A Multi-Period Theoretical Model of Prosocial Behavior

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ABSTRACT

Classical economic theory argues that individuals are rational and will use their income for their own advantage and advancement. However, charitable giving as well as giving in dictator game experiments cannot be completely explained by selfish concerns. The literature on prosocial behavior combines altruistic motives with greed and concern for social reputation to explain "unselfish" giving. This thesis presents a review of the motivations behind prosocial behavior as observed in charitable actions and dictator games, as well as their impact on economic decisions.

The contribution of this thesis is twofold: First, it extends existing theories of prosocial behavior to a multi-period theoretical model of prosocial giving, which allows the donor to enjoy reputational benefits over time. Second, it models the donor's choice of *how* to behave prosocially by deciding whether to make a donation in the form of money or whether to donate a piece of personal value. The thesis also shows in which settings the donor is indifferent between her two choices and in which settings she has a specific preference. In particular, I find that present-oriented donors are more likely to donate money and that people with higher reputational concerns tend to donate more pieces of personal value than money.

ACKNOWLEDGMENTS

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CHAPTER 1

INTRODUCTION AND OVERVIEW

A central question in the social sciences is whether generosity arises without being caused by self-interest. Naturally, this question tries to address situations in which people engage in activities that mostly benefit others, such as giving to charities or volunteering. On the one hand, standard economic theory assumes that humans are rational and self-interested actors who seek to maximize their own satisfaction and utility. Thereby, economic behavior can be explained by attempts to increase one's utility. As Adam Smith famously stated: "[i]t is not from the benevolence of the butcher, the brewer, or the baker that we expect our dinner, but from their regard of their own interest". [36] On the other hand, evidence from charitable giving as well as giving in dictator games cannot be completely explained by selfish concerns. In an overwhelming number of situations, people do not seem to behave in their self-interest, but rather behave prosocially. As evidence, individuals contribute substantial amounts of time and money to public goods. For instance, in the United States alone, in 1995, more than 68 percent of households contributed to charitable organizations.[31]

Is this apparent generosity of individuals motivated by altruism or self-interest? The above puzzling but consistent results have led to speculations about the causes motivating people to behave in what may seem irrational, unselfish, and generous ways. A large number of studies have evolved to

explain prosocial behavior. The extensive evidence from the literature on prosocial behavior divides the different motives for individuals to behave prosocially roughly into three categories: intrinsic, extrinsic, and reputational motivation. *Intrinsic motivation* is defined as the inner good feeling of the individual associated with the prosocial act. This feeling is represented by a preference for the well-being of others, such as altruism and warm glow.[31][9] *Extrinsic motivation* represents any material reward, such as a financial compensation or a tax reduction, that a individual may receive which encourages more giving.[9] Finally, *reputational motivation* refers to the effect of public recognition on the decision of the individual to make a donation. Whether individuals are interested in improving their social image in a community, whether they give expecting something in return, or whether they are ashamed to be perceived as selfish by others, studies emphasize the effect of striving to signal traits that are defined as "good" within a community on the decision of the individual to give.[8][6][13][19]

In this thesis, I propose to extend the current literature by considering a multi-period model of prosocial behavior in which the donor has a choice of *how* to behave prosocially and in which the reputation felt by the donor has effects over time. More precisely, by allowing the donor to choose between making a financial donation to an organization and donating an object of personal as well as monetary value, I am able to define a novel scenario in which giving occurs.

As a motivating example, let's consider the following scenario: An individual needs to decide whether to donate a tangible good, such as an art

piece, to a museum, which will extend her reputational benefits over time, or to donate the equivalent financial value to the museum, an option which saves her the emotional loss of having to replace the art piece. At first, the two choices seem equivalent. However, the key difference is that these two choices create different reputational benefits for the individual in the long run. Also, consider the problem of the museum who can receive a donation either in the form of money or as a piece of art. An interesting question addressed in this thesis is which of the two choices does the donor prefer and which will the museum encourage?

The above scenario is complicated by a practice know as "deaccessioning", whereby museums can sell off parts of their collection to pay for expenses such as purchasing new art or paying for administrative costs. Another question this study addresses is how the probability that the museum will sell the piece of art it received from the donor can influence the initial decision of the donor to give. The probability of deaccessioning plays a role in the decision of the donor to give, because the donor knows that if she donates a piece of art in the present, she can enjoy some reputation in the future associated with the visibility of her act to all those walking through the museum. Therefore, apart from the intrinsic benefit and the warm glow that the donor feels after making any donation, she also enjoys some reputational benefits which have effects over time. However, if the donor decides to donate money, then she will not enjoy the same reputational benefits, because of lack of visibility, but instead she would pay a lower cost, because she does not have to give up a personal object to which she is emotionally

attached, such as a painting.

By extending existing theoretical models to incorporate all the observations of the above scenario, this thesis shows in what settings the individual is indifferent between her two choices and in which she has a specific preference. The results reported in chapter 4 add to the current literature on prosocial behavior a multi-period analysis of giving in which the donor has a choice of what to give.

This thesis is organized as follows: Chapter 2 provides a detailed literature review of motivations driving giving in both dictator games and charitable activities. Chapter 3 describes two of the most relevant existing theoretical models of prosocial giving. Chapter 4 describes the model and will provide a discussion of the results as well as suggest possible extensions of the model. Chapter 5 concludes.

CHAPTER 2

LITERATURE REVIEW OF PROSOCIAL BEHAVIOR

2.1 Structure of the Literature Review

The literature review of this thesis consists of three parts. Chapters 2.2-2.7 provide an overview of the prosocial behavior literature. Chapter 2.8 describes evidence for prosocial behavior from the literature on dictator games. Finally, chapter 2.9 integrates the current study in the existing literature.

2.2 Altruism

Altruism, as an intrinsic motivation, refers to the inner good feeling associated with the decision to give. Individuals are considered altruistic if others' consumption or utility positively affects their own utility. [7] For instance, people contribute to a public good because they enjoy improving the well-being of others. Data on charitable giving suggests that individuals care not only about their self-interest, but also about the well-being of others and therefore, decide to contribute both money and time to benefit others.

In *pure altruism* theories, individuals, even though have a preference for others utility, do not care about their source of well-being. Andreoni in [2][3] extends this pure altruism theory to include a 'warm glow' motive for giving. In this *impure altruism* theory, individuals care not only about

the utility of others, but also derive some utility from the prosocial act in itself. As a result, individuals receive some internal benefit from being the ones who increase others' well-being.

Even though altruism is an important motivation for making voluntary contributions to a public good, it only partly explains why people decide to behave prosocially. As will be described in chapter 2.8.1 almost all studies, especially empirical papers, include this motivation in their models. However, altruism is not seen by most studies as a strong enough motive to explain prosocial giving in general. [9]

2.3 Effect of Rewards and Punishments

Apart from intrinsic incentives to give, the literature also describes the effect of *extrinsic incentives* or material rewards on the decision to give. In standard economic theory, introducing an extrinsic motivation, such as money, always increases the individual's motivation and productivity, and cannot lower effort. As a result, from an economic point of view, people's decision to behave prosocially depends on the relative cost of doing so. For instance, the more expensive the prosocial act is the less it should be undertaken.

However, there exist situations in which providing monetary incentives for prosocial acts may have a perverse effect. [8][22][32] The basic argument highlights the fact that providing external incentives for actions that individuals would have performed even without the extrinsic motivation, lowers the quality of the perceived image or perception of others. In other words,

actions that in the absence of extrinsic motivations, would be labeled as altruistic are perceived as being driven by social esteem or monetary rewards when extrinsic motivations are introduced, and hence, have a negative effect on the social image of the individual.

Rewards or punishments as extrinsic incentives may create doubt about the true motive for giving, because they may point to the possibility that the donator may receive utility from other sources than intrinsic and altruistic ones. As a result, extrinsic incentives may have a counterproductive effect in that they crowd out intrinsic incentives. Such crowding out of intrinsic incentives by extrinsic incentives has been reported by a variety of studies, including the classic blood donation model introduced by Richard Timuss (1970) in [38]. While observing voluntary blood donation practices, Timuss argued that an altruistic agent might decide to donate less when introduced with monetary incentives, because this introduction may attract more non-altruistic types to donate as well. In turn, this will dilute the signaling value of the prosocial activity and thus, decrease the altruistic agent's benefit derived from social image.

