



UNIVERSIDADE CATÓLICA PORTUGUESA

The impact of Empathy in Economic Decision Making

Trabalho Final na modalidade de Dissertação
apresentado à Universidade Católica Portuguesa
para obtenção do grau de mestre em *Business Economics*

por

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Universidade Católica Portuguesa, Católica Porto Business School

Novembro 2019



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Abstract

Economic games like the ultimatum and the dictator game have been great tools used to challenge the classical assumption that individuals act solely out of self-interest. They are two games that study the economic decision making of individuals.

With this study, we aimed to show how humans are indeed driven by social preferences, by analysing the relationship between empathy and offers in both these games.

Game effect was significant, which means offers in the ultimatum game and the dictator game were significantly different. As expected, offers in the ultimatum Game were significantly higher.

Offers were also divided into three groups (Low, Med, High) to check whether the individual's behaviors would change when different amount of credits were in play. No size effect was found. Also, the game effect was present in all three different sizes.

We also defined strategic behaviors as being the difference of offers in both these games. 6 regressions were computed and the following results were obtained: affective empathy, as predicted, was a predictor of offers in the dictators game and the ultimatum game; contrary to what we predicted, when using the MET, cognitive empathy negatively predicted strategic behavior; when using the IRI, Empathy Concern (affective empathy) negatively predicted strategic behaviour. Also, when using the MET, cognitive empathy and negative affective empathy were predictors of offers in the dictators game.

Keywords: Cognitive Empathy; Affective Empathy; MET; IRI; Economic Decision Making

Resumo

Jogos Económicos como o jogo do ultimato e o jogo do ditador têm sido instrumentos utilizados para desafiar a suposição clássica de que as pessoas agem unicamente por interesse próprio. São dois jogos que estudam a tomada de decisão económica das pessoas.

Com este o estudo, o nosso objetivo foi de mostrar como os humanos são, na realidade, movidos por preferências sociais, ao analisar a relação da empatia com ofertas de moedas nestes dois jogos económicos.

O efeito de jogo foi significativo, o que significa que as os valores das ofertas no jogo do ultimato foram significativamente diferentes do valor das ofertas no jogo do ditador. Como previsto, as ofertas foram significativamente superiores no jogo do ultimato.

As ofertas foram também divididas em três grupos: Baixas, Médias, Altas, para verificar se os comportamentos das pessoas mudariam dependendo do número de moedas em jogo. No entanto, nenhum efeito tamanho foi verificado. O efeito jogo esteve presente nos três tamanhos diferentes. Também definimos comportamento estratégico como a diferença de ofertas entre o jogo do ultimato e o jogo do ditador. Seis regressões foram computadas e os seguintes resultados foram obtidos: empatia afetiva, como previsto, foi um preditor de ofertas no jogo do ditador e também no jogo do ultimato; ao contrário do que previmos, usando o MET, empatia cognitiva previu negativamente comportamento estratégico; ao usar o IRI (Índice de Reatividade Interpessoal), a Preocupação Empática (empatia afetiva) previu negativamente o comportamento estratégico. Além disso, ao usar o MET, a empatia cognitiva e a empatia afetiva (para emoções negativas) foram ambas preditores de ofertas no jogo do ditador.

Palavras-chave: empatia afetiva, empatia cognitiva, IRI, MET, Tomada de Decisão Económica

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Chapter 1

Introduction

Understanding the motivation behind individuals' actions is extremely important when analyzing human behavior.

Standard economic theory assumes that individuals make decisions solely out of self-interest. The ultimatum/dictator game are two economic games designed to challenge this theory.

Empathy is a topic that has been gaining strength and popularity throughout the last decades. Understanding what empathy is and its effects can create much value in organizations, or even in something as simple as everyday human interactions.

This study aims to understand the effect that empathy has on economic decision making. This will be done by analysing the relationship between empathy and offers in an ultimatum and dictator Game.

Chapter 2 covers the literature review, first focusing on empathy: what it is; types of empathy; how to measure it. It is followed by prosocial behaviors, which gives an insight into what they are, as well as the motivation behind these behaviors. Literature studying the relationship between these two variables, empathy, and prosocial behaviors, is then analyzed. The second half of this chapter introduces the ultimatum and the dictator Games. This section covers past studies done of these games and focuses on the relationship between empathy and offers within these games. There are two types of empathy: cognitive and affective. It is important to note that there are still doubts about how these two types of empathy relate to prosocial behaviors, more specifically, altruism. The relation between affective empathy and altruism seems to have achieved more consistent results, showing a positive relationship between these

two variables. However, there are still some studies that achieve opposite results. The relation between cognitive empathy and altruism is, however, still very much unknown. No specific pattern of results has been achieved. This study will serve as an extra piece of literature that can hopefully create value and contribute to a better understanding of how all these different variables interact with each other. It is also a goal to understand whether the decision to offer more or less in an ultimatum/dictator game depends on the number of coins at stake in the game. That is why we will divide the database into three different groups for three different stake sizes. There is a possibility that when there are more coins at stake, people might tend to be less altruistic and more self-centered.

Chapter 3 covers the hypothesis of this study, based on the literature review presented in Chapter 2.

Chapter 4 presents the methodology of this study. Fifty individuals took part in this study. Self-report measures (IRI – Interpersonal Reactivity Index) and Behavioural measures (MET – Multifaceted Empathy Test) were used to measure empathy. The MET was also used to measure offers in the ultimatum and dictator game.

Chapter 5 shows us the results obtained in this study. It starts by showing the descriptive statistics of the various variables. The correlation table and manipulation check follow it. It is in this manipulation check that we will observe whether there is or not a size effect (individuals behaving differently when different amounts of coins are in stake) as well as whether there is a difference in offers between the ultimatum and dictator Game. This difference in offers between these two games is something that we expect to happen based on the different sets of rules of these games. This will be analyzed throughout this study. Six regressions will be computed in this chapter to study the various relationships.

Chapter 6 is the Discussion, where we will analyze the possible reasoning behind our results. We will compare our results to our initial hypotheses, and try to explain

possible deviations. This Chapter will also serve to suggest possible modifications made for future studies to understand this topic better.

