9.58, \(p = .001\), CI(95%) = -16.23 - -2.94). No significant differences were found between education levels for the network trust scenario.
outcome \( (F(4, 105) = 1.90, p > .05) \) or general trust scenario outcome \( (F(4, 105) = 0.74, p > .05) \). As a significant positive relationship was shown, the hypothesis was accepted. This may be related to either reduced levels of trust as seen in Hooghe et al, 2012 amongst lower educationed individuals, a stronger sense of inequity with regards to their contributions (Bellemare et al, 2011) or possibly a combination of the two.

### 4.3 Strengths and Limitations

Some of the strengths and limitations of this study are inherent to the online nature of the questionnaire used to collect data. It was not possible to control how or when participants took the questionnaire, however it did enable participants to participate at a time of their own choosing. The online nature of the questionnaire also meant that it was possible to obtain a large, broad representation of participants \( (N=110) \), rather than relying on any one particular cohort. This enabled a good mix of age, nationalities, professions and education levels amongst participants, avoiding any potential issues around relying on student samples. Some sample size issues were still seen however, for example there were only 2 participants with primary/elementary school as their highest completed level of education making comparisons with other levels of education more difficult.

Another limitation of the research was due to the self-reporting nature of the questionnaire. Participants were reporting how they would react in these hypothetical scenarios; however no real money was actually involved. It is possible without the consequences of paying money that participants were merely reporting how they would like to think they would act in these scenarios, rather than how they would act in a similar situation in real life and favour more equitable strategies as a result of social desirability or researcher effect.

A strength of the study was that participants preferred division strategies were measured in a natural way. Rather than forcing participants to choose between pre-set division
strategies chosen by the researcher, participants were allowed enter their own values for what they preferred to offer. The equity of the strategy could then be inferred by the amount offered by the participant. However the hypothetical scenarios were also limited by the fact that they were developed by the researcher and are not standard instruments. Whilst the scenarios are based on common real world experiences, it is possible that researcher bias was an issue when developing the wording of the scenarios, or that there could be concerns about construct validity. Comments from some participants complained about the complexity of some of the division tasks. Mathematical ability was not measured directly, but may been a confounding factor in how they approached the fair division tasks (Peters et al, 2006). Additionally, in a real world scenario, there would typically be some form of negotiation around the division strategy and the final amount offered, however that was not possible within the context of this study.

4.4 Implications and possible applications

The results of this study indicate that further research may be required in order to determine what factors influence an individual's preferences for equity of fair division strategy and that more research needs to be done to bring together the psychological and economical views on personality.

4.5 Conclusion

In conclusion, this study attempted to bring together psychological and economical views of the individual and examine the factors which could have an influence on the equity of fair division strategies. The personality traits of agreeableness and extraversion, as well as gender, age and education levels were examined to determine if there was any relationship existing between them and equity of preferred fair division strategies. Additionally situational context in the forms of differing trust levels (partner, network and general) was also examined to determine if this would
also have an effect on the level of equity seen. Significant positive relationships were seen between extraversion and higher levels of education with preferences for more equitable fair division strategies. More equitable strategies were seen in partner trust levels than network or general trust levels. No relationships were seen between fair division strategy preferences and gender, age and agreeableness. Findings for education levels and partner trust were in line with previous research, however further research should be performed to investigate why the relationship between extraversion and preferences for division strategies seen deviated from that of previous research. Similarly, more research should be performed on relationships between fair division strategy preferences and gender, age and agreeableness.
5 References


Castle, E., Eisenberger, N. I., Seeman, T. E., Moons, W. G., Boggero, I. A., Grinblatt, M. S., &


Appendix A: Questionnaire Introduction

This a short questionnaire for a final year psychology project, which attempts to measure the relationships between personality traits, levels of trust, and preferences for fair division strategies.

All research data gathered from this questionnaire will be treated sensitively and no identifying information will be stored. The data collected upon completion of this questionnaire will be used in a final year psychology project and may be used in other publications. Please feel free to address any questions regarding this research to

Chris Quinn

or

Project Supervisor: Garry Prentice Psychology Department, Dublin Business School.

Please answer the following questions by choosing the options provided. It should take roughly 10 - 15 minutes to complete.

Participants must be over 18 to take part. Submissions from participants under 18 will not be included in the final research project. All participants are free to withdraw at any point while completing the questionnaire. As this is an anonymous questionnaire, it will not be possible to withdraw once the questionnaire has been submitted. By submitting this questionnaire, participants are giving consent to participate in the research project.

Thank you for your assistance.
Chris Quinn

Are you over 18 and wish to continue?

[ ] Yes
[ ] No
Appendix B: Questionnaire Demographic Questions

What is your age? ___
What is your gender? Male [ ] Female [ ]
What is your country of origin? _______________
What is your profession? (if student, please specify course) _______________
What is the highest level of formal education you have completed?
[ ] Never attended school
[ ] Primary/elementary school
[ ] Secondary/high school
[ ] Third level certificate or diploma
[ ] Third level Bachelor's degree
[ ] Masters or Ph.D degree
Appendix C: Big Five Inventory

How I am in general

Here are a number of characteristics that may or may not apply to you. For example, do you agree that you are someone who likes to spend time with others? Please write a number next to each statement to indicate the extent to which you agree or disagree with that statement.