Similarly, other studies suggest that economists should consider the detrimental effect of introducing extrinsic incentives on intrinsic motivation. For instance, Frey and Oberholzer-Gee (1997) in [22] develop a theory of motivational crowding-out of intrinsic incentives. This is an interesting framework in which to analyze the dynamics of intrinsic and extrinsic motivation. Similar to other studies, the authors explain that, if an action is intrinsically motivated, offering extrinsic benefits for this same action will

reduce the intrinsic benefit derived from that action. To test their theory, the authors build an econometric test of motivational crowding-out in projects that they call "Not In My Backyard" or NIMBY. These projects involve building facilities such as prisons, airports, train stations and other similar facilities, which citizens need and demand but which they prefer where not placed in their vicinity. Economic theory provides the following solution to this problem: people can be "coerced" to accept these projects in their vicinity if compensated *enough* for their suffering. To make this compensation possible, others in the community need to be taxed for not having to endure the same suffering. In other words, what the authors are claiming through the economic solution is that identifying the correct balance between intrinsic and extrinsic motivation can lead to better policy proposals to benefit a community.

Findings on the relation between intrinsic and extrinsic incentives extend a large literature in economics that describes how explicitly incentives can decrease motivation. However, in studying these phenomena, one has to also realize that rewards and punishments cannot only have a perverse effect in any given situation. Indeed, several studies support the classic economic theory claim that individuals are selfish and thus, encouraged to give more if an extrinsic incentive is introduced (Robert Gibbons (1997) [23]).

These observations lead to the conclusion that a more detailed analysis is needed to determine whether extrinsic incentives can crowd out intrinsic motivation for prosocial activities. Benabou and Tirole (2003) in [9] try to end this debate by showing first that rewards have hidden costs in the

sense that in the short run, they may act as reinforcers, but in the long run they may discourage the agent from undertaking similar tasks on his or her own. Similarly, offering help to someone may be detrimental to the self-esteem of that agent and create dependence, which further leads to a lack of motivation to undertake similar actions in the future. They conclude that extrinsic incentives may or may not be negative reinforcers and determine the settings in which extrinsic incentives work and in which they are counterproductive.

2.4   Reciprocity and Social Norms

The concept of "reciprocity" is defined in settings in which individuals act in a more cooperative manner in response to the positive or friendly behavior of others. As a result, reciprocity as a *reputational motivation* is very closely linked to the idea that the more others contribute, the more one gives. For instance, although contributing to charitable organizations does not benefit the donor directly, she may still gain in the long run, because she expects to benefit from reciprocity in the future when she will need help. Leider et al. (2009) in [29] establish that giving is motivated, at least in part, by future interaction (enforced reciprocity). More precisely, the authors find in [29] that altruistic individuals are treated more generously by their friends, not because friends reward intrinsic kindness, but rather because altruistic decision-makers tend to have altruistic friends themselves.

The same authors find that when giving is efficient, i.e., it increases joint benefit, friends increase giving and thus, are more willing to grant favors.

However, when giving is not efficient, the enforced reciprocity model does not work. This result is in conflict with the BT model in [8], which predicts that even if giving is inefficient, it will occur because signaling an altruistic type is beneficial for the agent in any situation. This conflict provides an interesting debate on the role of signaling in motivating reciprocity. This thesis considers reciprocity to be motivated by signaling a certain type to others. More specifically, I view the reciprocity motivation as a different version of the self-interest motivation which is mainly influenced by the benefit of signaling a positive image.

Sometimes, people are encouraged to do good deeds and to refrain from selfish ones because of social pressure or social norms. This is so because society associates honor with good deeds and stigma with selfish ones. Given this distinction, individuals are encouraged to either do good or signal doing good in order to be perceived by others as honorable. As a result, charities and other institutions use donors' desire to signal good deeds by allowing them to literally show, by means of T-shirts, pins and other materials, their association with a cause. As suggested by Stephen Meier in [31], reciprocity and concern to conform to social norms are closely tied together. In particular, by observing the behavior of others, one translates this behavior into a recipe of what one 'should do' .

Social norms also encourage people to find ways by which to avoid being generous when it is not completely necessary. In a study by DellaVigna et al. (2009) in [17], the authors present theoretical evidence for the effect of social pressure on people's motivation for charitable giving. In a very telling

door-to-door fundraising campaign, the authors show that if households receive a flyer with exact information about the exact time of solicitation, giving is decreased. Also, if the flyer includes a box that can be checked for 'Do not Disturb', giving decreases even more. In other words, people prefer to avoid giving in situations in which this is easy to do and does not affect their reputation.

The conclusion the authors draw from these findings suggest that first, social pressure has a significant impact on the decision to contribute to charities, and second that their door-to-door fundraising campaign decreased on average the utility of potential donors. Such a fundraising campaign may decrease the utility of potential donors by making donations more accessible to more people. Similar to the blood donation model, encouraging easier ways of contributing to a cause decreases the signaling value of the action by making it less prestigious and more accessible to others.

Recognizing the constraints as well as the benefits of living in a society shapes the behavior of a community. Therefore, respecting social norms and acknowledging possible judgments of an audience may have a similar effect on giving.

2.5   Effect of an Audience

A series of other papers attest to the role of *reputation* in determining the decision to volunteer in social settings. Reputation is closely related to the concept of visibility. In particular, studies find that having an audience to interpret good deeds is an enforcement to signaling. A recent study

by Linardi and McConnell (2009) in [30] starts from the theoretical framework of Benabou and Tirole (2006) (of which we will provide a detailed description in chapter 3.1) and designs an experiment to test the effect of excuses and monitoring on prosocial behavior. Their model predicts that the presence of an audience should increase the amount of time volunteered. However, in contrast to their theoretical results, the authors find experimentally that the identity of the observer plays a role in determining time spent volunteering, rather than merely the presence of an audience. More precisely, an audience of peers increases time spent volunteering, whereas a monitor decreases volunteering.

The same authors look at the effect of removing the possibility of finding excuses to volunteer on the amount of time spent volunteering. They find that removing excuses encourages greater contributions and that this effect is cancelled by the simple deviation of one of the members of the group from the norm (because this deviation creates a precedence and thus an excuse for future deviations). The authors conclude that social image can both be manipulated to increase prosocial activity and to create excuses for individuals to stop contributing.

Extending the model proposed by BT, Ellingsen and Johannesson - henceforth EJ - in [19] also look at social esteem as a source of prosocial behavior. The EJ model builds on two premises: First, that some people care about their social image or social esteem. Second, that they care more about the opinions of those who they themselves admire.

The EJ model uses a two-stage game between a principal and an agent.

Similar to the signaling game model, the principal moves first and the agent observes the principal's move before making her own decision, but cannot observe the type of her opponent. In addition, given the signaling nature of the game, the authors expect players to prefer that the opponent will think highly of them. In other words, players take pride in how they are perceived by their friends.

The authors show that concern for social esteem provides insight on behavior in several experimental settings such as: the trust game, the gift exchange, and the hidden costs of control. It follows that characteristics of an audience are good predictors of how people will signal their generosity and altruism. Depending on the audience and the visibility of one's actions, some actions are more "worthwhile" than others. This concept of visibility takes us into the next chapter where using visibility, an individual is able to signal her status. However, if the characteristics of the audience do not correspond to the value that she is trying to signal, then the signal is useless.

2.6 Signaling Wealth or Status

If individuals do not solely give to charities or in dictator games because they are generous or because they wish to contribute to the public good or care about the welfare of the receiver in charities and the dictator game respectively, then what other motivation might they have? Another *reputational motivation* is the desire to acquire social prestige. People might engage in activities that benefit others and are costly to themselves from a desire to demonstrate wealth or status. As Benabou and Tirole (2009) [10]

state, people "when contemplating choices . . . factor in what kind of person each alternative would 'make them' and the desirability of those self-views". In other words, people care about how they are perceived by others. This idea is clear even from an earlier quote from Adam Smith's *The Theory of Moral Sentiments* who writes:

> "Nature, when she formed man for society, endowed him with an original desire to please, and an original aversion to offend his brethren. She taught him to feel pleasure in their favourable, and pain in their unfavorable regard. She rendered their approbation most flattering and most agreeable to him for its own sake; and their disapprobation most mortifying and most offensive." [35]

Giving to charities or in dictator games could signal a certain desired level of wealth. As Glazer and Konrad (1996) [24] point out, individuals like to socialize with people of the same or higher wealth as themselves. As a result they wish to demonstrate their membership to a group by signaling inclusion. So, even if 'warm glow' is the sole motivator for some individuals, their presence in the community can stimulate more giving from those who wish to signal the same level of status and commitment to the cause.