Chapter 2

Literature Review

2.1. Empathy

Empathy was first referred to as the propensity of individuals to project themselves into that of which they observe. According to Lipps (1926), witnessing a human's emotional state leads the observer to imitate the other's emotional cues, which results in the fabrication of similar, even though weaker, reactions in the observer.

Empathy and sympathy are sometimes hard to differentiate. If we look back at Smith (1759), we can see that his definition of sympathy, of imagining and placing yourself in others' situations, is now much more relatable to the term empathy. Empathy suggests a more active attempt by someone to get "inside" the other, to understand others feelings as though we were having them ourselves.

To Titchener (1909), empathy is identified as the deliberate effort made by someone to step outside himself/herself and "into" the experiences of others. This could be accomplished by viewing and interpreting the other person's movements, actions, and physical cues. Piaget (1932) suggests that this ability of role-taking, is said to increase throughout childhood.

Empathy is also described as someone reacting emotionally because he/she perceives that another individual is experiencing or on the verge of experiencing an emotion (Stotland, 1969). However, this study says nothing about the existence or not of similarity between the observer's emotion and the other person's emotion.

In accordance with Eisenberg & Strayer (1987) and Hoffman (1984) for empathy to exist, there must exist at least similarity between the emotion felt by the observer and the emotion felt by the target. Batson states that it is not enough that the emotion felt by these two individuals is the same. To him, empathy must only be associated with feelings of compassion. Davis (1994) explains how empathy is the affective reaction to the emotions of another person, the cognitive act of adopting that person's perspective, a cognitively based understanding of the other person as well as the communication of such understanding.

As we can see, since the beginning of the study of empathy, it has been hard to create a universal definition that everyone can agree on. However, even though the specifics may differ from author to author, the generally accepted idea of empathy revolves around the ability of an individual to understand and feel the emotions felt by another. As we can see from this definition, empathy can be divided into two different types of empathy: *cognitive empathy*, that focuses on an individual's ability to understand another person's emotions, and *affective empathy*, which focuses on the individual's ability to feel the emotion felt by the other person.

2.1.1. Cognitive Empathy and Affective Empathy

Research suggests the existence of two different sides of empathy: affective empathy and cognitive empathy. Batson (2009), Blair (2005), Singer (2006) & Dziobek et al. (2008) are examples of studies that agree that empathy comprises of both affective and cognitive components and that it is meaningful to distinguish between them. Hodges and Myers (2007) asserts that affective empathy has three components: feeling the same emotion as the other person, personal distress (in response to perceiving that other person's plight), and feeling compassion for another person. This last component is often what we call "empathy concern" and sometimes sympathy.

On the other hand, cognitive empathy refers to the extent to which we perceive that we have successfully guessed someone else's thoughts and feelings. It includes easy tasks such as visual perspective-taking (e.g., standing in our living room and imagining what a person outside can see through the window) to complex tasks such as imagining another person's guess about the beliefs of a third person. It is based on seeing, imagining, and thinking about the situation from the other person's point of view. To be able to imagine what it would be like to be a specific person, one must possess some knowledge of that specific person's personality or history, for example. Having greater cognitive empathy essentially means having more accurate and complete knowledge of the contents of someone else's mind. While affective empathy suggests the experience of feelings compatible with another emotional situation, cognitive empathy signifies the understanding of other mental states (Edele, Dziobek & Keller, 2013). These two different sides of empathy have been identified as relying on different neuronal mechanisms (Bernhardt & Singer, 2012; Fan, Duncan, de Greck, & Northoff, 2011).

Every individual possesses different levels of affective and cognitive empathy. Studies have shown that an individual's cultures and upbringings affect these levels of empathy. For example, results from Cassels et al. (2010) showed that young adults from East Asia reported lower levels of empathy concern than young adults from Western countries. Also, Birkett (2013) found that American college students scored significantly higher on the Empathy Concern sub-scale than Chinese college students. Atkins (2014) achieved results which showed that British adults reported higher levels of empathic concern, but lower levels of cognitive empathy, in comparison to Chinese individuals.

Different studies may measure empathy with different methods. It is essential to understand the various options of measuring empathy and the critical differences between these options.

2.1.2 Measuring Empathy

There are a variety of methods used to measure empathy: self-report measures, behavioral measures, and physiological measures. Self-report measures are done by asking participants to complete specific questionnaires. It is the most used measure, due to its cost and facility. However, in self-reports, individuals can be dishonest, lack the introspective ability to provide an accurate response to the question, or not understand the question (Hoskin, 1995). A person might self-report to be someone very good at understanding how others feel when, in reality, that might not be the case. Various biases may affect the results.

Behavioral measures, in contrast to self-report, can discover an individual's capabilities, by analyzing its answers or behaviors. Participants' behaviors are observed and recorded. This may be done in a structured laboratory setting or a more natural setting, for example. Being able to observe how an individual acts and being able to check individuals' answers to specific questions gives us a more unobstructed view of that individuals' true capabilities. Furr & Funder (2007) asserts that the most prominent and necessary way to assess an individual's personality is to in fact see how they act.

Lastly, we have the existence of physiological measures, that focus on recording changes in a person's central and autonomic nervous system when presented with a particular situation. Emotional arousal tends to be associated with changes in physiological responses as assessed by heart rate, palmar sweating, skin conductance, etc. This type of measure can be beneficial for individuals that are unable to decipher or accurately communicate their emotional states, like young children. Behavioral measures and physiological measures tend to be more time consuming and costlier. For this reason, they are not used as frequently as self-report measures.

a) Self-Report Measures

Developed by Mark H. Davis (1980, 1983), the Interpersonal Reactivity Index (IRI) is a widely-used measurement tool to assess empathy. As reported by Davis, empathy consists of a set of separate but related constructs. It is able to evaluate the affective and cognitive dimensions of empathy. It contains the following four seven-item subscales: Perspective taking (reflects the tendency to spontaneously adopt another person's point of view); Empathic Concern (capability of experiencing sentiments of compassion and worry for unfortunate others); Personal Distress (tendency to experience personal distress and discomfort in response to distress in others); Fantasy (capability to transpose oneself into fictional situations). Observing another person unleashes mechanisms that produce actions in the observer. Davis (1980, 1983), as well as translated versions of studies regarding the IRI, have shown the existence of a positive correlation between Empathic Concern and Perspective taking. Also, a positive correlation between Empathic Concern and Personal Discomfort. Another result, but with less consistency, is the negative correlation between Perspective taking and Personal Discomfort.

b) Behavioral Measures

Behavioral measures were developed to address the limitations of other empathy measures, primarily questionnaires.

