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„The power of personality traits in allocation decision-making: a secondary analysis of a laboratory experiment“

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## **Abstract**

Individual differences have been addressed by many authors in social sciences, however personality has been neglected. The purpose of this thesis is to investigate the role of personality in social decision-making situations. Prior researches on the role of personality either focused on how personality influences social and economic preferences or on the link between personality and influence in social decision-making. The present thesis intends to combine these two aspects with the help of a secondary analysis of a bargaining experiment. To test personality, the Five Factor Model was included and social preferences were measured with the help of social value orientation. The findings show that two personality dimensions (Agreeableness and Conscientiousness) indicate social preferences and four personality dimensions (Agreeableness, Extraversion, Neuroticism, and Conscientiousness) influence the ability to use structural power. Furthermore, it has been found that the link of personality and bargaining behavior is moderated by social preferences. The findings of the present thesis provide various theoretical and empirical implications for personality psychology, human resource management, and organizational behavior.

**Keywords:** social decision-making, individual differences, personality, Five Factor Model, individual influence, social value orientation, fairness

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# 1 Introduction

## 1.1 Forward to the topic

*“How selfish soever man may be supposed, there are evidently some principles in his nature, which interest him in the fortune of others, and render his happiness necessary to him, though he derives nothing from it except the pleasure of seeing it”* (Smith, 1759/1976, p.9). Contrary to the thought of Adam Smith, traditional economic assumption of self-interest predicts that people aim for as high payoff for them as possible and do not care about others’ payoff. Nevertheless, this assumption is not supported by empirical data; experimental results show that individuals do not act (completely) selfish but are ready to be fair and distribute goods in a more or less equal way. For example, in his meta-study about the dictator game, Engel (2011) found that dictators offer on average 30% of the pie.

But what motivates individuals to care about others’ payoff? Why are some people willing to give up some of their own payoff and act in a fair way? Why do others prefer maximizing their own payoff? A growing interest in the interface between economics and psychology, both on the theoretical and empirical level, is noticeable to answer these questions (Zhao and Smillie, 2015). Individual differences, such as risk-aversion, time preference or altruism have been measured and used by economists and are included in economic models. Nonetheless, personality traits are still neglected (Borghans et.al. 2008), although they differ from the above-mentioned parameters in terms of being provably stable during adulthood and are not situationally determined (McCrae and John, 1992). According to Borghans et.al. (2008), the origin and stability of personality traits are better understood and more extensively studied than the parameters used by economists and hence, they support the use of personality traits.

Greenberg and Baron (2008, p.141) defined individual differences as “the ways in people differ from one another”. Furthermore, individuals differ in their preferred approach to solve a problem (Huitt, 1992). Economic preferences, temper, and personality are all considered individual differences and play a role in problem solving and decision-making. Many of these decision-making situations happen in social context, where social interactions cannot be avoided (Sanfey, 2007). According to Hutzinger (2014), not every individual has the same influence of decision outcomes; some of them are more influential than others. The ability to influence social decision-making situations can be also categorized as individual difference.

Lately, the role of personality has gained popularity in economic psychology, management studies and experimental economics (McCannon and Stevens, 2017). Studies state that measuring personality types helps explaining and predicting the outcomes of bargaining (Barry and Friedman, 1998; Boone et.al., 1999; McCannon and Stevens, 2017). Rustichini et.al. (2012) showed that personality traits predict not only the outcomes of decision-making situations in laboratories but also

the real-world socioeconomic outcomes. Moreover, they found that personality traits are more suitable for prediction of e.g. credit score or job persistence than economic preferences. Thus, personality traits should not be neglected but rather seen as useful tools for better understanding decision-making situations.

## **1.2 Purpose and relevance of the thesis**

It is commonly recognized that personality matters in social decision-making. However, questions still arise about the exact impact of personality and personality traits. In current literature, two distinct directions regarding the role of personality are markable: 1) personality influences economic and social preferences (e.g. Koole et.al., 2001; Hilbig et.al., 2014, Boyce et.al., 2019) and 2) personality has an impact on negotiation process and outcome (e.g. Barry and Friedman, 1998; McCannon and Stevens, 2017). In my thesis, I intend to combine these two aspects of the role of personality and so, the primary research question is formulated as following:

*How and to what extent do personality traits influence allocation decisions in networks (depending on power)?*

In order to answer this research question, I conduct a secondary analysis of a laboratory bargaining experiment, and personality will be included as explanatory variable. According to Zhao and Smillie (2015) bargaining games are suitable for exposing basic social preferences. In previous laboratory experiments where the link between personality traits and decision-making outcomes was examined, economic games were played with two people (e.g. Barry and Friedman, 1998; Brandstätter and Königstein, 2001; McCannon and Stevens, 2017). However, in my thesis I focus on networks of three people and the design also enables to take the role of power into consideration. Hence, my aim is to better understand how different personality traits influence social preferences and the use of structural power for achieving their preferred outcome.

As stated in Greenberg and Baron (2008), working groups have gained more popularity in every types of organizations. People in working groups often have to reach an agreement or make a common decision, however they individually differ in their preferences and abilities. Researches show that personality relates to job and team performance and thus, it should be not neglected in management studies either (Greenberg and Baron, 2008). The experimental design suits for simulating negotiation about scarce resources among people where one party has more power (principal). Thus, the thesis can provide useful insights also for human resources management.

After this Introduction, which presents the background and the relevance of the topic, the thesis is organized as following: Chapter 2 provides a comprehensive overview of theories, concepts, and empirical findings related to individual differences in social decision-making focusing on the role of personality. The research model and the hypotheses are presented in Chapter 3. Chapter 4 summarizes the research design and method. Additionally, a short review of the sample is given. The

testing and detailed analysis of the data (with tables) are presented in Chapter 5. In Chapter 6 the results of the data analysis are discussed in depth, complemented with some criticism. Finally, Chapter 7 concludes the main findings of the thesis. Besides, theoretical and practical significance and implication of the thesis is discussed. Ultimately, the limitations of the study are noted.

## 2 Literature review

### 2.1 Social decision-making

Huitt (1992, p. 34) defines decision making as “a selection process where one of two or more possible solutions is chosen to reach a desired goal.” Predicting the outcome of decisions-making situations is never easy due to the involved uncertainty. This uncertainty derives from the adapting behavior (people fit their behavior to the changing social environment) and from regarding what consequences these decisions have on others (Lee, 2008). Furthermore, not every individual has the ability to influence the outcome of the group decisions equally. By manipulating and misrepresenting information, people can achieve higher influence on group outcomes (Steinel and De Dreu, 2004). This chapter offers a literature overview starting with different theories of social decision-making and then focuses on individual differences in economics, psychology, and negotiation studies. Finally, the role of personality is discussed in depth and the Five Factor Model is presented.

#### 2.1.1 Social impact theory

As a human being, we cannot be completely and perfectly independent from other human beings. We may fear some people, or admire others. Our everyday life is influenced by people around us. Latané (1981) calls this *social impact*, and concretely defines it as “changes in psychological states and subjective feelings, motives and emotions, cognitions and beliefs, values and behavior, that occur in an individual, human or animal, as a result of the real, implied, or imagined presence or action of other individuals” (Latané, 1981, p. 343). Moreover, he provides a general theory of social impact: he identified three key variables: *strength*, *immediacy*, and the *number of sources*. Strength is the sum of factors (such as age, status, power) that determine how influential the source is. Under immediacy we understand the distance in space/time and the possible intervening factors. Finally, the number of sources gives the number of people involved. Three principles, based on the three key variables, shade the theory in more details; Principle 1 (*Social Forces*) says that social impact (I) is equal with the multiplicative function of the three variables. Principle 2 (*The Psychosocial Law*) declares that the first person makes greater impact than the hundredth, so a marginally decreasing effect exists. Finally, according to Principle 3 (*Multiplication Versus Division of Impact*), not only the multiplicative function of sources, but also the multiplicative function of targets has effect on the impact (Latané, 1981).

Sedikides and Jackson (1990) empirically tested the validity of Social Impact Theory. A field experiment was conducted in the Bronx Zoo, where an experimenter was dressed either as a zoo keeper or in casual dress (and thus, it is possible to control for strength since a zoo keeper has more authority and power), who asked visitors not to lean on the railing. Moreover, the size of the groups of visitors was varied (control variable for number of sources). Immediacy was also included since the behavior of visitors was measured immediately after the message and then later. Sedikides and Jackson (1990) found that people followed the rule better if it came from someone dressed as a zoo

keeper, acted properly immediately after the message, and finally, fewer people in smaller groups leaned on the railing than in bigger groups. These empirical results partially support Social Impact Theory since evidence for the more complex predictions of the theory were not found (Sedikides and Jackson, 1990).

### 2.1.2 Social decision scheme theory

The general theory of social decision scheme proposed by Davis (1973) fundamentally addresses the following question: How do individual preferences aggregate and end in a group response (Stasser, 1999). Group decisions are characterized by the diversity in preferences among the involved people and how these diverse preferences will be recognized and included in the group outcome (Davis, 1973). Under social decision scheme Davis (1973) understands a decision rule, which rule guides the social decision-making process. Many existing groups work with formal social decision schemes, e.g. different voting rules like majority wins, other groups aim to reach consensus instead of voting rules (Davis, 1973). Davis' (1973) theory works as a general group decision-making model. First,  $r$  randomly selected group members form individual preferences for a set of  $n$  mutually exclusive and exhaustive alternatives  $A_1, A_2, \dots, A_n$  (Davis, 1973). These individual preferences can be expressed by a probability distribution  $p_1, p_2, \dots, p_n$  across the alternatives (Davis, 1973). Because of the complexity of social processes such as influence, dominance, equity, etc., "group decisions are treated probabilistically" (Davis, 1973, p. 101). With other words, even when the individual preference is known, this preference will be chosen by the group only with some probability (Davis, 1973). Social decision scheme can be described as a social norm, which transforms interactions towards a group decision. Davis (1973) differentiated between social decision schemes such as "majority", "plurality", or "equiprobability". The rule of majority dictates that the majority in individual preference will determine the group response, equiprobability means that every individual preference has the same probability to be selected (Davis, 1973). It is possible to use social decision-making schemes combined (Davis, 1973).

In his original theory, Davis (1973) does not regard intermember differences; individual influence is not taken into account (every member is equally able to influence the group decision), and group members are pictured as indistinguishable and interchangeable (Kirchler and Davis, 1986). Since this initial approach could not explain every aspect of group processes and outcomes (Davis, 1973), Kirchler and Davis (1986) proposed seeing group members as distinguishable. This new approach made it possible to consider individual differences such as personality or expertise (Bonner, 2000). Moreover, not every group member influences group outcome in the same way; some of them are more influential than others (Hutzinger, 2014). Including individual ability to influence others is not the only development of the original theory: Hinsz (1999) extended the model for continuous decisions such as quantities.