Glazer and Konrad (1996) [24] consider a simple signaling game in which people have no incentive to contribute for the purpose of increasing funding for the public good, but only to improve their social image in the community, by signaling wealth. This framework allows them to show how status incentives influence behavior and can lead to excessive voluntary contributions, because signaling status is not accomplished in a one-shot manner. Instead, it requires constant and frequent reinforcement.

This theory is based on the assumption that people are willing to contribute to a charity even if they do not care about the provision of the public good. This assumption is partially supported by the data from charitable donations which shows that anonymous donations are very rare.

In a more recent study [10] (2009), BT extend their results from [8] to discuss how concern for one's self-image may influence individuals to refuse reasonable offers. More precisely, the authors notice that there are certain beliefs that people invest in, which force them to refuse to be in settings that do not reflect this self-image. Two relevant quotes they cite at the beginning of the paper illustrate two instances in which people refuse to conform to reality because this reality does not conform to the beliefs they invested in. I will reproduce the two quotes here:

> If you cut the pay of all but the superperformers, you have a big morale problem. Everyone thinks they are a superperformer.
>
> *(Head of human resources of a manufacturing company, in Bewley 1999)*
>
> A pay cut also represents a lack of recognition. This is true of anybody. People never understand and dont want to understand. They dont want to believe that the company is in that much trouble. They live in their own world and make very subjective judgments.
>
> *(Small business owner, in Bewley 1999)*

Considering that generally charities publicize the donations they receive according to dollar categories rather than the exact amount donated, donors

tend to give the minimum amount necessary to get into a specific category. [24] This fact suggests that donors are aware that their actions are public and visible to others and wish to be perceived as a member of a certain status, while wasting the smallest amount of energy to earn a certain reputation. Refusing to be in settings that do not correspond to one's self-image is evidence of both the effect of an audience and of the effect of being aware of one's identity when deciding how much to donate, as described in the next chapter.

Clearly, status and thus, social image are important motivators for people's behavior in society. Apart from intrinsic incentives and 'warm glow' benefits, people care about how others perceive them and wish to act in ways that improve their reputation in the community.

2.7 Identity

In the same way that individuals learn to be concerned with how others perceive them, they also learn to be concerned with the way they see themselves. Akerlof and Kranton (2000) [1] introduce the concept of *identity* into economic analysis and how it influences economic outcomes. Identifying with an image, such as the image of a woman, affects the behavior of that person and thus her economic decisions. Also, identity is a new form of externality which imposes rules on both those who abide and those who do not abide by the definition or the requirements of that image. For instance, as the authors exemplify, if a man wears a dress that is a feminine piece of clothing, this threatens the identity or the masculinity of both him and

other men, thereby affecting his economic decisions.

In chapter 5, I discuss a possible extension of the model to include this idea of identity, but from a different perspective. More precisely, I believe that it would be interesting to consider the case when individuals decide whether to contribute to a social good by considering if their actions send the 'right' message to others. Thus, I believe that identity is not only a way of identification to a group, as Akerlof and Kranton (2000) define it, but also represents the individual's trademark independent of an association to a group. A more detailed description of this possible extension will follow in the last chapter.

2.8 Evidence from Dictator Games

Volunteering plays a prominent role in the provision of goods and services for charitable organizations, yet little is known about the motivations of people to engage in such prosocial acts. Recent research has focused on altruism, reputational concerns, and material incentives to describe prosocial giving. In this chapter I present evidence for prosocial giving from dictator game experiments. I will begin by defining the rules of the game and continue by discussing three different types of motivation for giving in dictator games.

The traditional dictator game is a simple bargaining game in experimental economics. In this game, one of the two players - the dictator - is given a known sum of money that she may divide with an anonymous and passive second player - the receiver. The receiver has the same instructions as the

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dictator and has to accept the offer the dictator makes. The dictator game is usually played in a single round and thus prohibits strategic incentives for giving.

Backward induction as well as narrow self-interest in this case predicts that the dictator should propose the allocation $(99, 1)$, which corresponds to 99 cents for the dictator and 1 cent for the receiver in the case when the initial endowment for the experimenter is a dollar. However, this outcome is very unlikely to happen. In several studies, dictators give on average between 20 and 30% of the initial allocation (see Camerer, 2003 in [12] for a review). So, most players in the role of the dictator tend not to take the whole amount for themselves, but split the amount in some way with the receiver. This surprising but consistent result has lead to speculations about the motives for giving. In the chapters that follow, I describe several of these motivations.

2.8.1   Intrinsic Incentive or the 'Warm Glow' Feeling

No study denies the possibility that giving is motivated at least in part by *altruism* [4][5][6][8][9] The framework in which the dictator game is played prohibits any strategic planning and as a result most studies do not deny that an altruistic component motivates the decision to give. As predicted by both pure and impure altruism theories, individuals decide at least in part to give both in experiments and in real-life situations, because they care about the causes they invest emotionally and financially in. This behavior possibly denotes a tradeoff between concern for the receiver's wel-

fare and that of one's own or a dictator's taste for fairness and "warm glow" feeling when giving. [5][4][14]

However, altruism does not by itself account for all the patterns observed in experiments. Therefore, it has been argued that giving might appear to be altruistically motivated because the action is observed by others. As a result studies such as Andreoni and Bernheim (2009) [4] examine the properties of equilibria from the resulting signaling game in which individuals wish to be perceived as fair.

Similarly, other studies examine experimentally whether the information that is available to the players and to the experimenter affects the final outcome of the game. A review of several such experiments reveals that a majority of dictators share a positive amount and that the average amount shared is over 20% of the endowment (see Camerer, 2003). However, even though the amount decreases to an average of only 9% of the initial endowment in settings in which the recipient cannot identify the donor, the amount given to an unknown recipient is still often greater than zero (Hofman et al., 1994).

The way the experiment is set up changes the way individuals decide to give. Changes in the setting may induce a different giving pattern because this makes people analyze their actions from the perspective of an audience. Therefore, several studies examine settings in which the presence of an audience or the perception of judgment may make the dictator's decision to give seem to imitate altruism.

Even if when observed the percentage of 'altruistic' dictators drops,

there is still a significant number of dictators who transfer money to the receiver in an apparently unconditional manner. Several studies find that concern for appearances may lead to altruistic behavior even if the target of generosity is anonymous and cannot retaliate or sanction the dictator. Koch and Normann (2005) in [27] find that giving by a dictator may not be influenced by a concern for the recipient's welfare, but rather by the desire to avoid being perceived as violating some social norm of fairness. In other words, in order to avoid being perceived as selfish, people pretend the opposite. I discuss in more detail the effect of reputation and image incentives on the decision to give in the next chapter as well as in chapters 2.4-2.7.

2.8.2   Extrinsic Motivation

As conjectured by prosocial behavior theories, experiments on dictator games provide evidence of the effect of introducing material rewards into the decision of the individual to give. *Extrinsic incentives*, such as financial compensation for charitable acts, can encourage more giving by influencing the donor to replace intrinsic incentives with a selfish concern.

Several studies present evidence of the effect of introducing material incentives into the decision to give. One such study by Carpenter and Myers (2007) in [13] presents an analysis of a data set of call records from volunteer firefighters that provide an objective measure of the hours volunteered. The authors find that altruism and reputational concerns are positively associated with the decision to volunteer. Moreover, by varying the presence and the level of small stipends paid to the firefighters, they find that the positive

effect of monetary incentives declines with the reputational concerns. This second result is in line with the idea that extrinsic incentives can crowd out prosocial behavior, an effect which was predicted by the literature on prosocial giving.