The Multifaceted Empathy Test (Dziobek et al., 2008), usually referred to as MET, is a computer-based test that uses photographic stimuli to measure cognitive and affective empathy. It's a test that consists of photographic images of emotional scenes, accompanied by four words (three distractor words and one target word). Individuals in the stimuli vary in gender, age, ethnicity, and socio-economic status. Using a nine-point Likert-type scale, participants are asked to rate how strongly they experienced the feelings of the person showing on screen. They are then requested to select the

emotional state of that same person. Four options are presented. The first request focuses on affective empathy, while the latter analyses cognitive empathy.

Results from Foell, Brislin, Drislane, Dziobek, Patrick (2018) show the existence of significant positive correlations between empathy scores of the MET and empathy scores in the empathic concern and fantasy subscales of the IRI. By providing this alternative to conventional questionnaires, the MET can be a valuable supplement in the study of empathy.

c) Physiological Measures

Many factors can influence Self-report measures, and an individual always has the option of not answering truthfully. With physiological measures, this is not possible since it is an emotional response.

Physiological measures have been used for decades to assess empathic and related reactions (e.g., Stotland, 1969). These measures tend to be captured by electronic equipment connected to the individual's body. They can be done by measuring the heart rate, skin conductance, or using psychophysiological methods for example, like neuroimaging. Studying the gestural, facial, and vocal indices of empathy-related responding is also an option. As stated by Eisenberg & Miller (1987), physiological measures indicate an emotional reaction but do not explain cognitive processes.

There is a lot more knowledge regarding self-report and behavioral measures than physiological measures. The most significant disadvantage of these measures is the impracticality surrounding them. Also, to Zhou, Valiente, and Eisenberg (2003), it is unclear whether physiological measures allow one to distinguish between empathy, sympathy, or personal distress. Nevertheless, in future studies, understanding this relationship can be crucial to understand empathy better.

Being able to understand how empathy affects an individual's thought process and behaviors is extremely important. Past research has shown the existence of a positive correlation between empathy and prosocial behaviors. It is, therefore, essential for us to understand what a prosocial behavior is, what is the motivation behind these behaviors, as well as its relation with empathy.

2.2 Prosocial Behaviours: Definition, Motivation and its Relation to Empathy

Prosocial behaviors have usually been defined as intentional, voluntary behaviors that result in benefits for another (Eisenberg, 1982). However, the reasoning behind these behaviors may not always be altruistic.

Determining the reasoning behind prosocial behaviors is not easy. It can be motivated by empathy, sympathy, personal distress, as well as other factors (Eisenberg & Miller, 1987). Typically, when we think of prosocial behaviors, we usually think of positive intentions. However, it is not uncommon for people to have egoistical reasoning behind these actions. Prosocial behaviors can be a way to boost reputation or social status, for example. Still, lots of prosocial behaviors come from altruistic intentions. These behaviors are the ones that are generally associated with empathy and sympathy (Eisenberg & Miller, 1987). According to the empathy-altruism hypothesis (Batson & Coke, 1981), empathy promotes altruistic prosocial behaviors. It emphasizes on the role of affective empathy and its relationship with altruism. Having empathy creates an altruistic motivation of increasing another individual's welfare. This hypothesis suggests that individuals with higher levels of empathy would be expected to act in a more responsive way to the feelings of another (Andreoni & Miller, 2002).

A model to try to differentiate between altruistic motivated prosocial responding and egoistically motivated prosocial responding was developed by Coke, Batson, &

McDavis in 1978 and Batson & Coke in 1981. They suggest that when someone feels the need to reduce another person's distress, there is a psychological cost for not helping that person. At the same time, another person but with egoistical intentions (ex: reduce the feelings of own's distress), does not feel this psychological cost of not assisting. This person can escape these feelings of personal distress by merely escaping the situation without having to help the other person, if escaping is possible.

Stotland, Mathews, Sherman, Hansson, & Richardson (1978), and Batson, Cowles, & Coke (1979) are examples of studies that have been made regarding the relationship between empathy and prosocial behaviors. Studies involving this relation have been performed in both children and adults and have been made through different kinds of methods. The method of assessing empathy has been shown to influence the strength of this relation. Eisenberg & Miller (1987) divide all relevant studies up to 1987 into seven groupings, with each grouping using a different method. A meta-analysis is conducted for each of the groupings. Most of the experimental procedures used by researchers to manipulate empathic responding by altering participants' internal states have shown the existence of a positive relationship between empathy and prosocial behavior. It is also clear that different methods of measuring empathy led to different degrees of the relationship between empathy and prosocial behavior. After being tested with meta-analytic procedures, the only indices of empathy which was nonsignificant was picture/story procedures. The indices of empathy that showed a higher degree of relation differ from picture/story procedures because, in the latter index, the scenario is hypothetical, stimuli did not feel lifelike.

On the other hand, the indices which were more highly related to prosocial behavior involved stimuli that were not presented as being hypothetical. If we look at studies involving experimental inductions or experimental simulations, the object of one's empathizing and prosocial action has generally been the same (Eisenberg & Miller, 1987). When this happens, it is reasonable to find a stronger relation between empathy and prosocial behavior. Also, in the indices where we saw a higher degree

of relation, the experiments were mostly done to adults. The relation in children seems to be weaker than in adults. A plausible explanation for this is because people's affective responses and behavioral reactions become more integrated with age.

As we have seen, an individual's behaviors do not need to be solely motivated by self-benefits. Game theory studies cooperative and noncooperative approaches to social situations and games, where participants must choose between individuals and collective benefits. An individual's actions affect not only himself but other participants as well. It is important to understand how empathy affects these decisions. The ultimatum game and the dictator game are two examples of economic games designed to question the assumption that people will act solely out of self-interest.