## 2.2 Individual differences in social decision-making

People can differ in many different ways from temper to learning style. However, in social decision-making two types of individual differences are salient: social influence and social preference. As proposed by Latané (1981), not every source is equally influential. The differences in individual influence define how well people can enforce their will (based on their preferences) in groups. Regarding social preferences, as mentioned in the Introduction, based on the traditional economic theory, a self-maximizing behavior is expected (which, in this case would mean that the player in power position demands a very high payoff for him) but empirical results (e.g. Kahneman, Knetsch and Thaler, 1986; Andreoni et.al., 2002) do not support that people only want to maximize their profit and do not care about fairness; on the contrary, people not only want to be treated and treating others fairly but are ready to resist unfair firms, even if it costs some money. According to Rabin (1993), if the intention of an action is nice then the action itself is considered fair. On the other hand, a hostile intention is perceived as an unfair action (Rabin, 1993). Moreover, Rabin proposed the theory of reciprocity in 1993, which claims the people tend to reward fair intentions and punish unfair intentions. Fehr and Fischbacher (2002) also denies that motivation is based on only maximizing own profit and highlight the importance of social preferences in economics. Social preferences mean that people “are not solely motivated by material self-interest, but also care positively or negatively for the material payoffs of relevant reference agents” (Fehr and Fischbacher, 2002, C1). Fehr and Schmidt (1999, p. 819) modeled fairness “as self-centered inequality aversion”. Under inequality aversion we understand that individuals willingly give up some of their own payoff in order to create a more equal distribution of goods since they dislike an unequal distribution (Fehr and Schmidt, 1999). However, inequality aversion can derive from egoistic intention “if people do not care per se about inequality that exists among other people but are only interested in the fairness of their own material payoff relative to the payoff of others” (Fehr and Schmidt, 1999, p. 819). Of course, altruistic behavior can be observed not only in laboratory experiments but also in real life; people donate money to charity projects, help their neighbor or old people. Rabin (1993) defines altruism as caring about the well-being of others.

### 2.2.1 Individual differences in economics

Social preferences are usually measured in economic games (Kainz, 2013) with the help of game theory, which is a widely used tool in different disciplines to model, among others, social decision-making situations (Camerer, 2003, Zhao and Smillie, 2015). Under economic games we understand decision-making tasks which illustrate strategic situations (Camerer, 2003; Zhao and Smillie, 2015). Economic games have clearly demonstrated that people do not act as the so-called *homo oeconomicus*; the overall rational and completely self-interested agent with perfect information. This neoclassical economic approach expects free riding and maximizing own profit. One of the most famous economic experiments is the dictator game by Güth, Schmittberger and Schwarze (1982),



which game was a pioneer in terms of contradicting the theory of exclusively self-interest man (Fehr and Schmidt, 2006). Later on, by conducting other experiments (such as Dictator Game, Gift Exchange Game or Trust Game) more and more evidence was found for the existence of *other-regarding preferences*. Other-regarding preferences mean that one's utility function counts not only on his own payoff, but also on other people's payoff (Fehr and Schmidt, 2006). Fehr and Schmidt (2006) identified three models of other-regarding preference: social preferences, interdependent preferences, and intention-based reciprocity. First, models of social preferences are based on the assumption the one's utility function depends on other's payoff in his reference group (Fehr and Schmidt, 2006). Taking social preferences into account, agents are considered rational and thus, traditional utility and game theory is applicable (Fehr and Schmidt, 2006). Models of interdependent preferences assume that people also care about the type of their partner; an originally altruistic player adapts to his selfish player and also starts acting in a self-maximizing way (Fehr and Schmidt, 2006). Finally, intention-based reciprocity models include the *intention* of players. Intention differs for the type of the player (altruistic or egoistic); intention can be kind or hostile (Fehr and Schmidt, 2006). Including intention results in more than one equilibrium and thus, the framework of psychological game theory is necessary (Fehr and Schmidt, 2006).

People do not always act in the same way. An altruistic person, who stays altruistic towards to other altruistic individuals, can become hostile towards to hostile individuals since fairness "allows" to hurt someone who does not act nicely (Rabin, 1993). Moreover, there exist evidences that people exploit their bargaining power in competitive market but not in bilateral bargaining situations (Kainz, 2013; Fehr and Schmidt, 1999) and thus, fairness is situation-dependent. Furthermore, the intention behind fairness is often ambiguous. Van Dijk et.al. (2004) examined the difference between self-centered and altruistic fairness and found that proself individuals often strategically use fairness in order to maximize their own payoff.

Concluded, other-regarding preferences do not explain every single aspects of social decision-making outcome. As De Dreu and Gross (2019, p. 214) write; "people systematically differ in how they self-select into, perceive, and act in particular situations". The main difference between economics and psychological approach is that psychologists focus on individual behavior and differences, meanwhile economists examine group outcomes (Kainz, 2013). As Kainz (2013, p. 32) states in his doctoral dissertation, "psychology is indispensable in order to understand economic behavior since it helps describing and explaining the behavior of the individual". Recently, use of psychology in economic models has become more and more popular. Boyce et.al. (2019, p. 82) commented that "simple measures of personality can help to explain economic values and choices in a systematic way". They also argued that personality can be seen as standard socio-economics variables e.g. income or education (Boyce et.al., 2019).

### 2.2.2 Individual differences in psychology

In social psychology, fairness is closely related to altruistic, helping, and pro-social behavior, when people rather cooperate than compete (Kainz, 2013). Social psychologists provide various explanations why people go beyond self-interest: *beliefs* about others' behavior, *relationship characteristics* (e.g. trust), *social norms*, and *social value orientations* (Kainz, 2013). Out of these explanations social value orientations can be categorized as individual difference and thus, it will be discussed in depth.

Psychologists measure individual differences in social motives with the help of the scale *Social Value Orientation* (Kainz, 2013). According to Bogaert et.al. (2008), people systematically differ in social preferences (self-regarding versus other-regarding preferences), and differences in social motives affect valuing cooperation and cooperating behavior. Social value orientation theory enroots in the interdependence theory of Kelly and Thibaut (1978). In this theory, situations are examined where the outcome partially or completely depends on the action of others (Kelly and Thibaut, 1978). The framework of SVO classifies people into types based on their social motives (Schwaninger et.al., 2019). In 1968, Messick and McClintock proposed three categories: prosocial (individuals care about maximizing own and others' outcome), individualistic (maximizing own outcome), and competitive (maximizing the relative difference between outcome for self and other). As stated by Bogaert et.al. (2008), the category *prosocial* is sometimes divided into two sub-categories: altruistic (maximizing outcome for other) and reciprocal cooperators (only cooperate when cooperation is also returned). According to Messick and McClintock (1968), SVO is seen as a trait, which demonstrates how people vary in what they believe fair or unfair. Considering SVO as a trait means that it remains stable (Bogaert et.al., 2008; van Dijk et.al., 2014), however it depends on situation and persons (Kainz, 2013). As Kainz (2013) summarized Yamagishi's findings (1995), even egoistic people cooperate if they trust others and consider the consequences of non-cooperation in the long term.

In the literature, it is commonly recognized that SVO has explanatory power on cooperative strategies, choices, and motives (Bogaert et.al., 2008). According to Bogaert et.al. (2008), SVO only defines the general willingness to cooperate or not to cooperate but the actual behavior is mediated by many contextual factors, such as trustworthiness. Therefore, SVO resembles to personality traits in term of not being independent from situational context.

### 2.2.3 Individual differences in negotiation approach

Study on negotiation is interdisciplinary and it has been strongly influenced among others by game theory and later by social psychology (Thompson et.al., 2010). Negotiations occur very often both in private and business life (Kainz, 2013). When people cannot achieve their goals without cooperating with others, it is called negotiation (Thompson et.al., 2010). According to Thompson (1990) negotiation has five characteristics: 1) negotiators are aware of an interest conflict; 2) they are able to communicate; 3) compromises are available; 4) sending offers and counteroffers is

possible; 5) outcome is only determined if it was accepted by all parties. Negotiation situations can be divided into two categories based on how resources are handled; integrative and distributive bargaining (Thompson, 1990). The main difference between them is, that “integrative bargaining situations are non-zero-sum encounters in which there is the possibility for joint gain from the negotiation” (Barry and Friedman, 1998, p. 348), while in the case of distributive bargaining a fixed amount of resources must be distributed among the negotiators (Barry and Friedman, 1998). Distributive bargaining (with other words zero-sum or fixed pie) is characterized by players having a *reservation value*, which defines the smallest value one party is willing to accept (Barry and Friedman, 1998). Regarding the motivation of bargainers, Pruitt and Rubin (1986) proposed the so-called dual concern model, which means that bargainers are motivated by concerning their own outcome and by concerning the outcome of other parties in the negotiation (Van Dijk et.al., 2004). This theory is based on two opposite motives; fairness and self-interest (Van Dijk et.al., 2004). How much an individual is concerned with his own versus others’ outcome varies from individual to individual.

Conventional wisdom suggests that some people naturally have better abilities to negotiate than others and are more successful. Hence, individual differences such as gender, personality, intelligence, etc. have been examined also in negotiation studies. These researches present ambiguous result; lots of them emphasize that individual differences play an important role in bargaining (e.g. Barry and Friedman, 1998; Elfenbein et.al., 2008; McCannon and Stevens, 2017; Falcao et.al., 2018), others argue that individual differences do not predict consistent prediction of bargaining behavior (e.g. Thompson, 1990). After many years of inconsistent results, Elfenbein (2015) conducted a meta-analysis and concluded that individual differences are indeed important predictors in negotiations and should not be neglected in future researches. Elfenbein (2015) found that the performance of negotiators stayed consequently the same from one encounter to the next, and thus, individual differences do matter.

The role of power must be mentioned in negotiation studies. Power is defined as the ability to influence other people; hence power is never an absolute value: someone’s individual power can be only interpreted as a relation to another person’s individual power (Anderson and Thompson, 2004). Power in negotiations can derive from different origins; Anderson and Thompson (2004) distinguish between different sources of power, such as authoritative power or when the powerful individual is in the position to hurt the other party.

### **2.3 The role of personality**

There are some individuals who are more egoistic and others are more altruistic, some people are ready to cheat meanwhile others stay honest. It indicates introducing further explanatory factors; a plausible chose is personality. But what is personality at all? Defining personality is not an easy task; researchers from different schools have provided different definitions during the years. Cattell, who

represents the trait-based approach, defines personality as “that which permits a prediction of what a person will do in a given situation” (Cattell, 1950, p. 2). The definition of behaviorist (another school in personality psychology) provides a rather spare interpretation and focuses on the behavior itself (Cloninger, 2009). Finally, the school of personological trait approach takes both personality traits and the integration of the whole person into consideration (Cloninger, 2009). The current state of art interprets personality as a “resulting pattern of habitual behaviors, cognitions, emotional patterns” deriving from environmental and biological factors” (Cloninger, 2009, p. 5).

The idea of including personality as an explaining variable in economic and bargaining games is not new. Brandstätter and Königsten (2001, p. 67) stated: „...it is worthwhile to take basic personality dimensions into account if one tries to explain economic behavior in experimental games”. The role of personality appears on two different levels: on the one hand, personality influences economic choices (Boyce et.al., 2019), on the other hand, Barry and Friedman (1998) also emphasize the relevance of personality in order to better understand negotiation processes and outcomes. It is important to notice that personality traits cannot be considered independent from the economic environment, such as size of quantity, first-mover advantage or asymmetrical information (McCannon and Stevens, 2017). Measuring and including personality has the advantage that personality remains stable during adulthood and psychologist already recognized as an effective predictor of behavior (Boyce et.al., 2019). Moreover, measuring personality can be conducted in a simple way by using well-established surveys (Boyce et.al., 2019).