As described earlier, if both extrinsic and reputational concerns motivate donations or transfers, then these might crowd out the intrinsic motive of the donor. In particular, in the dictator game, the dictator's generosity might be overshadowed if she receives benefit from social esteem. Ariely, Bracha and Meier (2009) ask precisely this question of whether extrinsic monetary incentives are counterproductive and crowd out image incentives. The authors conduct an experiment to test the model of Benabou and Tirole (2006) by examining what the role of image concern is in determining prosocial behavior and whether this is affected by monetary extrinsic incentives. Their experimental design involves choosing between giving to a charity that is associated with a positive image and to another one that is associated with a negative perception by others. They find that image concerns are an important motivation for prosocial behavior which could crowd out intrinsic incentives to give. More precisely, the authors find that when decisions to contribute are public, monetary incentives have no effect, whereas if the decision is private, monetary incentives increase contribution.

The main result found by Ariely, Bracha and Meier (2009) is not surprising. Given that image concerns are correlated with the visibility of actions, one would expect that making public the decision to accept monetary rewards in order to contribute to a charity will lower that person's reputation

in the community, thereby decreasing her utility derived from social image. In contrast, if this decision is private, then the person is in the best of all worlds: she enjoys both the monetary incentive and a positive social image. Both of these results are in line with the predictions of the theoretical results described in chapter 2.3.

2.8.3 Image Motivation

As predicted by the literature on prosocial behavior, reputational concerns along with intrinsic and extrinsic incentives play a role in the decision of the donor to engage in prosocial acts. In addition to theoretical results, experimental studies also present extensive evidence of image motivation in dictator game giving.

Several studies suggest how shame affects the decision to give. For example, in contrast to "guilt", which is a selfish, rational and an intrinsic motivation for acting prosocially, "shame" is seen as a more public emotion. [37] Guilt is the result of privately generated images of moral expectations of one's self and a personal "sense of duty". Shame, in contrast, is defined as an *image motivation* that is rooted in public exposure and disapproval.

Other studies identify the relation between shame and altruism. Dillenberger and Sadowski (2009) in [18], focus on identifying a condition under which shame to be perceived as selfish imitates altruism and affects prosocial behavior. By studying a two stage choice problem, the authors show experimentally that when behavior is recorded in one stage and left unobserved in another, shame mimics altruism. They motivate this approach by

maintaining that decision-makers are selfish when unobserved and become concerned about the utility of others only to avoid shame of being perceived as selfish if observed, not because they are altruistic. As a result, the "dutiful altruist", as termed by Schokkaert in [34], will try to act prosocially even in situations where nobody can see her. On the contrary: people who are mostly driven by social norms will act prosocially either to avoid blame or to obtain social approval.

Though powerful, shame is not the only motivator of prosocial giving in dictator games. A very telling experiment by Dana, Cain, Dawes, (2006) [15] extends the initial 'shame to be perceived as selfish' claim and offers a striking result. The authors find that the perceived generosity observed in previous dictator game experiments is of a kind that would rather be avoided by the same dictators who wish to be perceived as fair. They study a variant of the dictator game, in which the dictator is given the option to exit the game before the receiver learns of her allocation or that the game is played.

After conducting two studies the authors find that about a third of the dictators choose to exit the game when offered the allocation ($9, $0) out of a maximum of $10, where $9 corresponds to the allocation for the dictator and $0 is the final allocation of the recipient. The choice to exit the game when offered the above allocation contradicts the theory that the dictator cares about the welfare of the recipient since an allocation such as ($9, $1) should be strictly preferred. It also contradicts classical economic predictions of selfish concerns since the allocation ($10, $0) should be strictly preferred to

the one above as well.

The authors then conclude that people suffer from being in situations in which they cannot dictate a fairer allocation. Thus, they try to avoid these situations, behavior that contradicts both classical economic predictions of selfish concerns and other empirical results that suggest that altruism is a motivation for prosocial giving.

In addition, Dana, Cain and Dawes (2006) also discuss the possibility that dictators are motivated to give what receivers expect of them. In particular, if the option of exiting is available, most dictators will exit so that the receiver will not expect anything from them. The example they use to illustrate this proposition is that of people crossing the road in order to avoid the choice of helping a beggar. This behavior then dictates that a truly generous dictator would also be concerned with not being perceived as foolish in situations where others would expect them not to give anything.

A more recent study by Dana, Weber, and Kuang (2007) in [16] found that when subjects had the option of either remaining uninformed about the effects of their actions or using a costless mechanism to reveal this effect, half of the participants chose to ignore the first option, and behaved selfishly. However, when the first option was not available, most participants behaved altruistically. As the authors state, people exhibit a "desire to appear fair without actually wanting a fair outcome" (Dana, Weber, and Kuang, 2007). This observation is evidence for the claim that one strong driver of prosocial behavior involves reputational concerns.

As suggested by Larson and Capra (2009) in [28], who repeat the experi-

ment by Dana, Weber, and Kuang (2007), in addition to strategic ignorance, which is defined as actions taken by a subject to avoid settings where altruism might be expected or required of them, there are three other possible interpretations of the Dana, Weber, and Kuang (2007) results. First, that subjects perceived what was described as a costless mechanism, as costly. Second, using this mechanism may have caused a delay in consumption. Finally, that subjects have a tendency to judge harmful actions as worse than equally harmful inactions (defined as omission bias). Thus, Larson and Capra in [28] predict that more generosity is to be expected from an experiment where transparency of effect is the default option and its avoidance the costless mechanism.

Other studies point to the fact that appearing fair is evolutionarily advantageous (Bowles and Gintis, 2004 [11]). In other words, the desire to be perceived as fair cannot be turned off in situations where its strategic effect is not necessary, i.e. as in situations similar to the one in the dictator game where the dictator decides to split a sum of money with a receiver who is both anonymous and does not retaliate. Rather, this behavior is more automatic than reflective as the example by Elster (1989) [20] points out: people choose not to pick their nose while riding on a train even though the passengers are strangers and anonymous.

Another study by Murnighan, Oesch, Pillutla (2001) [33] identifies three types of dictators. The players in dictatorship experiments can be categorized as follows: the 'rational' dictator is the one who will take the whole amount for herself, the 'equal' dictator the one who will split the amount

equally, and the third group called 'others', encompass other behavior. The authors find a unifying motivation that can explain the three different behavior patterns. They find that individuals wish to be perceived in a good light, and thus act to that respect even in the absence of an audience.

In conclusion, motivation for giving in dictator games has been extensively used to explain giving in other situations, such as volunteering and donating to charities. Thus, very similar motives are used by both literatures to explain giving. The main results point to the fact that giving is primarily motivated by the desire of individuals to be perceived in a positive light, as following social norms, as fair or altruistic. This behavior seems to be evolutionarily advantageous and is so powerful that it will not be affected by the absence of an audience.

2.9   Summary of the Literature on Prosocial Behavior

The evidence is overwhelming that individuals do not choose to behave in narrow selfish ways, but do engage in prosocial acts that benefit others while being motivated by a mixture of motivations. These include both self-interest motives, such as concern for social image, reputation and concern for social norms, as well as motivations beyond self-interest, such as altruism.

However, I believe that, although there is an element of altruism in each decision to behave prosocially, this decision is mostly influenced by image motivations, such as reputation. As a result, I do not believe that prosocial acts can be solely motivated by altruism nor by self-interest. More likely,

the decision to behave prosocially is dependent on specific situations and on a mixture of both selfish and altruistic considerations. I will therefore focus in my project on a multi-period model of prosocial behavior in which the individual considers both intrinsic and reputational concerns before making a decision of how to behave prosocially. In the next chapters, I will describe in detail in which situations the individual is indifferent between her two choices and in which she prefers one to the other.

In the next chapter I will be examining two models that combine three incentives (intrinsic, extrinsic and reputational) to explain prosocial giving. I believe that understanding these models is relevant for the current model because they provide a theoretical foundation for thinking about incentives. In addition, analyzing the next two models will allow me to adapt an existing framework of prosocial behavior to a multi-period theoretical model of giving.

CHAPTER 3

RELEVANT MODELS OF PROSOCIAL BEHAVIOR

Given the ample evidence in support of the robustness of their theoretical framework, in this chapter I describe in detail the studies of Benabou and Tirole (2006) and Carpenter and Myers (2007). In my model, I will extend their theoretical framework to allow the donor to enjoy reputational benefits over time, as well as to allow the donor to have a choice of how to behave prosocially.

