

To give, or not to give – The impact of choice architecture on charitable giving  
An Experimental Analysis

A Master's Thesis  
By

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## **Abstract**

The concept of “choice architecture” signifies that decisions are not made in a vacuum. Specifically, the manner in which a choice is framed has an impact on decision-making. Past literature has categorized the same into two branches – defaults and active choosing. In the present study, one sub-branch of defaults, the opt-in frame is compared to active choosing, since existing literature presents contradictory results on which one of the two exerts a greater influence on decision-making. In testing the difference through amounts donated to UNICEF in a dictator game, results from an experiment conducted India and a follow-up in the Eurozone show that there is not enough evidence to establish a difference between opt-in and active choice. Secondly, results from the India sample showcase that information plays an important role in contributing to a charitable cause. Overall, the results emphasize the need for exploring the influence of opt-in and active choice in more contexts, and to further exploit the role of information in sharpening the difference between the two.

*Keywords:* choice architecture, defaults, opt-in, active choice, prosocial behavior, charitable giving, altruism

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## 1. Introduction

*Where to elect there is but one,  
'Tis Hobson's choice—take that, or none.*

- England's Reformation, Thomas Ward, 1688

*I say, Mr. Hobson kept a stable of forty good cattle, always ready and fit for travelling; but, when a man came for a horse he was led into the stable, where there was great choice, but he obliged him to take the horse which stood next to the stable-door; so that every customer was alike well served according to his chance, and every horse ridden with the same justice.*

- Hezekiah Thrift, *The Spectator*, 10 October 1712

Thomas Hobson, (c. 1544 – 1 January 1631) an English carrier is immortalized in the term “Hobson’s choice”, which is essentially the choice between something and nothing, or more colloquially put – “take it or leave it”. Thus, acknowledging the impact of the subtleties of choice on decision-making dates back to a time far before the coinage of terms like “choice architecture” by modern behavioral economists, or for that matter, before the existence of behavioral economics itself.



Figure 1. Hobson's Choice (Barker, n.d.)

Since the conception of choice architecture, which represents the myriad of ways a choice can be presented to a decision-maker and their subsequent influence on the end outcome, various choice frames can be formally assigned to categories making it possible to compare and contrast

them. For instance, the “Hobson’s choice” of “take it or leave it” can be viewed as a subset of the opt-in frame, which is a choice between something and nothing.

Overall, two broad categories of choice architecture can be identified – one involving defaults and the other, active choosing (when there is no default option). Defaults can further be categorized into opt-in frames and opt-out frames which differ in the default option within the choice. Existing literature on these categories have applied the same to a variety of social and non-social contexts to broaden the understanding of these categories and establish differences between them. While research that compares opt-in and opt-out frames displays results consistent with the assumption that defaults tend to stick, the comparison between opt-in frames and active choosing has yielded conflicting results, making a compelling case for further testing.

Since the impact of choice architecture on decision-making is situation dependent, the context exerts its own influence on the final outcome. So far, research that compares opt-in and active choice frames has been conducted in the domains of 401(k) savings and organ donation to assess which method has a greater impact on increasing savings plan enrollment and organ donor registrations, respectively. Interestingly, results from the aforementioned domains are contradictory. While active choice is the more suited method when it comes to increasing enrollment in a savings plan (Keller, Harlam, Loewenstein & Volpp, 2011), research on organ donation finds that switching to an active choice mechanism from opt-in frames backfires (Kessler & Roth, 2014), leading to lower registrations as compared to the opt-in frame. The end goal of an increase in participation rates in both these domains is desired since it leads to prosocial behavior, formally defined as “voluntary behavior intended to benefit another” (Eisenberg, Fabes & Spinrad, 2006). In the 401(k) context, such pro-social behavior also benefits the individual, however, in the context of organ donation, the behavior can be viewed as altruistic or unselfish. The contradictory results from both these domains create the need for further testing to determine which choice architecture tool is better suited to encouraging prosocial behavior.

In looking specifically at cases where there are no apparent benefits to the individual, one study discovered that active decisions transform a latent willingness to donate blood into actual prosocial behavior (Stutzer, Goette & Zehnder, 2011). Seeing as this stands in contrast to the

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results from studies conducted on organ donor registrations, a continued exploration of the impact of choice architecture on altruistic domains is necessary. One such domain is that of charitable giving. What makes it a particularly interesting and befitting domain is that some types of solicitations already employ (intentionally or unintentionally) choice architecture tools. Moreover, charitable giving is also an area that has not been extensively employed in choice architecture literature so far, making a strong case for its usage as the context for this study.