On the level of economic and social preferences, many researches have proven that personality matters. Boone et.al. (1999) concluded that personality of players in Prisoner’s Dilemma clearly matters. Moreover, time preferences are affected by intelligence (which is part of the Openness dimension), and Neuroticism is related to risk preferences (Rustichini et.al., 2012). Boyce et.al. (2019) found that personality also shapes preferences toward status quo and sensitivity to cost. Furthermore, personality influences social relationships (Asendorpf and Wilpers, 1998) and political voting behavior (Schön and Schumann, 2007). Hilbig et.al. (2014) found that personality also indicates social preferences, such as prosocial behavior. Dohmen et.al. (2008) likewise found that personality has an impact on social preferences, more concretely on trust and reciprocity. Oda et.al. (2014) discovered that personality traits play a role in altruistic behavior in real life.

In negotiation studies, the influence of personality is also supported (Barry and Friedman, 1998; Elfenbein, 2008; McCannon and Stevens, 2017). Boyce et.al. (2019, p. 201) found a “multidimensional relationship between personality and situational variables”. According to McCannon and Stevens (2017, p. 1166), “personality traits of individuals contribute to the ability to predict bargaining outcome”. Taking personality into account can help organizations to perform better in negotiation situation (McCannon and Stevens, 2017). Hence, personality characteristics are useful to include in frameworks (McCannon and Stevens, 2017). Deuling et.al. (2011) noticed that personality has an impact on individual influence on group decisions. However, it must be

highlighted that personality itself does not define individual influence and other factors (e.g. cognitive ability, power) also play an important role (Deuling, 2011).

### 2.3.1 Big Five

One of the most widely used tool for personality measurement is the trait-based Five Factor Model from McCrae and Costa (1989). In this model, five basic dimensions have been discovered and are labeled as; Agreeableness, Extraversion, Neuroticism, Conscientiousness, and Openness. These five dimensions are now considered as a general taxonomy of personality dimensions (John, Naumann and Soto, 2008). Every one of the dimensions stands for a continuum on which personality can be categorized (Hutzinger, 2014). Neuroticism, for example, represents a scale from being anxious, insecure, and nervous (people high in Neuroticism) to being stable and calm (people low in Neuroticism) (John, Naumann and Soto, 2008). Nevertheless, it is important to mention that the Big Five model does not explain the sources of the five dimensions but provides a description of personality (Rustichini et.al., 2012).

As McCrae (2009, p. 148) stated, the structure of the model “arises because the traits co-vary” and a consensus among researchers was achieved that these five factors suit well to cover the co-variation of most personality traits. Hence, by using the Five Factor Model it is possible to avoid overlooking important traits (McCrae, 2009). According to Zhao and Smillie (2015, p. 279), “the five broad domains of personality capture the basic structure of personality”. There exists a hierarchical structure of personality traits related to Big Five; it means that each domain of the Big Five contains of various facet-level traits and every one of the domains can be divided into two separate but correlated aspects, and these aspects help predicting outcomes (Rustichini et.al., 2012). Zhao and Smillie (2015) state that the aspects and facets have strong descriptive and predictive power of behavior.

Originally, psychologists applied the so-called *lexical approach* for studying personality (John, Naumann and Soto, 2008). Using dictionaries, descriptors of people were studied and categorized. The Five Factor Model also derives from clustering descriptors and thus, the dimensions are related to various adjectives (John, Naumann and Soto, 2008). Figure 1 illustrates which adjectives are mostly related to the five dimensions (based on John, Naumann and Soto, 2008).

	<b>Agreeableness</b>	<b>Extraversion</b>	<b>Neuroticism</b>	<b>Conscientiousness</b>	<b>Openness</b>
High	sympathetic	talkative	tense	organized	wide interests
	kind	assertive	anxious	thorough	imaginative
	appreciative	active	nervous	planful	intelligent
Low	cold	quiet	stable	careless	commonplace
	unfriendly	reserved	calm	disorderly	simple
	quarrelsome	shy	contented	frivolous	shallow

Fig. 1. Adjectives related to Big Five Dimensions

### 2.3.1.1 Agreeableness

Agreeableness is characterized by caring of other's feeling and needs (Zhao and Smillie, 2015). Moreover, people high in Agreeableness are predicted to be flexible, good-natured, tolerant and cooperative (Barrick and Mount, 1991). They appreciate harmony with other people around them and maintaining good relationship is important to the (De Dreu and Gross, 2019). Low level of Agreeableness can lead to conflicts between group members (Kramer et.al., 2014) and they tend to act unfriendly, uncooperative (De Dreu and Gross, 2019), and suspicious (Schön and Schumann, 2007). Agreeableness is divided into Compassion and Politeness (Rustichini et.al., 2012). Moreover, lower-level facets of Agreeableness contain altruism, modesty, tender-mindedness, compliance, straightforwardness, and trust (Zhao and Smillie, 2015).

### 2.3.1.2 Extraversion

Extraversion is related being talkative, sociable and out-going (Zhao and Smillie, 2015; Barrick and Mount, 1991) and predicts success in sales and management jobs (John, Naumann and Soto, 2008). Extraverted people get their energy from external activities/situations, enjoy being around others (De Dreu and Gross, 2019), and tend to be more active in group discussions (Littlepage et.al., 1995). Furthermore, groups of solely extraverted people perform better at brainstorming tasks (Kramer et.al., 2014). According to Deuling et.al. (2011), Extraversion positively relates to leadership effectiveness. Extraversion moderates the amount of time spending in social interactions and size of the peer networks (Asendorpf and Wilpers, 1998). Koole et.al. (2001) found the Extraversion negatively relates to cooperation. Barry and Friedman (1998) found that Extraversion is both an asset and a liability depending the type of the negotiation. The opposite of Extraversion is Introversion, which is characterized by being reserved, cautious, and even shy (Roccas et.al., 2002). The two aspects of Extraversion are Assertiveness and Enthusiasm, where Assertiveness reflects leadership, drive, and dominance and Enthusiasm reflects positive emotions and sociability (Rustichini et.al., 2012).

### 2.3.1.3 Neuroticism

Neuroticism reflects a tendency to be anxious and easily frustrated (Kramer et.al. 2014). Neuroticism is often referred as emotional instability (De Dreu and Gross, 2019) and decreases the willingness of taking risk (Rustichini et.al., 2012). People with high score on Neuroticism are more likely to suffer in various psychiatric diseases (McCrae and John, 1992). Consistent differences between men and women have been shown; females achieve higher score on Neuroticism and Agreeableness than men (Deary, 2009). Generally, highly neurotic people have a stronger desire to maintain the status quo and are more loss-averse (Boyce et.al., 2019). Hutzinger (2014) and Deuling et.al. (2011) independently from each other found that Neuroticism negatively affects individual influence on outcomes of group decisions.

### 2.3.1.4 Conscientiousness

Conscientiousness is connected to being responsible, reliable (Kramer et.al. 2014), organized, and resourceful (Schön and Schumann, 2007). Low level of Conscientiousness indicates lazy, immature, and impatient behavior (Schön and Schumann, 2007). It displays how people are able to “control, regulate, and direct their impulses” (DeDreu and Gross, 2019, p. 217). High Conscientiousness predicts good health outcomes, longevity, and higher academic grade-point averages (John, Naumann and Soto, 2008). Moreover, it is a useful tool to predict job performance, both in individual and in group settings (Barry and Stewart, 1997). Conscientiousness is not an “intrinsically interpersonal” trait (McCrae and Costa, 1989, p. 586), but being highly conscientious predicts frequent social contact to family members under young adults (Asendorpf and Wilpers, 1998). It may come from sense of duty and because conscientious people are less like to be distracted by new relationships (Asendorpf and Wilpers, 1998). The aspects of Conscientiousness are identified as Orderliness and Industriousness (Rustichini et.al., 2012).

### 2.3.1.5 Openness

Openness shows tolerance of diversity (Schön and Schumann, 2007), intellectual curiosity, and vivid phantasy (Zhao and Smillie, 2015). Highly open individuals have a tendency to hold unconventional beliefs, be creative, and acknowledge arts and beauty (De Dreu and Gross, 2019). On the other hand, low level of openness indicates conventional, insensitive, and down-to-earth behavior (Roccas et.al., 2002). Openness has been conceptualized into Intellect and Openness and “reflects the ability and tendency to seek, detect, comprehend, and utilize patterns of information, both sensory and abstract” (Rustichini et.al., 2012, p. 3).

## 2.3.2 Other personality taxonomies

Although the Big Five personality test is the most used personal taxonomy, it has faced with critiques and researchers proposed other personality taxonomies too. Here, two other taxonomies are shortly presented, which also gained popularity among researchers in negotiation studies and economics.

Just like the Five Factor Model, the HEXACO model is also based on lexical approach (Zhao and Smillie, 2015). Additionally, a sixth factor (*Honesty-Humility*) was added to the original five factors (Hilbig et.al., 2014). According to Ashton and Lee (2007, p. 156) “Honesty-Humility represents the tendency to be fair and genuine in dealing with others, in the sense of cooperating with others even when one might exploit them without suffering retaliation.” The dimension Honesty-Humility is related to being sincere, honest, modest, and fair-minded (Ashton and Lee, 2007). Some of the characteristics of Honesty-Humility is part of the Agreeableness dimension in Five Factor Model (Hilbig et.al., 2014). However, the HEXACO Agreeableness differs from the Five Factor Model Agreeableness: the HEXACO Agreeableness relates to tolerance and forgiveness rather than fairness (Ashton and Lee, 2007). FFM Agreeableness is a broader concept of prosocial behavior than HEXACO Agreeableness (Zhao and Smillie, 2015). Some researchers argue that Honesty-Humility suits better to predict giving behavior in dictator game than Five Factor Model Agreeableness (Hilbig et.al., 2014). Extraversion, Conscientiousness, and Openness are similar factors in both taxonomies (Ashton and Lee, 2007). The Five Factor Model dimension, Neuroticism is called Emotionality in the HEXACO model and slightly differs from Neuroticism (Ashton and Lee, 2007). However, both concepts can help understanding how individuals behave in mixed-motive social interactions (Zhao and Smillie, 2015).