3.1   Benabou and Tirole Model

Benabou and Tirole (2006) - henceforth BT - in [8] combine intrinsic, extrinsic and reputational concerns into a theory of prosocial behavior. More precisely, the authors look at altruistic motivation, at the effect of providing extrinsic incentives, such as rewards or punishments, and at social pressure, and develop a theory of prosocial behavior to explain their effects in the decision of an individual to give.

The authors study the behavior of agents who choose their level of contribution to a prosocial activity. Each agent chooses a contribution level, denoted by a from a feasible set A. By choosing level a, the agent suffers a cost, denoted by $C(a)$ and receives a material reward denoted by ya. BT focus on equilibria in which the cost of contributing to the prosocial activity is differentiable in a. The authors choose the cost to be $C(a) = \frac{ka^2}{2}$, where k

is a constant. Moreover, denoted by v_a and v_y are the intrinsic values placed by the agent on contributions to the social good and the value placed on the material reward, respectively. Combining these three sources of motivation with the benefit from reputation, $R(a, y)$, they write:

$$U(a) = (v_a + v_y y)a + R(a, y) - C(a) \qquad (1).$$

Additionally, actions carry both reputational costs and benefits, due to the reactions of others to this action. The authors assume that the value of reputation depends linearly on the observer's belief about the agent's type. Reputation is influenced both by the prosocial action taken by the agent and by the material payoff received for this action. Given that this material reward may crowd out the real, intrinsic motivation, both of these motives influence the agent's image in a community. Formally, the payoff from reputation when choosing level a, given material incentive y is defined by:

$$R(a, y) \equiv x[\gamma_a E(v_a|a, y) - \gamma_y E(v_y|a, y)], \qquad \text{where } \gamma_a \geq 0 \text{ and } \gamma_y \geq 0. \qquad (2).$$

The signs of γ_a and γ_y reflect that people would both like to appear as prosocial and not selfish. The value x denotes the visibility of prosocial actions. For notation simplicity, the authors define $\mu_a \equiv x\gamma_a$ and $\mu_y \equiv x\gamma_y$ and finally, $\boldsymbol{\mu} \equiv (\mu_a, \mu_y)$, which denotes reputational concerns.

Then, an agent with reputational concern $\boldsymbol{\mu}$ solves

$$\max_{a \in A}\{(v_a + v_y y)a - C(a) + \mu_a E(v_a|a, y) - \mu_y E(v_y|a, y)\} \qquad (3).$$

The term $\mu_a E(v_a|a, y)$ describes the social esteem benefit felt by the agent from her contribution to the public good. This defines what others refer to as the "warm glow" feeling. In contrast, the term $-\mu_y E(v_y|a, y)$ describes the negative reputation felt by the agent from receiving a material reward for the contribution level a.

BT continue with a more in depth investigation into the image spoiling effects of rewards. However, for the current study, the above description suffices. I borrow from the BT framework when constructing my model in chapter 4.

3.2   Carpenter and Myers Model

In [13], Carpenter and Myers - henceforth CM - borrow from the model developed by BT and focus on building a simpler model in which the agent tries to maintain a reputation for prosociality. Similar to the BT model, the utility of the agent in (1) is given by:

$$U(a) = (v_a + v_y y)a + R(a, y) - C(a)$$

In addition, CM define the agent's reputation concern slightly different from that proposed by BT, namely as:

$$R(a, y) = xI_\Upsilon(z)E(v_a|a, y) \qquad (4)$$

where x, as in the BT model, denotes the extent to which the prosocial act is visible to others, $I_\Upsilon : z \to \{0, 1\}$ is a function that identifies those individuals who are motivated by reputation (i.e. individuals with image concern come from a Υ subset of the population), and $E(v_a|a, y)$ are the beliefs of others about the individual's actions.

The first order conditions depend then on whether or not image concerns are important. First, if image concerns are not important for the individual, i.e. $z \notin \Upsilon$, then

$$ak = v_a + v_y y.$$

Second, if image is important for the individual, i.e. $z \in \Upsilon$, then

$$ak = v_a + v_y y + x\frac{\partial E(v_a|a, y)}{\partial a}.$$

For those individuals not in Υ, the optimal level of prosociality is easy to compute:

$$a^* = \frac{v_a + v_y y}{k}.$$

However, it is harder to determine this level for the case when people are concerned with reputation. To do this, CM borrow again from the BT model and use the fact that although one cannot determine v_a directly from

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the individual's choice of a, one can form beliefs about it from $v_a + v_y y$. This implies that

$$v_a + v_y y = ak - x\frac{\partial E(v_a|a,y)}{\partial a}$$

at the optimum.

Then, considering some distribution of the agent's valuations and after considerable calculations, the authors are able to prove the following proposition:

Proposition: *There is a unique reputational equilibrium in which prosocial acts depend on one's type, material incentive and concern for reputation. Those individuals not concerned with reputation will contribute at level* $a^* = \frac{v_a + v_y y}{k}$, *while those concerned with social image will contribute at level* $a^* = \frac{v_a + v_y y}{k} + x\rho$, *where* $\rho = \frac{\sigma_a^2 + y\sigma_{ay}}{\sigma_a^2 + 2y\sigma_{ay} + y^2\sigma_y^2}$ *is the constant marginal image motivation determined by the distribution of the population and* σ *denotes the covariance.*

3.3   Application and Discussion

The extensive literature on prosocial behavior as well as the above theoretical models presented in this chapter cover many aspects of the motivation for giving.

However, none of the studies examined in this chapter address the questions raised by a scenario in which the individual has a choice of *how* to

behave prosocially. As mentioned in the introduction, the purpose of the current study is to understand giving in a new scenario that forces the individual to make a choice between two prosocial acts. Using the framework proposed by BT and CM, I propose to look at a multi-period theoretical model of prosocial behavior in which I allow the individual to extend her reputational benefit over time. Key ingredients in this model will be two of the three incentives identified by the literature on prosocial giving, namely intrinsic and reputational incentives, as well as the expectation that the individual will wish to enjoy long term reputational benefits from her prosocial act.

CHAPTER 4

THE MULTI-PERIOD MODEL

4.1   Basic Intuition

In this thesis, I study the motivation of individuals to engage in multi-period prosocial activities, such as contributing to a worthy cause or donating valuables to charities. For this purpose, I will borrow from the BT and CM models described in the previous chapter and extend them while considering a new scenario in which prosocial activities typically arise.

Consider the following scenario: An individual needs to decide whether to donate a piece of art or whether to donate the equivalent value in the form of money to an art museum. Even though the two choices may seem equivalent at first, in reality, they create different reputational benefits for the individual in the long run. For instance, if the individual decides to donate money, that sum will be spent (if not otherwise specified by the grant) by the art museum in various ways that it needs, for instance for maintaining the collection, buying additional pieces of art, etc. However, if the individual decides to donate a piece of art to the museum, this will be displayed at some point in their collection and will be visible to all those coming to visit the museum. Thus, the reputation effect is typically higher for the second choice.

The above scenario is complicated by the possibility that the museum will sell the piece of art it received from the donor in the first period. This

is known as the practice of deaccessioning and was described in detail in the introduction. This practice allows the museum to sell pieces of art from their collection in order to cover some of their costs involved in maintaining their collection, paying salaries, or buying new or more appropriate pieces for their collection. Even though beneficial for the museum, the practice of deaccessioning may prevent the individual who is interested in donating a piece of art from enjoying reputational benefits beyond the present. This in turn creates the opportunity for the individual to always have a choice between donating a piece of art and donating money. An interesting question to ask in this model is what could the museum do to signal to the individual a certain probability of selling the piece of art. This extension will be considered in chapter 4.5.

Furthermore, the two choices of whether to donate money or the art piece require a different financial and emotional investment from the perspective of the donor. More precisely, by donating the art piece the donor needs to renounce a good that might have produced some personal benefits. For instance, that art piece might have served as a decoration that would need a replacement if donated. As a result, by donating the art piece the donor makes both a financial investment and an emotional one, which she hopes will bring her reputational benefits. On the other hand, if she decides to only donate money, her costs equal only her financial investment.