2.3. Game Theory: Ultimatum and Dictator Game

2.3.1. Ultimatum and Dictator Game: Rules

Ultimatum Game

The ultimatum game is a popular game used in economic experiments. Two people take part in this game. Player A is tasked with splitting a certain sum of money with player B. Player B has the option to accept or refuse the offer. If accepted, the players split the money the way proposed. If player B refuses, then both players receive nothing.

Dictator Game

The dictator game is a derivative of the ultimatum game. The key difference is that Player B does not get the option to accept or refuse the offer. Player A dictates what each player will end up with, and the game ends there.

2.3.2 The Relation between The Ultimatum Game / Dictator Game and Empathy

Boyd & Richardson (2005) explain how fundamental it is that community members share resources not only with people they are close with but also with anonymous others. It is the key to establish and maintain common welfare in a society. However, the standard economic theory assumes that individuals act solely out of self-interest. Therefore, in an ultimatum/dictator game, the best play for player A is to offer the smallest positive share (assuming that not offering anything is not an option), and the best play for player B (in an ultimatum Game) is to accept any offer. However, in reality, this does not usually happen. There is an abundant number of examples of prosocial behaviors that go against economists' predictions since it challenges the assumptions of the self-interest models of human behavior (Camerer, 2003). This provides evidence that humans are driven by social preferences, such as fairness and prosociality. A large amount of empirical evidence based on laboratory games has shown how actually our behaviours deviate from the economic prediction of profit maximization.

The dictator game tries to help us understand why this deviation exists (Bolton, Brandts, & Ockenfels, 1998; Henrich et al., 2004). Prosocial behaviors are susceptible to confounds (e.g., social desirability or the expectation of future reciprocity). Games like the dictator game are potent tools for the study of altruism as they control possible confounds (Edele, Dziobek, & Keller, 2013). Contrary to what some people might think, studies regarding the dictator game show that individuals in the dictator position take fairness and potential adverse consequences into account when making their decision. According to Engel (2011), it is rare for player A to give nothing to player B. What this means is that the utility function that an individual wants to maximize, considers the welfare of the recipient. Forsythe, Horowitz, Savin & Sefton

(1994), & Camerer & Fehr (2004) claim that only a minority of people act utterly selfish in the dictator game and keep the whole share for themselves. Brañas-Garza (2006) show how the amount given from Player A to Player B was substantially more significant when the dictators were aware of the recipient's need of the money. Since there is no risk of rejection in the dictator game, altruism is the only possible motive for positive offers. Studies have shown that individuals distribute approximately 20% to 30% of a stake to the other player in the dictators game (Forsythe et al., 1994; Camerer, 2003) and 40% of the stake in the ultimatum game (Camerer, 2003).

In regards to the ultimatum game, and as stated above, the classical economic theory assumes that player B should accept every offer presented. This is because by not accepting, then that individual ends up with nothing. Therefore, it seems logical for player B to accept any offer player A makes. However, findings have shown how most responders reject offers they deem unfair. Studies have suggested that individuals who reject offers of less than 50% do it because they want to punish player A (teach them a lesson, so they do not commit the same mistake in the future). As said by Camerer (2003), approximately half of the responders reject offers that are less than 20% of the total amount of money. These offers are seen as unfair offers in the eyes of the responder. Page & Nowak (2002), Szolnoki, Perc, & Szabo (2012), and Iranzo, Floría, Moreno, Angel Sánchez (2012) suggest that empathic individuals will offer an amount that they would accept if the roles were reversed.

Both these games have been used to study generosity and have shown that individuals with antisocial traits are associated with less generous offers (Koenigs et al., 2010). Several studies like Rand (2012) have suggested that, when placed under time pressure, individuals tend to contribute more in a public good game. These results inspired the FII (Fairness is Intuitive) hypothesis. This hypothesis suggests that a decision-maker intuitively prefers fairness (ex: sharing resources in dictator game). However, other studies, like Verkoeijen and Bouwmeester (2014), do not achieve the same results. Furthermore, Capraro and Cococcioni (2016) state that making decisions

under time pressure in a public good games leads to more selfish choices. According to Merkel & Lohse (2019), time pressure does not consistently promote fairness.

Osumi & Ohira (2017) study the behavior of individuals with psychopathic traits in ultimatum and dictator games. Primary psychopathy has been directly linked to a lack of empathy. This study's results showed that individuals who scored high on primary psychopathy offered a significantly larger amount of money in the ultimatum game than in the dictator game. Also, the amount of money offered to a friend was significantly higher than the amount they offered to a stranger. According to this study, the result that primary psychopathy tended to be associated with smaller offers suggest that primary psychopathy is associated with general deficits in the sense of fairness.

Well supported theories emphasize a close relation of affective empathy and altruism (Eisenberg & Miller, 1987; de Waal, 2008). This positive relationship between affective empathy and altruism has also been shown in recent studies of economic games (Barraza & Zak, 2009; Farrelly, Moan, White, & Young, (2015); Gummerum & Hanoch, 2012; Klimecki et al. (2016)). However, the relation between cognitive empathy and altruism is more controversial (Batson et al., 2003). According to Li, Yu, Yang & Zhu (2019), although many prior studies have confirmed the role of affective empathy in promoting altruism in economic games, only a few studies have focused on cognitive empathy being a predictor of prosocial behaviour. Studies have not shown the same level of certainty on whether cognitive empathy has any influence on altruism. Studies like Bekkers (2006) and Davis (1983) have shown weak relationships between cognitive empathy and altruism. Gummerum and Hanoch (2012) found that affective empathy positively predicted altruism, while cognitive empathy did not. This result is also obtained by Edele et al. (2013). Li, Yu, Yang & Zhu (2019), however, a recent study from this year, obtained different results. Cognitive empathy was a predictor of offers in both Ultimatum and Dictator Games, while affective empathy was not. This study suggests that the results obtained may have differed from prior

studies due to the participants' cultures. This study was done with Chinese individuals, while most prior studies were done with individuals from western countries. Findings from Atkins (2014) and Cassels et al. (2010) suggest that Eastern adults possess higher levels of cognitive empathy, but lower levels of affective empathy, than Western adults. Artinger et al. (2014) achieved similar results to the ones obtained by Li, Yu, Yang & Zhu (2019). As reported by this study, perspective taking (cognitive empathy) was a predictor of altruism, while empathy concern (affective empathy) was not. Individuals in this study, however, were German undergraduates, and not individuals from Eastern countries. These different results from different studies create undoubtedly a research gap that can only be filled with additional research.