The Myers-Briggs Type Indicator, which is based on Jung’s theory, was proposed by Myers et.al. (1998) and focuses on four preference dimensions: 1) introversion- extraversion dimension (orientation of energy: inner or outer world), 2) perceiving-judging dimension (attitude towards outer world), (3) feeling-thinking dimension (judgment), and 4) sensing-intuition dimension (perception). The first dimension displays how much an individual demonstrate interest in inner or outer world (McCannon and Stevens, 2017). The second dimension represents the difference in the preferred way in decision making: by judgement or by seeking additional information and perceiving (McCannon and Stevens, 2017). The third dimension is dedicated to the preference whether a person relies on thinking or feeling when making a decision (McCannon and Stevens, 2017). The fourth dimension shows whether the perceiving is done through senses or intuition (McCannon and Stevens, 2017). MBTI gained popularity mainly in the United States of America and is widely used in consultancy (Swope et.al., 2008; Furnham, 1996). McCannon and Stevens (2017, p.1169) argued that “MBTI tools focus on the components of the decision process which makes them especially appropriate for studying game theoretic choice.” Furnham (1996) examined the relationship between the Five Factor Model and the MBTI instrument and found the following correlations: Agreeableness correlates with the feeling-thinking dimension, Extraversion strongly correlates with the extraversion-introversion dimension, Conscientiousness correlates both with the thinking-feeling and the judging-perceiving dimension, Openness correlates with all of the four dimensions, and Neuroticism does not correlate with any of the dimensions in the MBTI instrument.



### 3 Research model, research question and hypotheses

The aim of my thesis is to examine the role of personality in social decision-making situation; more concretely, in distributive bargaining situation. In the literature, it is recognized that personality matters but there is no unity on *how* exactly it matters. On the one hand, personality traits influence perceived fairness; some people act egoistic, others behave fairly. On the other hand, personality also shapes individuals' ability to successfully achieve his will in negotiation. Hence, humans obtain a pre-negotiation preference based on their fairness attitude. According to the current state of the literature, it is acknowledged that personality has an impact on social preferences. Furthermore, it is also commonly recognized that not every individual is equally influential. Therefore, not every individual is capable to push through his pre-negotiation social preference and use structural power. Based on these findings, I propose the following research model: 1) personality as independent variable influences bargaining behavior (dependent variable) and how well an individual can push through his will, 2) personality (IV) also affects social preferences and 3) social preferences have an impact on bargaining behavior and thus, function as mediator. This research model is a combination of two, so far, distinct research paths: the relationship between personality and social preferences and the relationship between personality and bargaining behavior. In my thesis, I focus on different personality traits from the Five Factor Model and on what impact these five factors have on bargaining behavior and social preferences.

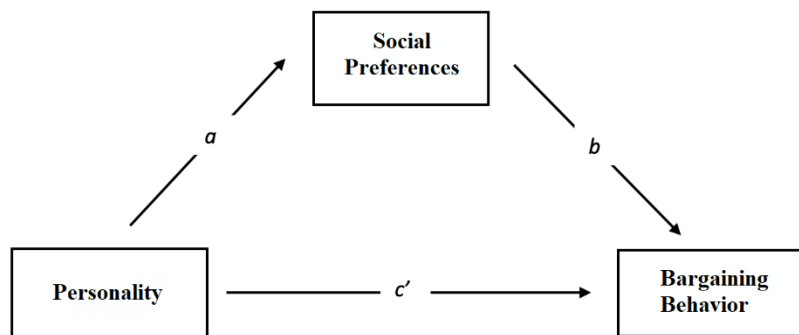


Fig. 2. Research model

#### 3.1 Research question

In relation to the above notion, the primary research question is the following:

- How and to what extent do personality traits influence allocation decisions in networks (depending on power)?

Moreover, I intend to answer the following sub-questions:

- Which personality traits influence social preferences?
- Is there any connection between personality traits and the tendency for using power position? Of course, by using power position I do not mean maximizing own pay-off. Some individuals prefer equal distribution and can use their power for this purpose.

- Are some personality types influenced more by time pressure? Is it visible when taking a look at the outcomes? Some people may make worse decision under pressure and cannot enforce their will.
- Who are the “tough negotiators”? By tough negotiator I mean those, who send extreme first offers in order to use first-mover advantage.

After answering all these questions, I expect to obtain an overview of the topic and additionally, unfold some hidden interdependencies. Combining the two aspects of the role of personality may provide additional and new insight about mixed-motive social decision-making situations.

### 3.2 Hypotheses

Agreeableness and Extraversion are the two most significant dimensions to interpersonal behavior (Zhao and Smillie, 2015), which means that highly altruistic and extravert individuals care a lot about social relationships. Intuitively, Agreeableness seems to be the most relevant factor for bargaining outcomes. Empirical evidences also support the Agreeableness is linked to prosocial and altruistic behavior (Baumert, Schlösser & Schmitt, 2014). Roccas et.al. (2002) linked altruism with conformity values and argued that highly agreeable people do not want to violate norms. According to Zhao and Smillie (2015), Agreeableness is linked to sending equal offers. Barry and Friedman (1998) found that Agreeableness is a liability in distributive bargaining situations since highly agreeable humans lack the necessary pursuit of self-interest. Moreover, individuals with high score on the Agreeableness scale are more likely to be anchored by extreme first offers (Barry and Friedman, 1998). Regarding the research model it is expected that Agreeableness influences both social preferences and bargaining behavior.

- **H1:** *Highly agreeable individuals tend to use their structural power to achieve an equal bargaining outcome.*

Extraversion is related to being assertive (Rustichini et.al., 2012), and extraverts have higher influence on group outcome than introverts (Hutzinger, 2014). Thus, a more active participation from extraverts is expected. This active and information sharing behavior can be advantageous in integrative but not in distributive bargaining situations (Barry and Friedman, 1998). According to Sharma et.al. (2013), extraverts tend to reveal more information about their preferences, which can be disadvantageous. Moreover, it is expected that extraverted people tend to fell for anchoring because “anchoring is more likely to occur when bargainers are highly concerned with the development and maintenance of social ties” (Barry and Friedman, 1998, p. 347). In the literature, there is no evidence that Extraversion affects social preferences, so only an impact of bargaining behavior is expected.

- **H2:** *Extraverts are more likely to send first offers than introverts.*

The other three traits (Conscientiousness, Neuroticism, Openness) are not directly linked with interpersonal behavior, but they influence social decision makings on the periphery and their effects depend on the setting (Zhao and Smillie, 2015). As mentioned earlier, Neuroticism relates to risk attitude (Rustichini et.al., 2012), but there is no evidence that it also relates to fairness. Based on the current literature, Neuroticism does not predict social preferences. Elfenbein (2015) argued that the traits themselves do not directly influence bargaining performance, but rather they determine how negotiators feel. At the end, how well the negotiators feel will define performance (Elfenbein, 2015). It is expected that highly neurotic people will suffer under time pressure and thus, will perform more poorly and will not be able to enforce their will despite the power position.

- **H3:** *Highly neurotic individuals earn less than lowly neurotic individuals.*

Highly conscientious individuals like order and prefer avoiding uncertainty (Schön and Schumann, 2007). With other words, a certain level of norm conformity is expected and thus, people who score high on Conscientiousness will not demand a high amount for themselves. Rather, they adapt to social norms, even when being in power position. Also, highly conscientious individuals are able to plan ahead and this pre-negotiation planning and analysis benefits them (Barry and Friedman, 1998), they will not use their power in a self-maximizing way. Previous findings about Conscientiousness only refer to influence on bargaining behavior but not on social preferences.

- **H4:** *Highly conscientious individuals tend to use structural power to achieve a more equal distribution.*

High Openness predicts great flexibility and divergent thinking, which can be beneficial mostly in integrative situations (Sharma et.al., 2013). Oda et.al. (2014) found that Openness predicts altruistic behavior towards strangers without expecting reciprocity. Some papers also discovered cooperative behavior of highly open people (Zhao and Smillie, 2015). Boyce et.al., (2019) concluded that those who scored high on Openness deviate more easily from the status quo.

- **H5:** *Highly open individuals are more likely to include the third network member than less open individuals.*

## 4 Design & methods

### 4.1 Research properties

As mentioned in the Introduction, this thesis is a secondary analysis, which means that the experiment was originally designed to answer another research question. However, the design enables to examine the role of personality depending on power since a personality test was included in the questionnaire. Secondary analysis means using secondary data. Hox and Boeije (2005, p. 593) define secondary data as “data originally collected for a different purpose and reused for another research question.” Using secondary data has the following advantages; it is less costly and time-consuming than collecting primary data (Hox and Boeije, 2005). Nevertheless, since the data was originally collected for a different purpose, secondary data is not always optimal and does not perfectly fit to the new research question (Hox and Boeije, 2005). As pointed out earlier, a laboratory experiment was conducted to obtain the primary data (Schwaninger et.al., 2019). Experiments allow strong control over the design, the procedure, and the whole situation (Falk and Heckman, 2009; Hox and Boeije, 2015). Thus, casual interpretation of results is permitted, which leads to strong internal validity (Hox and Boeije, 2005). Moreover, the level of control provided by laboratory experiments is hard to reproduce in natural occurring settings (Falk and Heckman, 2009). Nonetheless, laboratory experiments create artificial environment and thus, generalizability of laboratory experiments is not always the most persuasive (Hox and Boeije, 2005).

### 4.2 Design

A two factorial design was created, where a between-subject design was applied regarding the network structure and a within-subject design was applied regarding the exchange mode (Schwaninger et.al., 2019).

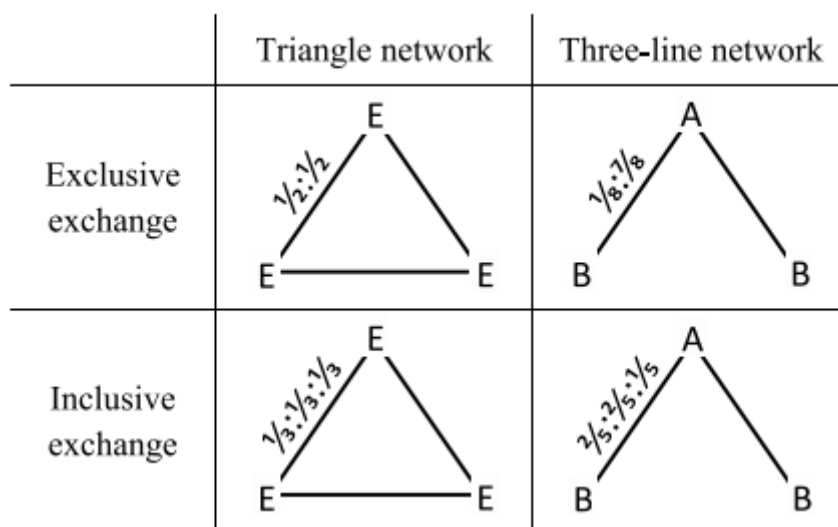


Fig. 3. Two-factorial design (Schwaninger et.al., 2019)

As the figure shows, subjects negotiated in three-nodes networks. Two different power structure was designed: *triangle* and *three-line network* (Schwaninger et.al., 2019). In *triangle* network, all three subjects are connected with each other, which results in an equal structural power distribution. *Three-line network* means that there is one central subject and two on the periphery. The central subject has structural advantage since the two peripheral subjects have to compete with each other in order to agree with the central subject (Schwaninger et.al., 2019). Networks are negatively connected; thus, each subject is allowed to exchange with no more than one subject at a time (Schwaninger et.al., 2019). As a result, one subject in a three-node network is excluded from the exchange. In *exclusive exchange*, also an exclusion from any payoff is implied (Schwaninger et.al., 2019), which means that the excluded party will receive zero payoff. However, in *inclusive exchange*, the third party *can* be included (Schwaninger et.al., 2019). With other words, the exchanging dyads have the possibility to allocate some payoff to the third subject, who does not participate in the exchange.