Next, I will describe a formal model to analyze the observations made in this scenario. To do this, I will formally describe the two choices and then discuss in which settings the individual will prefer one of the choices

to the other and when she will be indifferent between her two choices.

4.2 First Choice: Long-Term Reputational Benefits

4.2.1 Ingredients

Each individual selects a participation level a_1 to the prosocial activity from the set of feasible choices $A \subset \mathbb{R}$. By choosing a_1 the individual receives some benefit from *reputation*, $R(a_1)$, and an *intrinsic benefit*, such as 'warm glow', denoted by v_{a_1}. Also, by choosing a_1 the individual incurs a *cost*, $C(a_1) = \frac{(k+e)a_1{}^2}{2}$, defined similar to the cost function used in the BT model, where k is a constant and the cost function is convex and twice differentiable in a_1. I added the term e to the cost function to represent the emotional attachment of the individual to the piece she is donating. In this simple version of the model I assume $e \geq 0$. However, an interesting extension, discussed in chapter 4.5, would be to allow e to take any value. In particular, an interesting case occurs when $e < 0$. In this case, the individual is happy to discard an unwanted piece of art, and would donate more as $e < 0$ decreases, behavior that is reversed in the current model.

In the more simple current model, by combining the three components of motivation (intrinsic, reputational and the cost function) we have:

$$U(a_1) = v_{a_1}a_1 + R(a_1) - C(a_1) \qquad (5)$$

The utility function of the individual is defined very closely to the ones described in the BT and the Carpenter and Myers models. However, in the

current model, there are two important differences. First, in this case, the model does not consider any extrinsic rewards that the individual might receive as influencing her decision to give. As an extension to this model, I propose in chapter 4.5 to consider material rewards, such as tax exemption in the case of donating art pieces, into the utility function. However, in the current model, I only consider the simpler case.

Second, I define reputational concerns, $R(a)$, slightly differently then previous models. An individual's concern for image or her reputation is defined as follows:

$$R(a) = H_t a_1 + \frac{(1 - p_{a_1})H_{t+1}a_1}{1 + r}.$$ (6)

where H_t determines the extent to which an altruistic act is visible in period t, r is the discount factor by which the individual discounts future benefits from visibility, and p_{a_1} is the probability that the reputation of the individual will be 0 in the future. By recalling the scenario described before, the term p_{a_1} denotes the probability that the museum will sell the art piece in time step $t + 1$ after having received it in time step t from the individual.

Also, I will consider the problem facing the museum, the receiver of the donation. The neoclassical approach to representing museum behavior is described in detail by Frey and Meier (2006) in [21]. They describe a model of a non-profit museum that maximizes the number of visitors to the museum and the quality of the exhibitions subject to the revenue from entrance fees, the level of donations and government grants and revenue

from other sources such as the museum shop.

I borrow from the above framework and describe a slightly different budget constraint of a non-profit museum. In this case, the museum maintains a permanent collection of art pieces, A, at a cost of $\frac{\lambda A^2}{2}$, which is differentiable in A. Another cost of the museum comes from purchasing new art pieces, expense denoted by N. The museum receives a benefit from the gifts it receives, G, and from selling pieces it possesses, denoted by $p_{a_1}A$, where p_{a_1} is the probability that the museum will sell the piece of art it received, and is defined on the interval $[0,1]$. Combining these four factors together, the museum's budget constraint, M, is defined as follows:

$$M = G + p_{a_1}A - \frac{\lambda A^2}{2} - N. \qquad (7)$$

In this study, I will consider the case when the museum exactly balances both benefits and costs and thus does not try to make a profit or does not run a deficit. This implies that $M = 0$. Non-profit organizations play an important role in the economy. Their financing depends heavily on charitable contributions, characteristic that makes them a good example to analyze in the current study.

However, an extension of the model would be to observe how the individual's decision might be changed in cases when the museum does either run a deficit or is a for-profit entity. The basic intuition for such differences comes from the fact that for instance, if the museum runs a deficit and this deficit is small, i.e., the museum is solvable, then the individual may

be more inclined to donate money than an art piece in order to help the museum. However, if the deficit is very large, then it is not as clear what the choice of the individual could be. This extension is described in more detail in chapter 4.5.

4.2.2 Dynamics

The probability that the individual will receive a benefit from reputation in the second period is determined by the museum's budget constraint. Therefore, the individual will first solve the problem of the museum and then decide how much to give. More precisely, the value of p_{a_1} is determined by the budget constraint of the museum and then influences the decision of the individual to engage in the prosocial activity.

More formally, the individual first solves for the value of p_{a_1} from (7) and then substitutes it into her own utility function. The individual then anticipates that the probability that the museum will sell the art piece is given by:

$$p_{a_1} = \frac{N}{A} + \frac{\lambda A}{2} - \frac{G}{A}$$

or

$$p_{a_1} = \frac{N}{A} + \kappa A - \frac{G}{A} \qquad (8)$$

for $\kappa = \frac{\lambda}{2}$.

Substituting (8) into (5), the utility of the individual becomes:

$$U(a_1) = v_{a_1}a_1 + H_t a_1 + \frac{[1 - (\frac{N}{A} + \kappa A - \frac{G}{A})]H_{t+1}a_1}{1+r} - \frac{(k+e)a_1{}^2}{2}. \qquad (9)$$

Then, differentiating yields the first order condition for optimal level of prosocial behavior:

$$a_1(k+e) = v_{a_1} + H_t + \frac{[1 - (\frac{N}{A} + \kappa A - \frac{G}{A})]H_{t+1}}{1+r}$$

and

$$a_1 = \frac{v_{a_1} + H_t + \frac{[1-(\frac{N}{A}+\kappa A-\frac{G}{A})]H_{t+1}}{1+r}}{k+e}. \qquad (10)$$

Also, since $p_{a_1} = \frac{N}{A} + \kappa A - \frac{G}{A}$, we can more simply write

$$a_1 = \frac{v_{a_1} + H_t + \frac{[1-p_a]H_{t+1}}{1+r}}{k+e}. \qquad (11)$$

I will use (10) and (11) interchangeably.

The optimal level of prosocial behavior depends on how visible the action is in both periods. Thus, the level of giving is maximized when p_{a_1} is small, hopefully even zero. If the value of p_{a_1} is high, i.e. it is close to 1, then the reward from reputation in the second period diminishes and the individual's utility is only determined by her intrinsic reward and the reputational benefit received in the first period.

A more careful analysis of several possible scenarios will be discussed in chapter 4.4. Next, I will describe the second choice of the individual:

making a financial donation.

4.3 Second Choice: Financial Investment

4.3.1 Ingredients

After obtaining an expression for the optimal level of prosocial behavior, a_2, that an individual gives when donating an object of personal value, I also derive an expression for the optimal level of prosocial behavior when the individual chooses to donate money. As before, the utility function of the individual is derived from two sources: intrinsic and reputational incentives. Formally, we have:

$$U(a_2) = v_{a_2}a_2 + R(a_2) - C(a_2) \qquad (12)$$

As described earlier, the difference between donating money and donating a piece of art is twofold: First, by donating an art piece the donor enjoys greater reputational benefits that have a consequence over time. This is not the case when the donor gives money, which implies that the individual will not receive long-term reputational benefits. More formally the benefit from reputation is given by:

$$R(a_2) = H_t a_2 \qquad (13)$$

where $H_t a_2$ corresponds to the benefit of the donor from visibility in period t of her prosocial activity. Note that $R(a_1) = R(a_2)$ if $a_1 = a_2$ and visibility

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in the second period of a_1 is zero.

Second, it costs more to donate an art piece because of the emotional investment made in that piece of art by the donor. Formally, given these differences we have that the cost of giving money to a museum is:

$$C(a_2) = \frac{ka_2{}^2}{2} \qquad (14)$$

Note that $C(a_2) \leq C(a_1)$ for $e \geq 0$.

As in the case where the individual donates an art piece to the museum, the museum faces the same budget constraint given by (7).