Chapter 3

Hypothesis

Studies have shown that it is frequent for individuals to distribute more money in an ultimatum game than in a dictator game (Camerer, 2003). This is because, in an ultimatum game, the individual receiving the offer can reject it. Therefore, it is crucial that Player A tries to understand how player B thinks, and therefore understands which offer player B would be willing accept. Essentially, player A's offer may have a strategic component. In a dictators game, this does not happen. In this game, since player B does not have the option to reject, player A's offer is purely prosocial. The dictator game rules out other motives than the intention to benefit others. Bolton & Ockenfels (2000) and Camerer (2003) state that the amount of money offered in a dictator game constitutes a measure of altruistic sharing tendencies.

If a particular individual has ten coins to divide and decides to offer five coins in both games, then we can say that that person is acting purely prosocially in both games, and not strategically. On the other hand, if a person decides to give away five coins in an ultimatum game but only two coins in a dictators game, then we know that this person's offer in the ultimatum game has some strategic reasoning behind it. Since in the ultimatum game, there is the altruistic prosocial component and the strategic component, and in the dictator game, there is the only the altruistic prosocial component, we can define our strategic component as being the difference in offers in the ultimatum game and the dictator game.

At the same time, we have also seen the existence of a positive relationship between empathy and prosocial behaviors. It has also been suggested that empathic individuals make offers they themselves would be prepared to accept. We expect to find a positive relationship between empathy and the amount offered in these games.

Therefore, our hypothesis are the following:

Hypothesis 1: Higher empathy, specifically affective empathy, will predict higher offers in a Dictators Game.

We expect that higher scores on the empathic concern subscale of the IRI, will predict higher offers in a dictator's game.

Also, higher scores on the affective component of the MET will predict higher offers in a dictator's game.

Even though some studies achieve different results, a vast majority of research has discovered a positive relationship between affective empathy and altruistic behaviors. In a dictator's game, offers are purely seen as altruistic prosocial behaviors, since there are no strategic benefits in offering more. Therefore, it is expected that affective empathy is a predictor of offers in a dictator's game.

Hypothesis 2: Higher empathy, specifically cognitive empathy, will predict higher strategic behaviors.

Higher scores on the Perspective Taking sub-scale of the IRI and the cognitive component of the MET will predict higher difference scores between the offers in the ultimatum and dictators game.

We have defined strategic behavior as the difference between offers in the ultimatum game and the dictator game. The concept of cognitive empathy tells us that higher levels of cognitive empathy essentially means having a better ability to understand what is going on in someone's mind and understand how they feel at any moment.

Let us look at two different scenarios. An individual with high levels of affective empathy is expected to make the same offer in both games. We expect, just like we have seen in hypothesis 1, that affective empathy will lead to higher offers. If an

individual is making high offers in a dictator's game, then we can expect the same thing to happen in the ultimatum game. The strategic component of the ultimatum game will not exist in this scenario, since the offer should be sufficiently good enough to be accepted by the other player. Now let us look at another individual, that has high levels of cognitive empathy but low levels of affective empathy. This player is expected to make low offers in the dictator's game since offers in this game are seen as altruistic prosocial behaviors. However, in the ultimatum game, this player that has high levels of cognitive empathy, will understand that if he/she makes a low offer, then the offer will most probably not be accepted by the other player. For this reason, we expect that individuals with the capability of shifting perspective and taking on the role of the other players' mind (higher levels of cognitive empathy), will be able to strategically adjust its offer to ensure the other player accepts it. It is, therefore, plausible to hypothesize that cognitive empathy will be a predictor of strategic behavior.

Hypothesis 3: Higher empathy, either cognitive or affective, will predict higher offers in an ultimatum game.

Higher scores on the Empathy Concern and Perspective Taking sub-scales of the IRI, will predict higher offers in an ultimatum game.

We have said that in the dictator game offers are purely altruistic, driven by affective empathy.

In the ultimatum game, we can expect that offers will be partly explained by the altruistic prosocial component explained by affective empathy, and the strategic component explained we observe in hypothesis two, explained by cognitive empathy. Therefore, we expect both affective and cognitive empathy to be predictors of offers in an ultimatum game.

Chapter 4

Methodology

4.1. Participants

A total of 50 Portuguese students took part in this study (25 Female). The mean age of all participants was 26.56, with a standard deviation of 6.115. The youngest participant was 18 years old, while the oldest was 46 years old.

4.2. Measures

4.2.1 Empathy

Empathy was measured through self-report as well as behavioral measures. Regarding self-report measures, a modified Portuguese version of the Interpersonal Reactivity Index (IRI) was used (Limpo, Alves, & Castro (2010)). This scale has four subscales, each made up of 7 different items. An example for each of the subscales are the following: "I sometimes find it difficult to see things from the "other guy's" point of view" (PT, α); "I often have tender, concerned feelings for people less fortunate than me" (EC); "In emergencies, I feel apprehensive and ill-at-ease" (PD); "I daydream and fantasize, with some regularity, about things that might happen to me" (FS). Participants were asked to answer 28 items on a 5-point Likert-type scale ranging from "Does not describe me well" to "Describes me very well".

In regards to behavioral measures, participants were asked to complete in the computer the Multifaceted Empathy Test (MET). This test consists of 40 photographic images of emotional scenes accompanied by four words (different emotions). Participants were instructed to choose the word which corresponded to the emotional scene shown. This measured the cognitive empathy of the individual. After that, individuals were asked to rate how intensely they experienced the feelings of the

individual shown on screen. This was done using a 9-point Likert-type scale, ranging from 1 = not at all to 9 = very strongly. This measured the individual's affective empathy.