Consider Figure 2 on the following page which represents Wikipedia’s periodical plea for donations, as visible on their website. Upon considering the manner in which Wikipedia has framed its plea, it is immediately evident that the opt-in frame is at play here, along with the use of information that is designed to assist the user in making his/her choice. The opt-in is a decision frame in which the decision maker only has the option(s) to consent to a particular choice, making the default option not consenting to the same. As seen in the figure, the default choice here is to skip donating by clicking the “x” button and closing the window. Would framing the choice differently have an impact on the aggregate amount donated? For example, Wikipedia could shift to an active choice frame, which is one where there is no inherent default since the options to both, consent and not consent are presented in a neutral manner. In Figure 2, this can be achieved by including a “No” option, and by requiring visitors to click “Yes” or “No” to be able to proceed with whatever it is they had visited the website for in the first place (mandated choice). Subsequently, a comparison of the aggregate donations in the opt-in and active (mandated) choice frames could help sharpen the line of demarcation between the two areas.

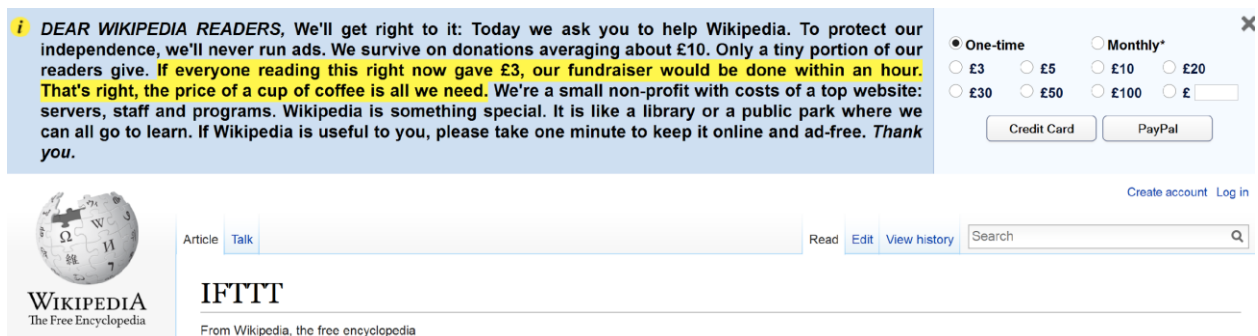


Figure 2. Wikipedia’s plea to donate. (Sawers, 2015)

In his research on choice architecture, Sunstein (2015) postulates that people sometimes display a tendency of choosing not to choose by delegating choice making in relatively unimportant domains to spouses, companies or other entities as seen fit. He states that “we do so when and because we do not want to take the time and trouble to make decisions ourselves, and when and because we know that we lack important information.” (Sunstein, 2015)

For the sake of argument, charitable donations can be considered an unimportant domain (with the exception of large institutional donations) in the life of individuals who are faced with choices that have a far greater bearing on their lives, making a strong case for the success of defaults. However, as seen in the existing literature on charitable giving and choice architecture, defaults are far from a roaring success in this domain, leading to the need for a further understanding and identification of differences in the impact of defaults and active choosing on charitable giving. Additionally, Sunstein also points out that the lack of adequate information feeds into the reluctance to make an active choice in most contexts. It would be interesting to examine whether providing information coupled with defaults and active choosing has an impact on charitable giving, in order to test if that is truly the concern. Thus, my research question is as follows:

*Can information coupled with active choice increase contributions to a charitable cause as compared to a default?*

Section 2 of the study provides the theoretical background, which begins with a description of choice architecture and its various tools, along with an overview of the research that examines the impact of the various categories of choice architecture on prosocial behavior. After concluding section 2 with the hypotheses of the present study, Section 3 describes the experiment conducted to test the aforementioned hypotheses. Section 4 is devoted to analyzing the results from the main experiment conducted in India and a follow-up experiment conducted in the Eurozone. Section 5 discusses the results outlined in Section 4 and makes implications about the same along with an



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acknowledgement of limitations of the current study. The paper closes with Section 6, which draws conclusions from the analysis.

## **2. Literature Review**

The previous section demonstrates the motivation behind undertaking an exploration into a comparison between opt-in and active choice with the employment of information. This section commences with a survey of the fundamental components of the research question namely choice architecture and its two broad sub-categories - defaults and active choosing. As the section progresses, additional key components like the relevance of information and context are introduced to equip the reader with the necessary information before encountering the hypotheses of the study. Finally, the section concludes with a survey of specific literature that lies at the intersection of choice architecture and prosocial behavior, making a strong case for the selection of charitable giving as the context of this study.