The experiment was conducted at the Vienna Center for Experimental Economics in April 2016 and March 2018 (Schwaninger et.al. 2019.) and was programmed in zTree (Fischbacher, 2007). Participants were recruited with the help of ORSEE (Greiner, 2004). Upon arrival, subjects were randomly assigned to their cubicles in the laboratory and stayed anonymous during the whole session (Schwaninger et.al., 2019).

First, subjects completed an SVO slider task, which was served as a proxy for fairness preferences (Schwaninger et.al., 2019). SVO slider task was incentivized and ordered an SVO score to each subject and based on this score, subject could be categorized (i.e. prosocial or proself) (Schwaninger et.al., 2019). After completing the first part (SVO and risk aversion measurement), participants were assigned either to a *three-line* or a *triangle network* depending on the treatment, which stayed constant during the whole session and varied between subjects (Schwaninger et.al., 2019). According to the restrictions of structure and exchange mode, subjects had to allocate 24 points within the networks of three and played 10 rounds (Schwaninger et.al., 2019). As mentioned earlier, the network structure determined whether someone in the network had structural power, and the exchange mode imposed if the excluded party was allowed to receive some share (*inclusive treatment* if yes, *exclusive treatment* if no). Both *inclusive* and *exclusive treatment* were played five consecutive times (thus, within-subjects design), and half of the time the experiment started with *inclusive treatment*, and in the other half of the session *exclusive treatment* came first (Schwaninger et.al., 2019). In every round, agreements must have been achieved in three minutes, otherwise every member within the network would have got zero points (Schwaninger et.al., 2019). At the end, one round of ten was randomly selected to be relevant for pay-off.

At the end of the experiment, subjects completed the Big Five 30 item personality inventory (Schwaninger et.al., 2019). This short scale contains 15 items and was developed as part of the SOEP and is based on the Big Five Inventory by John et.al. (1991) (Schupp and Gerlitz, 2008). Every personality factor was represented by three questions on a scale from one to seven, where one

meaning “does not apply at all” and seven meaning “does apply fully”. Participants also filled out a socio-demographic survey and finally, they were paid in Euros individually in private by labor assistants (Schwaninger et.al., 2019). For a more detailed description of the experiment see Schwaninger et.al. (2019).

### **4.3 Sample**

Overall, 12 sessions with 27 subjects were run and a total of 324 individuals participated (Schwaninger et.al., 2019).

Triangle treatment: 162 subjects (50%) participated in the triangle treatment and 67 (41,36%) were male and 95 (58,64%) female. The mean of the age was 22,96 (~23) years, the youngest participant 18 and the oldest 40 years old. 93% of the subjects were younger than 30 years old. 28 subjects studied natural sciences (17,28%), 11 (6,79%) medical sciences, 25 (15,43%) business or economics, 19 (11,73%) technical studies, 32 (19,75%) human sciences, 45 (27,78%) social sciences, and 2 (1,23%) did not give any field of study. 115 (70,99%) subjects were from German-speaking countries (Austria, Germany, Switzerland) and 47 (29,01%) from non-German-speaking countries. Even participants from non-German-speaking countries stated that they have good German knowledge and with the help of control questions, it was verified that subjects understood the instructions.

Thee-line treatment: 162 subjects (50%) participated in the triangle treatment and 69 (42,59%) were male and 93 (57,41%) female. The mean of the age was 24,35 years, the youngest participant 18 and the oldest 57 years old. 92% of the subjects were younger than 30 years old. 17 subjects studied natural sciences (10,49%), 10 (6,17%) medical sciences, 20 (12,35%) business or economics, 24 (14,81%) technical studies, 45 (27,78%) human sciences, 44 (27,16%) social sciences, and 2 (1,23%) did not give any field of study. 114 (70,37%) subjects were from German-speaking countries (Austria, Germany, Switzerland) and 48 (29,63%) from non-German-speaking countries. Comparing the two samples, no remarkable difference regarding gender, age, field of study, and origin is showed. Hence, the potential differences between the treatments derive from the design, and treatment effects can be analyzed.

## 5 Analysis of results

### 5.1 Descriptive statistics of the input variables

In this part, descriptive statistics of input variables and results are presented. Table 1 displays the descriptive statistics of the SVO slider task.

*Table 1: Descriptive statistics: SVO*

<b>SVO type</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Altruistic</b>	0	0%
<b>Prosocial</b>	149	45.99%
<b>Egoistic</b>	173	53.40%
<b>Competitive</b>	2	0.62%

Egoistic and competitive individuals both aim to maximize their own output and in this bargaining situation maximizing own output automatically means reducing others' outcome, so they will be treated as one group since differentiation would not provide additional explanation. Hence, SVO type will be dichotomy variable: prosocial or proself (van Dijk et.al. (2004) used the term proself for combining egoistic and competitive categories). Also, only two subjects classified as Competitive, which is too low to make significant differences. In table 2, the reliability of the Big Five constructs is shown.

*Table 2: Reliability Big Five*

<b>Dimension</b>	<b>Number of items</b>	<b>Cronbach's Alpha</b>
Agreeableness	3	0.48
Extraversion	3	0.73
Neuroticism	3	0.69
Conscientiousness	3	0.62
Openness	3	0.59

Although the applied scale is widely used by researchers in social psychology, economics, and sociology, it is important to check the validity and reliability of the scale. Validity demonstrates if the scale measures what it is supposed to measure. However, reliability is a prerequisite of validity and measures the consistency of an instrument. Cronbach's Alpha is the most widely used tool to measure reliability and generally, a Cronbach's Alpha higher than 0.70 is accepted as reliable (Schupp and Gerlitz, 2014). Nevertheless, it is important to notice that Cronbach's Alpha strongly depends on the number of items and the traditional limit ( $\alpha > .70$ ) is determined for scales with many

items (Schupp and Gerlitz, 2014). The Cronbach's Alphas presented here closely corresponds to the values in the inventory of Schupp and Gerlitz (2014). In the case of Agreeableness, Extraversion, and Conscientiousness only a slightly higher Cronbach's Alpha can be achieved by deleting any item of the three. By deleting any item of the construct Neuroticism and Openness, Cronbach's Alpha would slightly decrease. Thus, all of fifteen items were kept and Table 3 presents the descriptive statistics of the Big Five factors.

*Table 3: Descriptive statistics: Big Five Dimensions*

<b>Dimension</b>	<b>Mean</b>	<b>SD</b>	<b>Min</b>	<b>Max</b>	<b>CV</b>
Agreeableness	5.31	1.01	2	7	.191
Extraversion	4.81	1.23	1.67	7	.256
Neuroticism	4.34	1.30	1	7	.298
Conscientiousness	5.17	1.15	1	7	.222
Openness	5.16	1.13	2.33	7	.219

Each of the dimensions has a maximum score of seven and it was calculated as following: the score of the three questions belonging to each dimension was added (maximum is 21) and then divided by three. According to Vangel (1996), coefficient of variation is calculated as the standard deviation divided by the mean and shows variability. Each of the five dimensions demonstrate a considerable variability. Table 4 shows the correlations between the five dimensions.

*Table 4: Big Five Dimensions Correlation*

	<b>AGR</b>	<b>EXT</b>	<b>NEU</b>	<b>CON</b>	<b>OPE</b>
Agreeableness	1				
Extraversion	0.060	1			
Neuroticism	-0.038	-0.224***	1		
Conscientiousness	0.198***	0.194***	0.0046	1	
Openness	0.143***	0.240***	-0.012	0.199***	1

\*\*\* p < .01; \*\* p < .05; \* p < .10. (2-tailed)

The five dimensions show quite weak correlation and the sample demonstrates similar results to previous researches (Kanning, 2009). In my thesis, p-value < .05 will be categorized as statistically significant if not stated otherwise.

## **5.2 Descriptive statistics of the output variables**

In this subchapter, descriptive statistics of bargaining results are presented. Table 5 shows the remaining number of observations and whether an agreement was reached within the given time.



Table 5: Number of observations by treatments

	<b>Triangle</b>	<b>Three-line</b>	$\Sigma$
Exclusive	267/267	270/270	537/537
Inclusive	263/264	267/268	530/532
$\Sigma$	530/531	537/538	

6 observations were dropped because two offers were accepted in indistinguishable time within a network, which resulted in an incorrect output file. Further, in five cases, a subject accepted an offer with zero point dedicated to him. Since it is not beyond the bounds of possibility that a mistake happened, these five observations were also excluded from the sample. Table 6 presents the proportions of equal and unequal outcomes by mode of exchange and treatment.

Table 6: Proportions of equal and unequal outcomes

	<b>Exclusive exchange</b>		<b>Inclusive exchange</b>	
	Triangle	Three-line	Triangle	Three-line
Even two-way split (12-12-0)	.79	.46	.47	.25
Even three-way split (8-8-8)	-	-	.24	.28
Uneven two-way split	.21	.54	.15	.25
Uneven three-way split	-	-	.14	.22
Two-way split	1	1	.62	.50
Three-way split	-	-	.38	.50

Table 7 presents the mean of the final profit distributions by treatment and mode of exchange.

Table 7: Mean of profit distributions by treatment and mode of exchange

	Triangle	Three-line	
		Powerful	Weak
Exclusive	8	13.485	5.257
Inclusive	7.970	11.648	6.090

Generally, powerful subjects earned significantly more than weak subjects (Wilcoxon test,  $p < .01$ ). In exclusive treatment, powerful subjects achieved significantly more than 12 points (Wilcoxon test,  $p < .01$ ) and in inclusive treatment, individuals in power position earned significantly more than 8 points (Wilcoxon test,  $p < .01$ ). Between the two modes of exchange, the difference is rather moderate and not statistically significant.

### 5.3 Pre-negotiations assumptions

In order to discover the relationship between the five personality dimensions and pre-negotiation preferences, a logistic regression was carried out. Table 8 summarizes the results.

Table 8: Logistic regression: SVO - Big Five

	Coefficient	p-value (2-tailed)
SVO type (0 if prosocial, 1 if egoistic)		
Agreeableness	-.297	.012
Extraversion	-.061	.536
Neuroticism	-.058	.525
Conscientiousness	.376	.000
Openness	-.097	.367

Out of the five dimensions, only Agreeableness and Conscientiousness have statistically significant impact on SVO type. The coefficient of Agreeableness says that while holding the other four dimensions constant, for one-unit increase in Agreeableness a .297 decrease in the log odds of SVO type is expected. In the case of Conscientiousness, for a one-unit increase in Conscientiousness a 0.376 increase in the log odds of SVO type is expected, while the other four dimensions stay at a fixed value. Thus, if a subject is more agreeable then the odds of being egoistic are decreasing (with other words: the odds of being prosocial are increasing) and if a subject is more conscientious then the odds of being egoistic are increasing.