4.3.2 Dynamics

Substituting (13) and (14) into (12) we get:

$$U(a_2) = v_{a_2}a_2 + H_t a_2 - \frac{ka_2{}^2}{2}$$

Then, differentiating yields the first order condition for optimal level of prosocial behavior:

$$a_2 k = v_{a_2} + H_t$$

and

$$a_2 = \frac{v_{a_2} + H_t}{k} \qquad (15)$$

4.4 Comparative Analysis

Next, I explore in what situation the individual is indifferent between her two choices and in which she prefers one to the other. I make the following assumptions:

- $v_{a_1} = v_{a_2}$

- H_t is the same for both choices

For simplicity, I will assume that $v_{a_1} = v_{a_2}$ is true because we are dealing with a single individual who tries to make a decision of whether to make a donation to a museum. Therefore, what this assumption implies is that the individual will have similar intrinsic incentives in both cases because the action of donating is the same. This assumption can be relaxed in extensions of the model.

Secondly, also for simplicity, I make the assumption that whether one decides to donate money or an art piece the visibility of the action will be the same in the first period, t. This assumption arises from the observation that in the second stage, visibility H_{t+1} only affects the individual if she decides to donate a piece of art, so I can choose H_{t+1} in such a way that H_t will be the same for both choices. This assumption can also be relaxed for future extensions of the model.

I make the above assumptions not only for simplicity, but also because I want to capture how the probability of the museum selling the art piece in period $t + 1$, as well as the reputation of the individual influences her

prosocial behavior. Therefore, by making these two assumptions, I restrict my analysis to cases that are more interesting to the current study.

In what follows, first, I will describe in detail how changes in the utility function can affect the individual's decision to give. Secondly, I will consider some specific cases in which the individual has to decide how to behave prosocially and show in which situations she is indifferent between her two choices and when she has a preference for how to behave.

Now that I have derived the optimal level of prosocial behavior for each of the two choices of the individual, I will analyze how individual changes in the variables that constitute each choice affect the decision of the individual to behave prosocially. From (11) and (15) we have

$$a_1 = \frac{v_{a_1} + H_t + \frac{[1-p_a]H_{t+1}}{1+r}}{k + e}$$

and

$$a_2 = \frac{v_{a_2} + H_t}{k}.$$

Consider first in what situations $a_1 = a_2$. When the individual's emotional attachment to the object she is considering giving up is zero, i.e. $e = 0$ and the individual is present oriented, i.e. $H_{t+1} = 0$, and by assumption $v_{a_1} = v_{a_2}$, then the level of prosocial activity is the same for both choices. Also, if $e = 0$ and the probability of deaccessioning is very high, in particular when it is 1, then $a_1 = a_2$.

Next, consider the following cases:

Claim 1: *People with higher reputational concerns are more likely to donate pieces of personal value.*

This statement follows directly from our analysis above. Given that $a_1 = a_2$ when the individual's emotional attachment to the object she is considering giving up is zero, i.e., $e = 0$ and the individual is present oriented, i.e., $H_{t+1} = 0$, then, assuming e is not very high, as $H_{t+1} > 0$, then $a_1 > a_2$. As a result, $U_{a_1} > U_{a_2}$ and therefore, people with higher returns from reputation are more likely to donate pieces of personal value, assuming that their emotional attachment is less than some value, β. To calculate the value of β, we solve for the e that assures the following inequality

$$a_1 = \frac{v_{a_1} + H_t + \frac{[1-p_a]H_{t+1}}{1+r}}{k+e} > a_2 = \frac{v_{a_2} + H_t}{k}.$$

I find that, as long as

$$e < \frac{kH_{t+1}(1 - p_{a_1})}{(1+r)(v_a + H_t)} = \beta$$

then $a_1 > a_2$.

Even though this will not aid the purpose of the current study, I also try to consider whether e is greater or less than 1. Notice first that $1-p \leq 1+r$. Then, I only need to compare kH_{t+1} and $v_a + H_t$. This is essentially a question of how H_{t+1} compares to a_2, since $\frac{v_a + H_t}{k} = a_2$. The answer to this question is an interesting one and depends on the situation in which the

individual needs to decide between the two choices. However, it is interesting to consider in what situations a person's concern for future reputation can be larger than her intrinsic and her reputational benefit from donating money.

Claim 2: *If the probability p_{a_1} of the museum selling the art piece that the individual donated is very high or even 1 and the individual has no emotional attachment to the object being donated to the museum, then the individual will be indifferent between her two choices.*

In particular, if $p_{a_1} = 1$ then the individual should expect not to receive any reputational benefits from visibility in the second period because the museum will sell the painting in period $t+1$. This implies that when $p_{a_1} = 1$, then $a_1 = \frac{v_{a_1} + H_t}{k+e}$.

Then, if the individual has no emotional attachment to the painting, i.e. $e = 0$, this makes $a_1 = \frac{v_{a_1} + H_t}{k}$. Observe that this expression is equal to the equality in (15), so:

$$a_1 = \frac{v_{a_1} + H_t}{k} = a_2.$$

Now, if we know that $a_1 = a_2$, then we have:

$$U(a_1) = U(a_2),$$

which allows us to conclude that the individual will be indifferent in this

scenario between her two choices.

Claim 3 : *Similarly, if the individual is a present-oriented agent and has no emotional attachment to the object being donated to the museum, then the individual will be indifferent between her two choices.*

More precisely, if the individual is present-oriented, i.e. $H_{t+1} = 0$, then $a_1 = \frac{v_{a_1} + H_t}{k+e}$.

Similarly, if as above $e = 0$, this implies that $a_1 = \frac{v_{a_1} + H_t}{k} = a_2$, and then $U(a_1) = U(a_2)$, which allows us to conclude that the individual will again be indifferent in this scenario between her two choices.

Claim 4: *If the individual is a present-oriented agent, unless the emotional attachment of the individual to the object being donated is zero, then the optimal level of prosocial behavior in the case when donating the object will be lower than in the case of donating money.*

Here, I start by assuming that $e \neq 0$. We know that $H_{t+1} = 0$, since the agent does not care about future benefits from reputation. Then, we can write

$$a_1 = \frac{v_{a_1} + H_t}{k + e} < \frac{v_{a_2} + H_t}{k} = a_2,$$

since e is positive. So, in this scenario people will donate more money.

As an extension to **Claim 4**, I can relax the initial assumption that the benefit from visibility is the same for both choices in the first period. Consider the case when if the individual donates money, she will receive slightly higher benefit from visibility in the first period. Formally, the two visibility benefits will differ by a factor of g, where $g > 0$. I want to then ask the following question: *What should the value of g be, given emotional attachment e, so that the individual is indifferent between her two choices?*

This question is relevant from the following perspective: In the case when the individual is a present oriented agent, how do differences in visibility and emotional attachment affect her decision?

To answer this question, we set $a_1 = a_2$, which implies that

$$\frac{v_{a_1} + H_t}{k + e} = \frac{v_{a_2} + gH_t}{k}$$

.

After some simple calculation, we obtain that when

$$g = \frac{k - \frac{ev_a}{H}}{k + e}$$

then the individual is indifferent between her two choices. In particular, what this result shows us is that as e increases, g decreases, which implies that as the individual's attachment to the object is higher, she cares less about reputation in the first period. In other words, she exchanges reputation or visibility for emotional attachment to the object. This result is interesting because it suggests that this tradeoff between reputation and

emotional attachment could be manipulated or changed either by the individual or by an outside source, such as the museum, who tries to influence a certain decision of the individual.

Claim 5: *As the probability of deaccessioning decreases, people tend to donate more pieces of personal value.*

More precisely, as the value of p_{a_1} decreases, i.e. approaches 0, the value of a_1 in (11) becomes $a_1 = \frac{v_{a_1} + H_t + \frac{H_{t+1}}{1+r}}{k+e}$. Consider the case when the value of e is small. Then, given that the ratio $\frac{H_{t+1}}{1+r} > 0$, then we know that $a_1 > a_2$ and thus $U_1 > U_1$, which implies that the individual will be more inclined to donate the piece of art if p_{a_1} is small.