### **I. Choice Architecture – A brief introduction**

Coined by Thaler and Sunstein (2008), choice architecture is a term or a concept that lies at the forefront of decision-making. Simply put, the concept highlights the fact that there are a variety of ways to present a choice to a decision-maker, and the end outcome or the choice made therefore, depends on how that very choice is presented. Choice architects can influence the environment in many ways. A few examples of the same include: varying the order in which choice alternatives are presented, order attributes and their ease of use, and the selection of defaults, (Johnson et al., 2012). Given that the manner in which the choice is presented influences the decision made, the question of neutrality becomes an interesting one. Although it is possible to design a choice in a manner that ensures neutrality, a large section of choices fail to meet the criteria due to the existence of a (usually implicit) default. For instance, even if the default is that no choice is made, it follows that the choice is to preserve the status quo (Johnson et al., 2012). Therefore, the sheer influence of choice architecture in decision-making makes it noteworthy to explore its impact across different contexts.

Before looking at the contexts in which choice architecture has been applied, an understanding of the key subcategories of choice architecture is necessary. The literature on the

area so far has developed a variety of types of choice architecture than can broadly be divided into two categories: defaults and active choosing (when there is no default), which shall be explored in the following sections.

## II. Defaults

A significant amount of research has been devoted to studying the power of defaults. Specifically, the impact of the choice of default on social outcomes is studied in a myriad of policy making contexts that include and are not restricted to organ donation, retirement savings, environmental protection, and privacy (Sunstein, 2015).

For instance, in the domain of environmental protection, it has been postulated that consumer choices are affected by the prevailing choice architecture which includes the applicable default rule among other factors. When the default choice is not green, it might take a significant amount of effort for people to identify, and to select methods that are better suited to the environment (Sunstein, 2015). In exploring the large effect from green defaults, another laboratory study presented subjects with a choice between two energy suppliers. The first supplier, EcoEnergy, was described as follows: “EcoEnergy sells clean energy, generated from renewable electricity sources. Contribute to climate protection and environmental protection!” Acon, the second supplier, was described as: “We offer low-priced electricity tariffs — you cannot beat our prices. Save money with Acon!” The results of the study attest to the real power of default settings. When EcoEnergy was the default, 68% of participants stuck with their choice, but when it was the alternative, only 41% of people chose it (Sunstein & Reisch, 2014).

In looking at the private sector, a failure to acknowledge the power of defaults by paying inadequate attention to them can lead to firms having to pay a heavy price for the negligence. Choosing a default wisely is the equivalent of killing two birds with one stone as it enhances customer satisfaction while simultaneously increasing profits for the firm (Goldstein, Johnson, Herrmann & Heitmann, 2008). Seeing as defaults have immense scope, the authors in the article even (Goldstein et al., 2008) develop a framework that helps firms decide what type of default is optimal. The framework is based on the fundamental premise of whether the firm can tailor their

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product or service default settings for individual consumers, leading to a bifurcation into two categories - mass versus personal defaults. A series of questions are then designed to help a firm make its way to the final node of the framework where they are presented with one particular type of default that is best suited to the needs of their target consumer.

The apparent importance of defaults in decision making begs the question – “Why are defaults so powerful?” One study (Van Rooij & Teppa, 2008) develops a module for the Dutch SNB Household Survey and the US RAND American Life Panel to unearth factors that make defaults stick in domains that include retirement savings, voting and no-consent decisions in marketing. The findings from the study confirm that the default option plays a pivotal role in individual decision-making in the Netherlands as well as in the US. Additionally, there is heterogeneity in what drives choice behavior in the two countries due to it being situation dependent. However, procrastination and financial illiteracy are identified as two strong factors that underlie a preference for defaults. In a second paper (Samuelson & Zeckhauser, 1988) it is hypothesized that the individuals display a bias towards sticking to the status quo while choosing between alternatives. This is attributed to the fact that a greater weight is placed on potential losses as compared to potential gains from switching to the alternative when the status quo is the reference point. Due to this loss aversion, the individual is biased towards sticking to the status quo. Seeing as the default is what is chosen when no action is taken, it can be considered synonymous to the status quo. The paper explores this inertia in two domains of decision-making: individual health plan choices and contributions to retirement funds and finds evidence for the existence of the status quo bias in both.

Although they exist in various forms, the two main categories of defaults that have been explored in past studies are opt-in and opt-out frames. An opt-in frame is where the default choice is non-enrollment or no consent, and an opt-out frame is where the default choice is enrollment or consent. Given the contrasting nature of these two categories, a number of studies have compared the two to emphasize that defaults matter. For instance, Johnson, Bellman and Lohse (2002) highlight the relevance of defaults in the domain of internet privacy policies. By examining online permission rates for the consent to be added to e-mail distribution lists for future contacts, they

find significant differences between opt-in and opt-out frames. In another study on biobank consent models (Simon et al., 2011), it was discovered that most focus group (63%) and survey group (67%) participants preferred a prospective opt-in over an opt-out consent approach after recognizing the potential value of biobank based research.