### 5.4 Assumptions of bargaining situations

In this section, the following aspects of bargaining will be analyzed: first offers, including the third party, and negotiation outcomes. Altogether, 7653 offers were sent during the 12 sessions and 2654

qualified as first offer. An offer counts as first offer if it is the first sent offer between a dyad in one period. For example, Player 1 sent an offer to Player 2 – qualifies as a first offer, the offer Player 2 sent back to Player 1 in the same period does not count as a first offer, but a counteroffer. However, if Player 1 send an offer to Player 3 in the same period, it qualifies as a first offer. Furthermore, it is distinguished between even and uneven first offers. Uneven first offers are supposed to represent extreme first offers, which could cause anchoring. Next, it will be analyzed if the third party was included in the allocation or not (of course only if the mode of exchange was inclusive). During the 12 sessions, half of the subjects started with exclusive mode of exchange and the other half with inclusive mode of exchange. Thus, it is possible to control for status quo bias. Samuelson and Zeckhauser (1998) showed that individuals disproportionately prefer to maintain the current state (status quo). With other words, individuals prefer to obtain what they have compared to what they could have and personality influences how strong an individual’s preferences is for maintaining the status quo (Boyce et.al., 2019). If exclusive mode of exchanged is played first, the default value is defined by allocation is dyads and presumably, some people find it hard to deviate from the status quo, which would explain why the third party is not included. In order to discover of the possible impact of status quo bias, a Chi-squared test was conducted with a result of a  $X^2=37.4895$  and a  $p$ -value of .000. Hence, the null hypothesis, which says that including the third network member is independent of which mode of exchange is implemented first, is rejected. Thus, it is concluded that the order of exchange mode cannot be neglected. Ultimately, the final allocations will be evaluated. First, the results of the triangle treatment (without powerful subject) are presented.

#### 5.4.1. Bargaining without powerful subject (triangle treatment)

Table 9 presents the results of a logistic regression of sending first offers in the triangle treatment.

*Table 9: Logistic regression: First offer – Big Five (triangle)*

	<b>Coefficient</b>	<b>p-value (2-tailed)</b>
first offer (0= if no, 1 = if yes)		
Agreeableness	.017	.632
Extraversion	.029	.326
Neuroticism	-.016	.535
Conscientiousness	.057	.051
Openness	-.023	.439

None of the five dimensions have statistically significant effect on sending first offers in triangle treatment. Thus, **H2** is not supported by this treatment, since extraverts tend not to send more first offers than introverts. Moreover, with equal power distribution no personality dimensions influence

the tendency for sending first offers. Table 10 shows the results of the equal first offer in triangle treatment.

*Table 10: Logistic regression: Equal first offer – Big Five (triangle)*

	<b>Coefficient</b>	<b>p-value (2-tailed)</b>
Equal first offer (0=if no, 1=if yes)		
Agreeableness	-.008	.916
Extraversion	-.004	.948
Neuroticism	.042	.503
Conscientiousness	-.057	.405
Openness	.256	.000

Openness is the only dimension that has statistically significant impact on sending equal first offers in triangle treatment. Keeping the other four dimensions constant, for a one-unit increase in Openness a 0.256 increase in the log odds of sending equal first offer is expected. Although this was not hypothesized, sending equal first offers fits well to the theory, which says that highly open individuals show altruistic tendencies toward strangers. Furthermore, unequal offers are divided in two categories: 1) unequal for own benefit 2) unequal for other's benefit. The outcome of a logistic regression of sending unequal first offer for the own or other's benefit is displayed in Table 11.

*Table 11: Logistic regression: Unequal first offer – Big Five (triangle)*

	<b>Coefficient</b>	<b>p-value (2-tailed)</b>
Unequal first offer (0=if other's benefit, 1=if own benefit)		
Agreeableness	-.367	.221
Extraversion	-.427	.100
Neuroticism	.281	.176
Conscientiousness	.083	.753
Openness	-1.138	.000

As before, only Openness has statistically significant impact on sending unequal first offers. Highly open individuals are more likely to send altruistic first offers, which benefit others since for a one-

unit increase in Openness, a 1.138 decrease in the log odds of sending unequal first offers of own benefit is expected. Table 12 demonstrates the result of a logistic regression of including the third party in triangle treatment if subjects faced with inclusive mode of exchange first. In this case, no status quo bias can occur since subjects initially are allowed to involve the third player in the allocation (only first offers were considered, so anchoring effects are excluded).

*Table 12: Logistic regression: Including third, no SQB – Big Five (triangle)*

	<b>Coefficient</b>	<b>p-value (2-tailed)</b>
Including the third, no SQB (0=if no, 1=if yes)		
Agreeableness	.588	.000
Extraversion	-.076	.352
Neuroticism	.313	.000
Conscientiousness	-.159	.101
Openness	-.446	.000

Agreeableness, Neuroticism, and Openness show statistically significant impact on including the party in triangle treatment. In the case of Agreeableness (Neuroticism), for unit-increase, an increase of .588 (.313) in the log odds is expected, which indicates a positive relationship; highly agreeable and neurotic subjects tend to include the third player in triangle treatment when inclusive mode of exchange is played in the first five rounds. Openness, on the other hand, has a negative effect on including the third in the allocation, which implies that highly open individuals rather not include the third player. Hence, **H5** is not supported. Table 13 demonstrates the same analysis but in those cases, where subjects could not include the third player of the network in the first five rounds and so, status quo bias could occur.

Table 13: Logistic regression: Including third, SQB – Big Five (triangle)

	Coefficient	p-value (2-tailed)
Including the third, SQB (0=if no, 1=if yes)		
Agreeableness	.133	.260
Extraversion	-.402	.011
Neuroticism	-.366	.003
Conscientiousness	-.329	.013
Openness	.142	.200

Every dimension has statistically significant effect, apart from Agreeableness and Openness, on including the third party in triangle treatment when no status quo bias can occur. Since Openness does not have a statistically significant effect on including the third player in the first offer, **H5** is not supported in triangle treatment when starting with exclusive mode of exchange. Highly extraverted, neurotic, and conscientious subjects are more likely not to include the third player and agree in a two-way split in their first offer.

For analyzing the outcomes, five new dummy variables were created: for each of five dimensions subjects were categorized either high or low. If a subject scored more than the mean of the sample in a given dimension he was categorized as high, and if less than as low in that given dimension. Student's t-test was carried out for each personality factor, but only the significant ones are presented here. Table 14 shows the results of Student's t-test of extraversion in the triangle treatment with exclusive mode of exchange.

Table 14: Student's t-test: Payoff-Extraversion (triangle, exclusive)

	Mean	Alternative hypotheses	p-value
Introverted	7.322	Ha <sub>1</sub> : diff < 0	.0046
Extraverted	8.57	Ha <sub>2</sub> : diff != 0	.0091
Difference	-1.248	Ha <sub>3</sub> : diff > 0	0.995

The result shows that introverted subjects earn more than one point less than extraverted subjects and this difference is statistically significant. Thus, it is assumed that extraverted people are better at

negotiating and can achieve higher outcome for themselves. No statistically significant differences were observed in the case of the other four personality dimensions in triangle treatment with exclusive mode of exchange. Table 15 presents the result of Student's t-test of Neuroticism in triangle treatment with inclusive mode of exchange.

*Table 15: Student's t-test: Payoff-Neuroticism (triangle, inclusive)*

	<b>Mean</b>	<b>Alternative hypotheses</b>	<b>p-value</b>
Low on Neuroticism	8.233	Ha <sub>1</sub> : diff < 0	.9283
High on Neuroticism	7.616	Ha <sub>2</sub> : diff != 0	.1433
Difference	0.6168	Ha <sub>3</sub> : diff > 0	0.0717

Highly neurotic individuals earn less than lowly neurotic individuals. It is important to note that it is only significant if the chosen  $\alpha=0.10$  is. Hence, there is only weak evidence against the null hypothesis in favor of the alternative hypothesis. However, I included this test statistic since it fits to the literature and supports **H3**, and no other personality dimensions show statistically significant difference.

#### 5.4.2 Bargaining with powerful subject (three-line treatment)

Table 16 presents the results of a logistic regression between sending first offer and the five personality dimensions in three-line treatment for powerful subject.

*Table 16: Logistic regression: First offer – Big Five (three-line, powerful)*

	<b>Coefficient</b>	<b>p-value (2-tailed)</b>
first offer (0= if no, 1 = if yes)		
Agreeableness	.021	.765
Extraversion	-.157	.003
Neuroticism	-.108	.017
Conscientiousness	.160	.018
Openness	-.056	.406

Three factors have statistically significant impact on sending first offers (Extraversion, Neuroticism, Conscientiousness). For one-unit increase in Extraversion and Neuroticism, a decrease of 0.157 and .108 in the log odds of sending the first offer is expected. Thus, highly extraverted and neurotic subjects in power position rather not send the first offer. This contradicts **H2**, which is not supported

in any treatment. On the other hand, for one-unit increase in Conscientiousness, 0.160 increases in the log odds is expected, hence, highly conscious individuals have a tendency to send the first offer. Table 17 presents the same analysis, but for weak subjects.

*Table 17: Logistic regression: First offer – Big Five (three-line, weak)*

	<b>Coefficient</b>	<b>p-value (2-tailed)</b>
first offer (0= if no, 1 = if yes)		
Agreeableness	.028	.552
Extraversion	-.060	.151
Neuroticism	.007	.862
Conscientiousness	.026	.572
Openness	-.178	.000

Openness is the only dimension that has statistically significant impact on sending first offers from a weak position. The relationship is negative; thus, highly open individuals do not have a tendency for sending first offer from a weak position. **H2** is not supported by the data in this treatment either. Table 18 demonstrates the logistic regression of sending even first offers in three-line treatment by powerful subjects.

*Table 18: Logistic regression: Even first offer – Big Five (three-line, powerful)*

	<b>Coefficient</b>	<b>p-value (2-tailed)</b>
even first offer (0= if no, 1 = if yes)		
Agreeableness	-.057	.684
Extraversion	-.351	.001
Neuroticism	-.320	.000
Conscientiousness	-.086	.458
Openness	-.007	.959

Extraversion and Neuroticism have a statistically significant impact on sending even first offers from power position. For a one-unit increase in Extraversion (Neuroticism), 0.351 (0.320) decrease of the log odds of sending even first offers are expected. Hence, highly extraverted and neurotic people have a tendency to send uneven first offers. Table 19 presents the same analysis but for weak subjects.



*Table 19: Logistic regression: Even first offer – Big Five (three-line, weak)*

	<b>Coefficient</b>	<b>p-value (2-tailed)</b>
even first offer (0= if no, 1 = if yes)		
Agreeableness	-.005	.951
Extraversion	-.222	.003
Neuroticism	.073	.276
Conscientiousness	.002	.981
Openness	.087	.268

Only Extraversion has statistically significant impact on sending even first offers from a weak position. It is predicted that extraverted subjects have a tendency to send unequal first offers even from weak position. Just like in triangle treatment, it was differentiated between unequal first offers for own or other's benefit. Only three subjects sent a first offer which benefits others from a powerful position and statistically no significant results are not displayed in table, so Table 20 shows the results of the same analysis for subjects in weak position.