4.2.2. Offers in the Ultimatum / Dictator Game

Participants were asked to sit in front of the computer and decide how many virtual coins to give to pictures of different people in an ultimatum game and a dictator game. Each round, a number popped up on the screen, mentioning how many coins the participant had for that round. Participants would then choose the amount to give to the other player. At the end of each round, an alert popped up, showing whether the offer had been accepted or rejected.

4.2.3. Computed Measures

The variables DT and UG are measures that represent the Mean offer sent by the participants.

To understand if an individual's decision was influenced by the size of the stake (amount of virtual coins in play), the following variables were created: DT Low, UG Low, DT Med, UG Med, DT High, UG High. These variables will be used to understand whether the participant's behaviors changed depending on the size of the stake decision.

The variable "Difference in Offers" was also created, and it represents the Mean Offer in an ultimatum game minus the Mean Offer in a dictators game (UG-DG).

Affective Empathy was also divided into two groups: Affective Empathy + and Affective Empathy -, where "+" and "-" signify positive and negative emotions.

Chapter 5

Results

The following table shows the descriptive statistics of the various subscales of the Interpersonal Reactivity Index (IRI), as well as the sub-scales of the Multifaceted Empathy Test (MET).

Table 1. Descriptive Statistics: IRI and MET

	Minimum	Maximum	<i>Mean</i>	<i>SD</i>
IRI Perspective Taking	12	24	18.6	2.87
IRI Empathy Concern	9	24	18.3	4.15
IRI Personal Distress	0	21	11.2	3.95
IRI Fantasy	6	24	15.6	4.34
MET Cognitive Empathy	0.88	1.00	0.96	0.04
MET Affective Empathy +	1.25	8.60	5.57	1.40
MET Affective Empathy -	2.65	8.50	6.16	1.52

Note. SD: Standard Deviation; +: positive; -: negative.

The following table shows the correlations between items of the IRI subscales, MET subscales, and the various Stake Decisions.

Table 2. Correlation Table

	PT	EC	PD	F	CE	PAE	NAE	DT-L	DT-M	DT-H	UG-L	UG-M	UG-H
Perspective Taking	-												
Empathic Concern	.387**	-											
Personal Distress	.041	.271	-										
Fantasy	.127	.428**	.409**	-									
Cognitive Empathy	.055	.148	-.156	.049	-								
Affective Empathy +	.216	.248	.159	.081	.197	-							
Affective Empathy -	.333*	.335*	.156	.168	.058	.504***	-						
DT Low	.276	.335*	-.050	.199	.423**	.358*	.362*	-					
DT Med	.268	.323*	-.023	.208	.384**	.365**	.315*	.956***	-				
DT High	.281	.315*	-.085	.185	.334*	.341*	.346*	.921***	.963***	-			
UG Low	.234	.276	-.077	.119	.171	.400*	.318*	.740*	.751***	.747***	-		
UG Med	.238	.199	-.113	.122	.189	.387**	.241	.726***	.765***	.743***	.937***	-	
UG High	.242	.161	-.105	.61	.182	.325*	.274	.707***	.746***	.746***	.872***	.931***	-

*. Correlation is significant at the .05 level (2-tailed)

** . Correlation is significant at the .01 level (2-tailed)

***. Correlation is significant at the .001 level (2-tailed)

Note. PT: Perspective Taking; EC: Empathy Concern; PD: Personal Distress; F: Fantasy; CE: Cognitive Empathy; PAE: Positive Affective Empathy; NAE: Negative Affective Empathy; DT-L: Mean Offer in a Dictator Game – Low; DT-M: Mean Offer in a Dictators Game – Medium; DT-H: Mean Offer in a Dictators Game – High; UG-L: Mean Offer in an Ultimatum Game – Low, UG-M: Mean Offer in an Ultimatum Game – Medium; UG-H: Mean Offer in an Ultimatum Game – High.

5.1. Manipulation Check: effects of game and size on behavior

A General Linear Model was created to check the existence of a significant difference in the amount given (stake decision) in both games (game effect), as well as check whether that real difference was present in all Low/Med/High Stake Decisions (Size effect). Game*Size effect was also analyzed.

After applying the Huynh-Feldt correction for violation of sphericity ($\epsilon = .855$ for size; $\epsilon = .777$ for game*size interaction), the Repeated Measures ANOVA revealed a significant effect of game ($F_{(1,49)} = 20.6, p < .001, \eta^2_p = .295$) higher offers in the ultimatum game ($M = 4.66, SEM = .142$) when compared with the dictator game ($M = 4.04, SEM = .215$). Neither a significant effect of size ($F_{(2,98)} = 1.19, p = .310$) nor game*size interaction were found ($F_{(2,98)} = 1.59, p = .209$)

5.2. Regression Analysis

Six linear regression models were computed to understand the relationship between the variables related to empathy and the offers in the ultimatum and dictator games.

The first three regressions study the relationship between the sub-scales of the Interpersonal Reactivity Index (IRI), with the mean offer in dictator and ultimatum games, as well as the Difference in Offers in both these games.

The last three regressions study the relationship between the sub-scales of the Multifaceted Empathy Test (MET), with the amount given in dictator and ultimatum game, as well as the Difference in Offers in both these games.

Regression n°1 was calculated to predict the *Mean amount given in an Ultimatum Game* with *Perspective Taking, Empathy Concern, Personal Distress, and Fantasy* sub-scales of the IRI as predictors. No significant regression model was found ($F(4,45) = 1.362$; $p = .262$; $\text{AdjR}^2 = .029$).

Regression n°2 was calculated to predict the *Mean amount given in a Dictator Game* with *Perspective Taking, Empathic Concern, Personal Distress, and Fantasy* sub-scales of the IRI as predictors. A significant regression model was found ($F(1,48) = 5.887$, $p = .02$, $\text{AdjR}^2 = 0.091$). *Empathic Concern* positively predicted the *Mean amount given in Dictator Game* ($\beta = .331$; $p = .02$). No other significant predictors were found.