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disagree</td>
<td>Disagree</td>
<td>Neither agree nor disagree</td>
<td>Agree a little</td>
<td>Agree strongly</td>
</tr>
<tr>
<td>Strongly</td>
<td>a little</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

I am someone who…

- [ ] Is talkative
- [ ] Tends to find fault with others
- [ ] Does a thorough job
- [ ] Is depressed, blue
- [ ] Is original, comes up with new ideas
- [ ] Is reserved
- [ ] Is helpful and unselfish with others
- [ ] Can be somewhat careless
- [ ] Is relaxed, handles stress well.
- [ ] Is curious about many different things
- [ ] Is full of energy
- [ ] Starts quarrels with others
- [ ] Is a reliable worker
- [ ] Can be tense
- [ ] Is ingenious, a deep thinker
- [ ] Generates a lot of enthusiasm
- [ ] Has a forgiving nature
- [ ] Tends to be disorganized
- [ ] Worries a lot
- [ ] Has an active imagination
- [ ] Tends to be quiet
- [ ] Is generally trusting
- [ ] Tends to be lazy
- [ ] Is emotionally stable, not easily upset
- [ ] Is inventive
- [ ] Has an assertive personality
- [ ] Can be cold and aloof
- [ ] Perseveres until the task is finished
- [ ] Can be moody
- [ ] Values artistic, aesthetic experiences
- [ ] Is sometimes shy, inhibited
- [ ] Is considerate and kind to almost everyone
- Does things efficiently
- Remains calm in tense situations
- Prefers work that is routine
- Is outgoing, sociable
- Is sometimes rude to others
- Makes plans and follows through with them
- Gets nervous easily
- Likes to reflect, play with ideas
- Has few artistic interests
- Likes to cooperate with others
- Is easily distracted
- Is sophisticated in art, music, or literature
Appendix D: Experimental Scenarios

The following six scenarios will involve fair division tasks such as sharing a taxi, dividing petrol costs, splitting a drinks tab or restaurant bill. All scenarios assume no extra charges and that all participants are aware of their own costs.

Scenario 1) You are sharing a taxi home with your two siblings Jordan and Alex. Each of you is going to your own houses. Normally it would cost you 10 euro, Jordan 20 euro and Alex 30 euro, but as you are sharing, the total cost is only 30 euro, leading to 30 euros saved by sharing. You are getting out at the first stop with 10 euro on the meter.

How would you split the cost of the taxi fare?

1. Offer to pay your siblings at a later date.
2. Split the total cost on the meter (€10) evenly
3. Other (Please specify euro amount) [ ]

Scenario 2) You are out for lunch in a restaurant with your work colleagues Kris, Paris and Lee. You are not feeling very hungry so only order a small dish which comes to 8 euro. The others all order dishes costing 15 euro. With a 7 euro tip, and no extra drinks ordered, the total cost of the meal comes to 60 euro.

How would you propose to divide the cost of the meal?

1. Wait to see what their offer is first.
2. Split the total cost of the bill (€60) evenly between all participants.
3. Other (Please specify euro amount) [ ]

Scenario 3) Whilst waiting for your friend to arrive to a concert, two other friends of theirs, Cassidy and Mel recognise you and join you for drinks. Eventually your friend arrives, and the three of you decide to settle the drinks tab before heading into the concert. Cassidy's drinks cost 4 euro, Mel's cost 10 euro and your drinks come to 8 euro.

How would you offer to split the cost of drinks?

1. Wait to see what their offer is first.
2. Split the total cost of the bill (€22) evenly between all participants.
3. Other (Please specify euro amount) [ ]

Scenario 4) Whilst away abroad on a holiday on your own, your tour guide takes you to a local restaurant for dinner. You are placed at a table with three other members of the tour who you do not know. Your meal comes to 20 euro, and you share a bottle of wine with another member of the group costing 18 euro. The other two members do not drink. Their meals come to 12, 16 and 20 euro, leading the total cost of the meal to be 100 euro with a tip.
How would you propose to split the cost of the bill?

1. Wait to see what their offer is first.
2. Split the total cost of the bill (€100) evenly between all participants.
3. Other (Please specify euro amount) [       ]

Scenario 5) You and your best friend are getting a lift to a wedding with another mutual friend and their partner. The wedding location is over 250km away. It costs roughly 80 euro to go there and back again in petrol costs, regardless of the number of people in the car.

How much would you offer to pay to cover petrol costs?

1. Wait for someone else to bring it up.
2. Split the total cost of the petrol (€80) evenly between all participants.
3. Other (Please specify euro amount) [       ]

Scenario 6) While waiting for a taxi on your own on a busy Saturday night, you start talking to the couple in the line ahead of you. When they find out that they are going in the same direction as you, they offer to share the taxi ride home. As it is cold and raining, and it may be a while for the next taxi, you decide to take them up on the offer. Your normal taxi fare home is 15 euro. They are getting off first and the fare on the meter is 12 euro, but from this location it will cost an extra 5 euro to get home.

How much do you offer to pay?

1. Wait to see what their offer is first.
2. Split the total cost on the meter (€12) evenly between all participants.
3. Other (Please specify euro amount) [       ]
Appendix E: Questionnaire Debriefing

Thank you for completing this questionnaire. The information collected will be used to investigate the relationships between personality, trust levels and preferred fair division strategy preferences. Fair division strategies are used to determine how we divide up resources amongst multiple people in such a way that all people involved receive a fair share.

Should you wish to follow up on this research, please contact Chris Quinn and you will be informed of the results of the research, along with presentation or publication details (if any).

Data collected from completing this questionnaire will be stored in an encrypted format in a secure physical location, and deleted after one year.
Appendix F: Normality Histograms
Figure 6

Histogram of Total Scenario Outcome Distribution

Mean = 68.50
Std. Dev = 22.417
N = 110

Figure 7

Histogram of Partner Trust Scenario Outcome Distribution

Mean = 25.79
Std. Dev = 8.831
N = 110