*Table 20: Logistic regression: Unequal first offer – Big Five (three-line, weak)*

	<b>Coefficient</b>	<b>p-value (2-tailed)</b>
Unequal first offer (0=if other's benefit, 1=if own benefit)		
Agreeableness	-.413	.008
Extraversion	-.046	.738
Neuroticism	.042	.696
Conscientiousness	.238	.143
Openness	-.177	.112

Statistically significant impact on sending unequal first offers from a weak position is only shown by Agreeableness. For one-unit increase in the scale of Agreeableness, a .413 decrease in the log odds of sending first offers of own benefit is expected and thus, highly Agreeable people demonstrate an altruistic behavior; if they send an unequal first offer, it is rather unequal for others' benefit rather than favoring themselves. Table 21 demonstrates the result of a logistic regression of including the third party in three-line treatment from power position if subjects faced with inclusive mode of exchange first (no status quo bias).

Table 21: Logistic regression: Including third, no SQB – Big Five (three-line, powerful)

	<b>Coefficient</b>	<b>p-value (2-tailed)</b>
Including the third, no SQB (0=if no, 1=if yes)		
Agreeableness	.103	.735
Extraversion	-.663	.031
Neuroticism	-.738	.000
Conscientiousness	-.084	.696
Openness	-.101	.710

Statistically significant impact is shown by two dimensions: Extraversion and Neuroticism. Both have negative effect (since for a one-unit increase in the personality dimension, decrease in the log odds is expected), which means that highly extraverted and neurotic individuals in powerful position are less like to include the third party, even when no status quo bias could occur. The same analysis was carried out for weak subjects without statistically significant effect, so the results are not presented here. Furthermore, a logistic regression of including the third party in three-line treatment from power position if subjects faced with exclusive mode of exchange first (status quo bias) was conducted but no significant results were shown. Finally, the same analysis was carried out from weak position (Table 22).

Table 22: Logistic regression: Including third, SQB – Big Five (three-line, weak)

	<b>Coefficient</b>	<b>p-value (2-tailed)</b>
Including the third, no SQB (0=if no, 1=if yes)		
Agreeableness	-.262	.166
Extraversion	.242	.188
Neuroticism	.222	.211
Conscientiousness	.690	.003
Openness	.333	.073

Conscientiousness and Openness (only if  $\alpha = .10$ ) have statistically significant impact on including the third party from a weak position if inclusive mode of exchange is played in the last five rounds.

Both highly conscious and highly open subjects rather include the third, therefore, **H5** is partly supported.

Ultimately, Student's t-test was carried out for each of the five personality dimensions, in order to see whether personality factors cause significant difference in the final outcomes (of course, it was differentiated between mode of exchange and position when calculating the averages). Only the statistically significant results are presented. Table 23 presents the result of Student's t-test of Neuroticism in three-line treatment with exclusive mode of exchange in power position.

*Table 23: Student's t-test: Payoff-Neuroticism (three-line, exclusive, power)*

	<b>Mean</b>	<b>Alternative hypotheses</b>	<b>p-value</b>
Low on Neuroticism	13.92	Ha <sub>1</sub> : diff < 0	.9850
High on Neuroticism	12.99	Ha <sub>2</sub> : diff != 0	.0299
Difference	0.93	Ha <sub>3</sub> : diff > 0	.0150

Student's t-test demonstrates a significant difference in earning of highly and lowly neurotic subjects in power position with exclusive mode of exchange. Less neurotic subjects earn almost with one point more than highly neurotic subjects. Consequently, people low on Neuroticism can better use their structural power in exclusive mode of exchange and thus, **H3** is supported. No significant difference was found for any other personality dimensions. The same test was conducted for subjects in week position in exclusive mode of exchange, but again; no statistically significant results were found. Further, inclusive mode of exchange was tested too. Table 24 demonstrate the results of Student's t-test of Conscientiousness in three-line treatment with inclusive mode of exchange in power position.

*Table 24: Student's t-test: Payoff-Conscientiousness (three-line, inclusive, power)*

	<b>Mean</b>	<b>Alternative hypotheses</b>	<b>p-value</b>
Low on Conscientiousness	12.342	Ha <sub>1</sub> : diff < 0	.9926
High on Conscientiousness	10.939	Ha <sub>2</sub> : diff != 0	.0148
Difference	1.403	Ha <sub>3</sub> : diff > 0	.0074

Student's t-test reveals statistically significant difference between the mean earnings of highly and lowly conscious individuals in power position with inclusive mode of exchange. Less conscious individuals earn 1.403 points more than more conscious subjects. Hence, highly conscious individuals use their power for a more equal distribution and thus, **H4** is supported. Finally, the same analysis was carried out for weak subjects, but no significant difference was found for weak subjects in inclusive mode of exchange.

#### 5.4.3 The mediating role of social preferences

In order to discover the mediating role of social preferences proposed in the research model the same tests and regressions were conducted as before, but controlled for SVO type. In order to control whether personality predicts social preferences, a logistic regression was conducted (Table 25).

*Table 25: Logistic regression: SVO – Big Five*

	<b>Coefficient</b>	<b>p-value (2-tailed)</b>
SVO (0=prosocial, 1=egoistic)		
Agreeableness	-.297	.012
Extraversion	-.062	.536
Neuroticism	-.059	.525
Conscientiousness	.376	.000
Openness	-.097	.367

Table 25 reveals that two dimensions (Agreeableness and Conscientiousness) have statistically significant impact on the SVO type and thus, it is concluded that personality predicts social preferences. The effect of the two statistically significant dimensions is contrary: for one unit increase in Agreeableness (Conscientiousness), .297 (.376) decrease (increase) in the log odds is expected. Hence, Agreeableness predicts prosocial preferences and Conscientiousness anticipates egoistic social preferences. Results revealed that SVO type has no statistically significant impact on sending first offers or sending (un)equal first offers. However, regardless of the treatment and the possible status quo bias, SVO type significantly influence including the third player. Table 26 presents the results of the logistic regression of including the third in the triangle treatment with no SQB.

Table 26: Logistic regression: Including the third, no SQB – Big Five+SVO (triangle)

	<b>Coefficient</b>	<b>p-value (2-tailed)</b>
Including the third, no SQB (0=if no, 1=if yes)		
Agreeableness	.548	.000
Extraversion	-.064	.435
Neuroticism	.348	.000
Conscientiousness	-.137	.153
Openness	-.427	.000
SVO type	-.546	.004

The logistic regression reveals that prosocial individuals are more likely to include the third network member. Comparing this table to Table 12 (which presents the same logistic regression without SVO type), the three statistically significant dimensions remained significant, but their coefficients slightly decreased. Furthermore, the Pseudo R<sup>2</sup> slightly increased (from 0.0836 to 0.0949) in this regression compared to the previous one. The Pseudo R<sup>2</sup> indicates which model predicts better the outcome and the higher the R<sup>2</sup> the better the model's prediction power. Table 27 presents the same analysis but starting with exclusive mode of exchange.

Table 27: Logistic regression: Including the third, SQB – Big Five+SVO (triangle)

	<b>Coefficient</b>	<b>p-value (2-tailed)</b>
Including the third, no SQB (0=if no, 1=if yes)		
Agreeableness	-.091	.493
Extraversion	-.264	.135
Neuroticism	-.401	.003
Conscientiousness	-.405	.006
Openness	.204	.108
SVO type	-1.936	.000

Comparing the results to Table 13, it is shown that Extraversion lost its significance and the Pseudo R<sup>2</sup> increased (from 0.0733 to 0.1955). As expected, egoistic individuals are less likely to include the third party in the allocation when the sessions started with exclusive mode of exchange than prosocial

individuals. Thus, prosocial individuals do not have strong preferences for maintaining the status quo. The same analysis was carried out for the three-line treatment both for powerful and weak position. Table 28 demonstrates the results of the logistic regression of including the third network member from a powerful position with no possible SQB.

*Table 28: Logistic regression: Including the third, no SQB – Big Five+SVO (three-line, powerful)*

	<b>Coefficient</b>	<b>p-value (2-tailed)</b>
Including the third, no SQB (0=if no, 1=if yes)		
Agreeableness	.302	.348
Extraversion	-.709	.031
Neuroticism	-.538	.005
Conscientiousness	-.189	.437
Openness	.283	.354
SVO type	-1.831	.005

As before, the Pseudo  $R^2$  increased from 0.1582 to 0.2163, compared to the model without SVO type (Table 21). The log odds of Neuroticism decreased in the model with SVO type compared to the model with SVO type. The same analysis was conducted for weak subjects but no statistically significant impact was found. Finally, the logistic regression was carried out when the session started with exclusive mode of exchange. Statistically significant effect was found only for subjects in weak position but no for subjects in powerful position and the results are presented in Table 29.

*Table 29: Logistic regression: Including the third, SQB – Big Five+SVO (three-line, weak)*

	<b>Coefficient</b>	<b>p-value (2-tailed)</b>
Including the third, no SQB (0=if no, 1=if yes)		
Agreeableness	-.319	.093
Extraversion	.203	.279
Neuroticism	.195	.294
Conscientiousness	.774	.001
Openness	.098	.629
SVO type	-1.362	.002

Compared to the model without including the SVO type (Table 22) an increase in the Pseudo R<sup>2</sup> is revealed from 0.1216 to 0.1765. In each case, SVO type is the most powerful predictor for including the third player in the allocation. Regardless of the treatment and mode of exchange, prosocial individuals are more likely to include the third than egoistic ones.

## 5.5 Summary

The following table is devoted to summarize which hypotheses are supported by the data.

*Table 30: Summary*

<b>Hypothesis</b>	<b>Finding</b>
<b>H1:</b> <i>Highly agreeable individuals tend to use their structural power to achieve an equal bargaining outcome.</i>	not supported
<b>H2:</b> <i>Extraverts are more likely to send first offers than introverts.</i>	not supported
<b>H3:</b> <i>Highly neurotic individuals earn less than lowly neurotic individuals</i>	supported
<b>H4:</b> <i>Highly conscientious individuals tend to use their structural power to achieve a more equal distribution.</i>	supported
<b>H5:</b> <i>Highly open individuals are more likely to include the third network member than less open individuals.</i>	partly supported

## **6 Discussion**

In this chapter, the results are discussed in context of the existing economics and social psychology literature on personality. First, a general overview of the role of personality in bargaining situations is provided then each of the five personality dimensions and their relationship with social preferences are discussed in depth.

### **6.1 General Discussion**

Summarized, there are clear signs that personality influences social preferences and bargaining behavior but the results are rather inconsistent. Two personality dimensions (Agreeableness and Conscientiousness) indicate social preferences, four personality dimensions (Agreeableness, Extraversion, Neuroticism, and Conscientiousness) influence the ability to use structural power. The relationship between Openness and including the third is almost fully mediated by SVO types. The role of SVO types in including the third party fits well to the findings of Schwaninger et.al. (2019) who found that social value orientation has explanatory power on the outcome only in inclusive mode of exchange.

A possible explanation for the ambiguous results is that personality expression varies on computer (Blumer & Döring, 2012). It is important to emphasize that not *personality* itself varies, which is stable by definition, but the *expression* of personality. According to Stritzke et.al. (2004), shyness (which is part of the Extraversion scale) is expressed weaker in online settings. With other words, introverted individuals become more sociable if the communication happens on computer (Blumer & Döring, 2012). Not only introverts benefit from an online, anonym setting; research of Rice and Markey (2009) states that highly neurotic individuals feel less anxious communicating on computers than face-to-face.