Regression n°3 was calculated to predict the *Mean Difference in amount given in an Ultimatum Game and amount given in a Dictator Game* with *Perspective Taking, Empathy Concern, Personal Distress, and Fantasy* sub-scales of the IRI as predictors. A significant regression equation was found ($F(1,48) = 4.432$, $p = .041$, $\text{AdjR}^2 = .065$). *Empathy Concern* negatively predicted the *Mean Difference in amount given in an Ultimatum Game and amount given in a Dictator Game* ($\beta = -.291$, $p = .041$). No other significant relations were found.

Regression n°4 was calculated to predict the *Mean amount given in an Ultimatum Game* with *Cognitive Empathy, Positive Affective Empathy, Negative Affective Empathy* scores obtained in the Multifaceted Empathy Test (MET) as predictors. A significant regression equation was found ($F(1,48) = 8.193$, $p = .006$, $\text{AdjR}^2 = .128$). *Positive Affective Empathy* positively predicted the *Mean amount given in an Ultimatum Game* ($\beta = .382$, $p = .006$). No other significant relations were found.

Regression n°5 was calculated to predict the *Mean amount given in a Dictator Game* with *Cognitive Empathy, Positive Affective Empathy, Negative Affective Empathy* scores obtained in the Multifaceted Empathy Test (MET) as predictors. A significant regression equation was found ($F(2,47) = 8.108$, $p = .001$, $\text{AdjR}^2 = .225$). *Cognitive Empathy* and *Negative Affective Empathy* positively predicted the *Mean amount given in*

a Dictator Game ($\beta = .369, p = .005$) and ($\beta = .326, p = .013$). No other significant relations were found.

Regression n°6 was calculated to predict the *Mean Difference in amount given in an Ultimatum Game and amount given in a Dictator Game* with *Cognitive Empathy, Positive Affective Empathy, Negative Affective Empathy* scores obtained in the Multifaceted Empathy Test (MET) as predictors. A significant regression equation was found ($F(1,48) = 9.937, p = .003, \text{Adj}R^2 = .154$). *Cognitive Empathy* negatively predicted the *Mean Difference in amount given in an Ultimatum Game and amount given in a Dictator Game* ($\beta = -.414, p = .003$). No other significant relations were found.

Chapter 6

Discussion

This study aimed to understand how empathy (cognitive and affective) affects an individual's decision making in an economic experiment setting. Using ultimatum and dictator games, the goal was to check whether higher levels of empathy would result in higher offers of credits. Also, the aim was to understand if an individual's offers change significantly when different amounts of credits are in play.

The game effect showed statistical significance, which means, on average, the amount given by individuals in ultimatum and dictator games was significantly different. Offers in the ultimatum game were significantly higher than in the dictator game. This is a result that was expected, since in the ultimatum game, the individual receiving the offer, can opt to reject. The option to reject leads to strategic behaviors from the other individual. On the other hand, in a dictator game, no such option exists.

Stake size effect did not reach statistical significance, which means individuals did not significantly change their offer percentage, for different amounts of credits at stake. A statistical insignificant effect of Game*Size shows us that the game effect obtained is observed for all three different Stake Sizes. For this reason, we will use the Mean amount offered in both games independently of the stake size, i.e., we will work with a composite variable that incorporates all three stake sizes.

Table 2 helps us give an idea of existing significant correlations between various variables and the direction of these correlations. We can see some expected correlations, namely Perspective Taking with Empathy Concern, as shown in Davis (1980; 1983), as well as Fantasy with Empathy Concern and Personal Distress. Negative Affective Empathy was significantly correlated with Perspective Taking, Empathy Concern, and Positive Affective Empathy.

The Regression Models used allowed us to test the hypothesis of this study. If we look back at our hypothesis, hypothesis 1 predicts that higher empathy, specifically affective empathy, will predict higher offers in a dictators game. We can confirm this by looking at the results of regressions 2 and 5. Regression 2 shows us that the sub-scale *Emphatic Concern*, of the IRI, was a predictor of the *Mean amount given in a Dictator Game*. Higher scores in the *Emphatic Concern* sub-scale of the IRI leads to higher offerings in a dictator game. Also, as we can see from Regression 5, *Cognitive Empathy* and *Negative Affective Empathy* are both predictors of the *Mean amount given in a Dictator Game*. Higher scores on these sub-scales of the MET are linked to higher offerings in a dictators game (higher prosocial behaviors). Results from this regression tell us that anticipating the other individuals' state of mind as well as anticipating the experience of negative emotions due to unfair offers, leads to higher offers in a dictators game.

As previously observed in the literature review, there have been many studies that point to this existing relationship between affective empathy and altruism (which is represented here by offers in a dictator game). Results from studies revolving the relationship between cognitive empathy and altruism are mixed, much less consistent. In our study, affective empathy was always a predictor of offers in a dictator game, independently of how empathy was measured. Cognitive empathy, however, was only a predictor of offers in a dictator game, when empathy was measured with the MET and not the IRI.

Therefore, hypothesis 1 was only partially confirmed. Affective empathy was indeed a predictor of offers in a dictator game, but according to results obtained in Regression 5, it was not the only predictor.

Hypothesis 2 predicted that higher cognitive empathy would predict higher strategic behaviors. To answer to this hypothesis, we must look at Regressions 3 and 6. We expected that offers in the ultimatum game would be significantly higher than the offers in the dictators game. This was successfully proven when analyzing the

existence of a game effect in Chapter 6.3, where we found that offers in the ultimatum game were significantly higher than offers in the dictator game. Strategic behavior was then defined as the difference between offers in the ultimatum game and the dictator game. We expected that individuals with higher levels of cognitive empathy would be better able to understand the contents of the other individuals' minds and adjust his/her offer accordingly. These individuals will have an easier time understanding that other players might reject offers they deem unjust. In other words, these individuals will have a better understanding of the strategy behind the ultimatum game. It was expected that this would lead to higher offers in the ultimatum game, to prevent the possibility of the offer being rejected. However, the results obtained were far from what was predicted. Regression 6's results showed that cognitive empathy negatively predicted this difference between offers in both games. Essentially, the higher the level of cognitive empathy, the smaller the difference between both games (less strategic behavior). At the same time, Regression 3, which used the IRI to study this relationship, shows us that affective empathy negatively predicted strategic behavior. The higher the levels of affective empathy, the smaller the difference in offers we will observe in these two games. According to this regression, cognitive empathy does not predict strategic behavior. This result opens up an interesting discussion. We have previously seen in hypothesis 1 that affective empathy was indeed a predictor of offers in the dictator and ultimatum game. As such, the higher the level of affective empathy, the higher offers we can expect in both games. An individual with high levels of affective empathy is more likely to display fairness oriented behaviors in both the ultimatum game and the dictator game. As such, the higher the level of affective empathy, the higher offers we can expect in both games. As a result, given that we operationalized strategic behavior as the difference in offers between the ultimatum game and the dictator game, the same pattern of behavior in both tasks would lead values in strategic behavior close to zero. As the displaying of strategic behavior and fairness-oriented behavior would lead to similar behavioral patterns in the ultimatum game, both dimensions of empathy seem to be