Note that I assumed that $\frac{H_{t+1}}{1+r} > 0$ instead of greater than or equal to zero because I consider that if the probability of the museum selling the piece of art is small, then the individual will still enjoy some reputational benefits in the second period. It is thereby implied that, if the museum is not selling the piece of art it either likes it so the individual already enjoys some benefit from visibility, or the museum needs it in the collection and the individual will again benefit from visibility. Note also that in this case, there is an opportunity for the museum to wish to signal a certain value for p_{a_1}, preferably low, in order to encourage more of the type of donation it needs.

4.5 Discussion and Possible Extensions

This chapter is divided into two parts. First, I will discuss several possible extensions of my model. Second, I will provide a discussion about the current practices of museums and suggest that museums are aware, at least holistically, that signaling a high probability of deaccessioning will deter donors from donating pieces of art.

First, a worthwhile extension of the current framework could be to incorporate the effect of changes in how the museum balances their *budget constraint* on the donor's decisions to give. More precisely, one would expect that if the museum's budget constraint $M < 0$ but greater than some value α, where $\alpha < 0$, and a_i for $i \in \{1, 2\}$ constitutes a considerable fraction of the debt, then the donor could be more inclined to give money than a piece of art in order to help the museum pass a time of financial crisis.

However, if the museum's budget constraint is $M < \alpha < 0$, then the individual might decide not to give at all. This is so because, if she decides to give money, then the money that she could give will not help the museum become solvable; similarly, if she decides to donate a piece of art, if the museum is a financial crisis, it will not display the painting and thus given zero visibility, the individual will not derive any benefit from reputation. Therefore, in this case, if $M < \alpha < 0$, it can be expected that the individual is more likely to refrain from donating both money and pieces of art to the museum.

In addition, if the museum budget is $M > 0$ but below some threshold, and we assume some correlation between a high M and a large number of

pieces of art in the collection, then the individual is more inclined to give art because the probability of the museum selling the piece is low. Above that threshold, the individual is less inclined to give the art because the museum is very 'crowded' and the probability of deriving reputational benefits from visibility is low.

This is just a basic sketch of what I believe could be an interesting extension of the model. However, a more formal analysis of this intuition is needed to determine whether individuals would respond to changes in the budget of the museum by varying their contribution to the public good.

A second extension to the current model would be to arrive at a more careful understanding of the *identity motivation* for charitable contributions. More precisely, in contrast to the findings I presented in chapter 2.3.6, I believe that identity may be defined in another way. I define the term identity as a trademark of the individual. I conjecture that the individual will make charitable contributions only if this action sends the 'right' message to her immediate network of friends. By 'right', I mean that this action either represents her trademark image or improves her overall perception in the community. An important aspect of this extension to the model is that the individual builds and invests in her social image only to create a trademark, an emblem that everyone else recognizes. This emblem and the fact that the donor wishes to be associated with a characteristic of the prosocial act are important features which will distinguish this current study from existing models using identity in an economics framework. The trademark by which the individual wishes to be recognized is directly as-

sociated with the visibility of the action as well. The intuition for this is that the more visible the action, the more likely it is that more people will associate the donor with a characteristic of the action.

Thirdly, I believe that the current model could be extended by considering *extrinsic incentives* for why people contribute to charities. In the current model, I decided not to include this consideration, but given that both models presented in chapter 3 include extrinsic incentives as a motivation for prosocial behavior, I believe that the current model should also consider such incentives.

In particular, whether the individual decides to donate a piece of art or to financially support the museum, an extrinsic incentive for her could be the tax exemption she receives from charitable contributions. Even though this may not be large enough to crowd out her intrinsic motivation to give, it is a consideration that the current study is lacking. Therefore, it would be interesting to analyze how the optimal level of prosocial behavior changes as individuals include in their utility functions an extrinsic incentive to give.

Fourth, the current model only considers the case when the individual is *emotionally attached* to the object she considers donating. However, I believe that another interesting case happens when $e < 0$, i.e. if the individual does not like the object. In this case, the individual tends to donate more as $|e|$ is high (when $e < 0$) regardless to some extent of the reputation she receives in the second period. In other words, there is a threshold below which the individual will donate more pieces of art for which $e < 0$ because this increases her utility. However, above that certain

threshold, this behavior may negatively impact her reputation by signaling to others in the community that she is not mainly motivated to give by an intrinsic benefit but rather by her desire to get rid of objects that cause her displeasure.

This possible extension captures a common practice observed in reality of some charitable giving organizations. Such organizations understand that some individuals posses several objects that they do not want to use anymore and that others need. As a result, these organizations facilitate this flow of goods from one individual to the other. Considering the case when $e < 0$ would therefore be realistic and very interesting for the current study.

Finally, another possible extension would be to consider what the museum could do to *signal* to the individual a certain probability of selling the piece of art. This is the case when the museum solves for the desired level of p_{a_1} of the individual and then decides to signal that value in order to obtain more of the type of donation it needs. In theory, if the museum wishes to increase its budget by receiving more financial donations, then it should consider signaling a high p_{a_1} which will decrease the expected long-term reputational benefit of the individual. Conversely, if it needs more art piece donations it should signal a low p_{a_1}.

However, why would the museum in practice ever wish to signal a high level of p_{a_1}? In this second part of the current chapter, I claim that museums are aware of the possible detrimental effect of signaling a high probability of deaccessioning. As any non-profit organization, art museums depend on

charitable donations. In order to attract donors, museums devote much effort to assure the donor that their contributions are well used. Therefore, the reputation of the museum plays a significant role in the decision of the donor to give. Frey and Meier (2006) write that a "good reputation with the public and the media...encourage[s] a regular flow of donations" to the museum.[21] Hansmann (1981) suggests that by removing the impression that profit is the sole motivator of the museum from the equation, the museum avoids giving donors the impression that they have been cheated into contributing only to financially benefit the museum.[25]

Museums dependent on financial donations are expected to accept the fact that donors can influence policies of the museum by placing strictly binding constraints on the way their donations can be used. For instance, donors might have specific requests of how their works should be exhibited. In addition, as Frey and Meier (2006) suggest as well as the current project, donors might wish to ensure that their donations will never be sold, thereby enhancing and extending their social prestige over time.[21]

Combining the above two observations that museums depend on the financial contributions of donors and the fact that donors benefit from museums publicizing their contributions, it can be suggested that museums expect to increase donations by signaling a low probability of selling the donor's contribution. The same way that museums recognize different levels of honors for different monetary values of the donation, ranging from offering attributes such as "benefactor" and "patron" to the donor, to naming rooms, and even buildings after the donors, one can expect that museums

wish to satisfy the desire of the donors to enhance their prestige by ensuring them that their donations will never be sold. As a result, I believe that museums are aware of the possible detrimental effect of signaling a high p_{a_1} and will thus, in most situations, wish to signal a low probability of deaccessioning in order to encourage more donations and maintain a certain desired level of reputation.

CHAPTER 5

CONCLUSIONS

Very different motivations may lead to charitable donations. In this thesis, I provide an overview of a series of existing hypothesis on what motivations drive prosocial giving. These include altruism, taste for fairness, shame to be perceived as selfish, and social image concerns. Donations may also be influenced by a sense of duty dictated by inner conscience, or a sense of social pressure dictated by the conscience of the community. In addition, donations may be motivated by reciprocal arrangements or a desire to gain social prestige. Although diverse, a mixture of these motivations probably drives individuals to give. A better insight into these motivations is important both for its own sake and for predicting the necessary behavior from the part of the recipients who wish to motivate more of a certain type of giving.

This thesis makes several contributions. First, it describes the existing literature on both prosocial behavior and giving in dictator games in order to provide an overview of primary incentives which drive giving. Next, it discusses in detail the models and the theoretical framework of two relevant models, the Benabou and Tirole (2006) and Carpenter and Myers (2007) models. Finally, it introduces a new scenario in which to think about prosocial activities, which allows the individual to decide whether to donate money or a personal piece.

More generally, this thesis builds a model that provides the tools to start analyzing giving in scenarios in which the donor has a choice of what to give. For this purpose, I propose a multi-period theoretical model that extends previous models by allowing the donor to choose among two options when deciding whether or not give. I find that if the probability that the individual will not derive reputational benefits in the future is low and she does not have an emotional attachment to the object, then she will be indifferent between her two choices. Additionally, I show that present-oriented donors are more likely to donate money. Finally, I find that people with higher reputational concerns tend to donate more pieces of personal value than money.

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