Furthermore, taking personal values in consideration provides deeper understanding of behavior. According to Schwartz (2012), values represent desirable and abstract goals, which motivate actions. Schwartz (2012) proposed ten types of values each expressing a motivational goal. Just like traits, values also show relative stability during time (Roccas et.al., 2002). Furthermore, Roccas et.al. (2002) linked the values to personality traits saying that they mutually influence each other. Since “values serve as ideals or oughts and hence guides for self-regulation”, people aim to adapt their behavior according to their values (Roccas et.al., 2002, p. 791). Basic values seem to play a crucial role in case of Conscientiousness, so it will be discussed in details under 6.2.4.

### **6.2 Personality dimensions**

#### **6.2.1 Agreeableness**

Literature predicted altruistic attitude of highly agreeable people (Zhao and Smillie, 2015), which is supported by data and Agreeableness predicts prosocial social value orientation. Becker et.al. (2012) also found that Agreeableness predicts altruistic preferences. Moreover, highly agreeable individuals



show a tendency to include the third player in the allocation. However, the outcomes of bargaining situations do not support **H1** and there is no statistically significant difference between the profit distributions of highly and lowly agreeable people. Thus, it is concluded that highly agreeable individuals cannot use their structural power to achieve an even distribution. Even though they have a preference for equal outcomes, they rather go with the flow and accept others' offers. The findings of this thesis match well to the discovery of Barry and Friedman (1998); Agreeableness appears to be a liability in distributive bargaining situations. Highly agreeable individuals are at risk for not enforcing their own will and accepting an outcome, which is not so favorable for them. People high on Agreeableness try to avoid conflicts since inter-personal relationships are very important to them (De Dreu and Gross, 2019) and as a result, a people-pleasing attitude is observable and they give up their own interest. Another possible explanation for the inconsistent results derives from the findings of Hilbig et.al. (2014): Honesty-Humility dimension (see Chapter 2.3.2) has stronger explanatory power on prosocial behavior than Agreeableness.

### 6.2.2 Extraversion

Extraversion does not predict any pre-negotiation preferences. Furthermore, there is no sign that extraverted are more active and initiative than introverted and so, **H2** is not supported by the data. Just like Agreeableness, Extraversion also directly relates to interpersonal relationships but contrary to Agreeableness, cooperative behavior of extraverted people is often driven by the expectation of reciprocity and not by altruism (Zhao and Smillie, 2015). Although Extraversion does not indicate tendency for sending first offers, it does predict the likeliness of sending unequal first offers favoring themselves. Moreover, Extraversion decreases the willingness of including the third party in the allocation. Hence, highly extraverted individuals can be categorized as tough negotiator, who try to achieve an agreement in the dyad and thus, reach a high payoff for them. These findings match well to the results of Koole et.al. (2001), who noted a negative relationship between Extraversion and cooperation. Since extraverted people earned significantly more in triangle treatment with exclusive mode of exchange than introverted, it is concluded that extraverts utilize their assertiveness successfully in bargaining situations and Extraversion affects bargaining behavior. As mentioned in the General Discussion, Extraversion is one of the most sensitive dimensions in terms of its online expression and thus, it is possible that the difference between extraverts and introverts was less notable during a laboratory experiment on computers.

### 6.2.3 Neuroticism

In the case of Neuroticism, no pre-negotiation preferences are anticipated. As hypothesized, highly neurotic individuals earn significantly less than subjects who scored less on the scale of Neuroticism, so **H3** is supported. However, highly neurotic individuals apply tough negotiation styles; they are more likely to send uneven first offers and do not want to include the third party in inclusive mode of exchange. These signs suggest a rather self-maximizing preference, but based on the lower payoff,

it is concluded that highly neurotic people are unable to use structural power. Ma (2005) stated that highly neurotic individuals are prone to find conflicts threatening and decide to rather avoid them. Avoiding conflicts could result in lower payoff since highly neurotic individuals rather accept offers than demand higher payoff for themselves. According to Sharma (2013, p. 303), highly neurotic “negotiator may struggle to engage the task and their relationship partners”, which potentially leads to disadvantages in outcome.

#### 6.2.4 Conscientiousness

Conscientiousness predicts egoistic social value orientation. Moreover, signs of initiation are shown, which fits well to the careful and planning behavior predicted by literature. Based on the egoistic preferences and careful preparation, it was expected that highly conscientious individuals are able to use their structural power and achieve higher outcome for themselves. However, results show that highly conscientious people earn less in power position than lowly conscientious individuals and do not send unequal first offers benefitting them, which means that **H4** is supported. Summarized, it is concluded that highly conscientious individuals respect the norms so much that they behave against their preferences. A possible explanation of this behavior derives from the link between personality traits and personal values. Roccas et.al. (2002) found that Conscientiousness positively, strongly, and significantly relates with *achievement* and *conformity* values. Schwartz (2012, p. 5) determines the demonstrating goal of achievement values as “personal success through demonstrating competence according to social standards”. Achievement values belong to individual values and hence, they potentially explain egoistic social preferences. On the other hand, “conformity values emphasize self-restraint in everyday interaction” (Schwartz, 2012, p. 6), which potentially lead to retain egoistic preferences and balance the behavior of highly conscientious individuals. According to Schwartz (2012), the promoted cooperative behavior by conformity values are motivated by avoiding negative outcome for self and not by internalized motives.

#### 6.2.5 Openness

In case of Openness, the results are highly inconsistent. **H5** is partially supported because in some treatment and mode of exchange highly open people are more likely to include the third network member than less open individuals. However, in other treatment and mode of exchange highly open humans are less likely to include the third party. Furthermore, Openness partially predicts altruistic behavior, but it is not consistent. Regarding including the network member, it is plausible to say that SVO types explain whether someone decides to include the third or not and thus, Openness has no significant explanatory power on including the third. In addition, Openness positively and significantly correlates with every dimension besides Neuroticism (Table 3), which potentially also weakens the explanatory power of Openness.

## **7 Conclusion**

The ultimate goal of the present Master's thesis was to shed light on the role of personality in social decision-making situations. It was intended to combine two already existing but distinct approaches: how personality influences social preferences and the impact of personality on individual influence in bargaining situations. Hence, the major scientific contribution of this thesis is how the link between personality traits and bargaining behavior is mediated by social preferences. In this Chapter, theoretical and practical significance of the thesis in along with the limitations of the study and future research direction are discussed.

### **7.1 Theoretical and practical significance**

The findings of the present study extends current literature at least in two ways; first, contrary to previous researches about the role of personality and bargaining behavior in economic games where dyads were studied, in this case, the focus was on triads and behavior in networks of three were analyzed. Networks of three created a competition between subjects to be in the agreeing dyad, which presumably affected bargaining process and provided additional information about individual influence. The second scientific contribution of the thesis is the combination of the two, above mentioned aspects and the proposition of the research model (Fig. 2.), where social preferences mediate the relationship between personality and bargaining behavior. Complementary evidences to Dohmen et.al. (2008) and Hilbig et.al. (2014) are provided, who also found that personality traits have an impact on social preferences. Moreover, this thesis supports that personality influences negotiation process and outcome, which was proposed by Barry and Friedman (1998), McCannon and Stevens (2017), and Elfenbein (2015). However, to the best of my knowledge, no other scientific research has examined the impact of personality on social preferences and bargaining behavior at the same time. Thus, the present study contributes to the scientific literature by revealing the mediating role of social preferences.

In addition to the presented contribution to the scientific literature, the current study also provides significant implications for human resources management and organizational behavior. Personality already has been linked to job performance (Barrick and Mount, 1991) and to personnel selection (Rothstein and Goffin, 2006). Based on the findings of the present thesis, it is supported that managers and human resource professionals should consider personality at selecting personnel. For example, highly conscientious individuals seem to be a better choice for time-sensitive job than highly neurotic individuals, who suffer from time pressure. Moreover, highly neurotic people seem not to be able to use structural power, which indicates that selecting lowly neurotic people for a management position would be more beneficial. As it has been pointed out earlier, self-managed working groups have become more and more popular (Greenberg and Baron, 2008). Individual influence plays a crucial role both in self-managed working groups where members do not differ in terms of power position. It is expected that extraverted individuals will be more influential than

introverts and thus, it is important to monitor that introverts also have the possibility to use their knowledge in group decisions. However, extraverts and highly conscientious individuals suit better for distributive negotiation situation than highly agreeable or neurotic people.

## **7.2 Limitations and future research**

Even though the thesis provides many important theoretical and empirical suggestions and implications, the limitation of the study must be noted too.

As it has been already pointed out, the expression of personality is influenced by the communication channel. Rice and Markey (2009) found that Neuroticism is strongly affected by whether the communication happen face-to-face or via computer. Additionally, a second dimension – Extraversion – has been shown to be influenced by the mode of communication; when the communication happens via computers, the difference between extraverts and introverts is less salient (Blumer & Döring, 2012). Therefore, it is expected that communicating face-to-face would result in a relatively more active participation and stronger influence of extraverts compared to introverts.

Furthermore, it is expected that the Honesty-Humility dimension of the HEXACO model would explain what the FFM Agreeableness was not able to. Based on previous researches (Hilbig et.al., 2014), applying the HEXACO model shows more consistent results regarding altruism and thus, further research using HEXACO is supported.

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## **Appendix – German abstract**

Individuelle Unterschiede wurden von vielen Autoren in den Sozialwissenschaften angesprochen, jedoch wurde die Persönlichkeit vernachlässigt. Das Ziel dieser Arbeit ist, die Rolle der Persönlichkeit in sozialen Entscheidungssituationen zu untersuchen. Frühere Forschungen zu diesem Thema konzentrierten sich entweder darauf, wie die Persönlichkeit soziale und wirtschaftliche Präferenzen beeinflusst, oder auf den Zusammenhang zwischen Persönlichkeit und Einfluss bei sozialen Entscheidungen. Die vorliegende Arbeit beabsichtigt, diese beiden Aspekte mit Hilfe einer Sekundäranalyse eines Verhandlungsexperiments zu kombinieren. Um die Persönlichkeit zu testen, wurde das Fünf-Faktoren-Modell aufgenommen und soziale Präferenzen wurden mit Hilfe der sozialen Wertorientierung gemessen. Die Ergebnisse zeigen, dass zwei Persönlichkeitsdimensionen (Verträglichkeit und Gewissenhaftigkeit) soziale Präferenzen anzeigen und vier Persönlichkeitsdimensionen (Verträglichkeit, Extraversion, Neurotizismus und Gewissenhaftigkeit) die Fähigkeit beeinflussen, strukturelle Macht einzusetzen. Darüber hinaus wurde festgestellt, dass die Verbindung von Persönlichkeit und Verhandlungsverhalten durch soziale Präferenzen vermittelt wird. Die Ergebnisse der vorliegenden Arbeit liefern verschiedene theoretische und empirische Implikationen für die Persönlichkeitspsychologie, das Personalmanagement und das Organisationsverhalten.

**Stichwörter:** soziale Entscheidungsfindung, individuelle Unterschiede, Persönlichkeit, Fünf-Faktoren-Modell, individueller Einfluss, soziale Wertorientierung, Gerechtigkeit