associated with increased offers. Given that both affective and cognitive dimensions of empathy are correlated, individuals with high cognitive empathy would also display increased scores in the affective empathy dimensions, bearing the dissociation of the relative weight of these dimensions as predictors of strategic behavior impossible in this context.

Hypothesis 3 predicted that Higher empathy, either cognitive or affective, will predict higher offers in an ultimatum game. We believed that empathy would predict higher offers in an ultimatum game because of two reasons. Firstly, the prosocial component, where we expect individuals to offer more because of the affective empathy they feel for the other person. The other component is the strategic component, where we expected individuals to offer more credits so that there is a lower chance of the other individual rejecting the offer. To check the validity of this hypothesis, we can observe regressions 1 and 4. Regression 1 measures the relationship between empathy and amount offered in an ultimatum game, using the IRI sub-scales. The regression did not find any significant relationship between these variables.

On the other hand, regression 4 uses the MET sub-scales and finds a significant relationship between the amount offered and positive affective empathy in an ultimatum game. This regression tells us that anticipating someone's positive emotions due to higher offers, will lead them to offer more. It is interesting to note that this existing positive relation between positive affective empathy and offer amount was only significant in the ultimatum game. In the dictator game, negative affective empathy was a predictor, and not positive affective empathy. Also, contrary to what we expected, cognitive empathy (that we thought would influence strategic behaviors and therefore higher offer amounts) did not show a significant relationship with the amount offered in an ultimatum game.

It is also essential to analyze possible factors that may have contributed to these results. We have said that, in our view, there is no logical reason why someone would

offer more credits in a dictator game than in the ultimatum game. Since offers in the dictator game are seen as purely altruistic, there is no reason why that individual would not offer at least the same amount in the ultimatum game. However, if we look at our results, we can see that throughout 72 games, 11 individuals offered, on average, more credits in the Dictator Game than in the Ultimatum Game.

It is plausible that the experimental setting, by not involving other real people, may not feel lifelike enough. As stated by Eisenberg & Miller (1987), the studies that showed higher degrees of relation between empathy and prosocial behaviors were the ones where the situation was not being presented as hypothetical. In our study, people are asked how many credits they would give to hypothetical individuals experiencing different emotions. It would be interesting to see the differences in results if the exchange of credits was done face to face. When being face to face with the other player, it is possible that individuals might take more time observing and studying the other person, and therefore cognitive empathy might lead us to different results. Also, affective empathy might be more impactful when being presented with a real person in front of you, than with a hypothetical person in a computer screen.

Not only that, but the reward gained from these games is also a critical factor that influences decision making. When someone has nothing to lose, then it is hard to know its real intentions. No person minds losing fictional credits, because they are indeed fictional. When there is something in play that people care about is when we can really see a person's real intentions.

It is possible that the lack of reward in this study made it so individuals did not care about what amount of credits to give. It would be interesting to see how different the offers would be if the money in play were indeed real money. Individuals would maybe think twice before sending out certain offers, and we would be able to observe self-benefit VS altruism at its purest form.

In this study, the size effect was not significant, which means that individuals did not significantly change behaviors (offer patterns) depending on the amount of credits at stake. However, it has been suggested by Neuberg, Cialdini, Brown, Luce, Sagarin, & Lewis (1997) that empathy increases only superficial minimal cost helping. It would be beneficial if future research study how human behavior changes when there is more real money in play. It is plausible to hypothesize that as more money is at stake, the larger the cost of assisting, and therefore the larger occurrence of egotistical behaviors.

It is also important to note that the sample size of this study was only 50 individuals, which is relatively low. Future research with higher sample sizes may be able to understand better how all these variables interact with each other.

The understanding of the role of empathy in society will continue to develop as time goes on. If we look at the business world, work is becoming more team-based and requires adaptability and flexibility between people. Work teams with empathic individuals are more cooperative and have fewer confrontations. Being empathic helps you see things from various perspectives, which helps you develop. It is a crucial component of leadership. It is quite common to hear in society people complain about the bosses they have at work. Not all bosses have the ability to be good leaders. Humphrey & Adams (2016) state that empathy help leaders become more effective leaders by helping them establish empathic bonds with their followers. It helps leaders realize when others are in distress, and motivates leaders to take risks on behalf of others. We humans are “social creatures” and interacting positively with other people leads to higher levels of happiness, which in turn, will lead to better work environments, and better work productivity. We have examples of this even in sports, where there are examples of football players saying they would “die on the pitch” for their managers.

We have previously explained how cognitive empathy can be defined as the ability to understand how another person feels and how they think. This can be extremely

useful with sales teams. A sales team with high levels of cognitive empathy will be better able to understand the needs of a consumer/customer. A skilled salesperson must be able to anticipate customers' needs and adjust their sales pitch accordingly. A client wants to be understood. Empathizing with clients, showing them you understand how they feel, will create a bond and trust between you two. Also, since empathy has shown to boost happiness levels in the workplace, it may be a key factor in attracting top-performing individuals. Nobody wants to work in a negative workplace, where individuals do not feel valued, and bosses treat their employees poorly. Top performing individuals have many job offers, so having a positive workplace, with an emphatic leader, may be a way of attracting top talent to your organization.

Research will continue to be made regarding the impact of empathy in society. However, there is no doubt that it has its abundant benefits, whether that is in the business world, or even something as simple as everyday human interactions.

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