Following the argument that defaults tend to stick, it has been found that domains in which opt-out frames are employed benefit from higher registration rates as compared to opt-in frames. In a seminal paper, Madrian & Shea (2001) studied what happens when a company alters its 401(k) default for new employees from non-enrollment to enrollment. It was discovered that very few employees in the automatic enrollment scheme (opt-out frame) select out of their 401(k) plan, generating participation rates that approach 100% in many companies. By contrast, when employees are not enrolled in the 401(k) plan unless they select to participate (opt-in frame), 401(k) enrollment rates are lower.

Having explored the power of defaults, it is also crucial to acknowledge their downsides. While defaults have been heralded as a Pareto improvement in a variety of contexts since it guides individuals into making potentially welfare-improving decisions while still providing the freedom to choose, there are reasons that favor the employment of alternative methods over defaults. For instance, the “one size fits all” underlying assumption of a default may prove disadvantageous from a welfare perspective. To support this claim, some papers have showcased that poorly designed defaults can reduce welfare if employees fail to subsequently adjust the defaults in accordance with their needs (Choi et al. 2002, 2004a, 2004b; Beshears et al. 2008, 2010a). In acknowledging the existence of heterogeneity, some other studies have shown that optimal defaults for financial decisions can vary depending upon participant characteristics (Carroll et al. 2009; Carlin, Gervais, and Manso 2010). In a paper (Brown, Farrell, & Weisbenner, 2012) that examines the active versus passive behavior of participants in a large public retirement plan when faced with a choice between defined benefit and defined contribution plans, substantial variation in the self-reported reasons for choosing a default is discovered. The results reveal that participants who default into a choice are substantially more likely than active choosers to regret the plan selected, even relative to those who actively chose the same plan. The extent of this regret varies with the

underlying reason for sticking to the default, with regret being significantly higher among people who stuck to the default due to the lack of information or procrastination, and significantly lower for those who deliberately stuck to the default. Secondly, if it is known that decision-makers are averse to paternalism of any kind, policymakers may favor active choosing over defaults.

Given that defaults are more suited to certain contexts than others, the dilemma of “to default, or not to default” becomes a pertinent one. In a paper, Sunstein (2015) posits that the decision of whether or not to use defaults is contingent on a set of criteria met by the context.

He states the following:

*First, policymakers should prefer default rules to active choosing when the context is confusing and unfamiliar, when people would prefer not to choose, and when the population is not heterogeneous along any relevant dimension. The last point is especially important. Suppose that with respect to some benefit, one size fits all or most, in the sense that it promotes the welfare of a large percentage of the affected population. If so, active choosing might be unhelpful or unnecessary.*

*Second, policymakers should generally prefer active choosing to default rules when choice architects lack relevant information, when the context is familiar, when people would actually prefer to choose (and hence choosing is a benefit rather than a cost), when learning matters, and when there is relevant heterogeneity. Suppose, for example, that with respect to health insurance, people’s situations are highly diverse, so that any default rule will be ill-suited to most or many. If so, there is a strong argument for active choosing.*

### III. Active Choice

In acknowledging the downsides to defaults, section II and III briefly make mention of an alternative to the same – active choosing. An active choice policy is one in which there is no default, but decision makers are required to make a choice (Carroll, Choi, Laibson, Madrian, & Metrick, 2009; Spital, 1993, 1995). A recent example of an active choice is the Brexit referendum (Figure 3). As seen in the figure, the choice is framed in a manner where there is no implicit default.

<b>Referendum on the United Kingdom's membership of the European Union</b>	
<b>Vote only once</b> by putting a cross <input checked="" type="checkbox"/> in the box next to your choice	
Should the United Kingdom remain a member of the European Union or leave the European Union?	
<b>Remain a member of the European Union</b>	<input type="checkbox"/>
<b>Leave the European Union</b>	<input type="checkbox"/>

Figure 3. The Brexit active choice. (Heffer, 2016)

Existing literature on choice architecture has compared active choice to defaults in a variety of domains, some of which will be explored in the following paragraphs. Before doing so, however, it is important to acknowledge a crucial distinction made within this domain – a distinction between active choice, which can be translated into a perceived requirement to choose and mandated choice or “forced choice”, which involves a real requirement to choose. The Brexit referendum in Figure 3 is an example of the former since it is merely a perceived requirement to choose.

In a study that sheds light on the impact of active choice (Cioffi & Garner, 1996), two experiments demonstrate that making a decision to volunteer by actively doing something results in a greater degree of commitment to the activity than making the same decision passively. Undergraduates were approached to volunteer for a university committee or a sex and AIDS awareness education project and stated their choice either by an affirmation on two fields or by skipping two fields that affirmed the opposite choice. Active respondents were more “extreme” in the degree of their decision than passive respondents. Moreover, active choosing resulted in stating more types of reasons for the decision made, and active refusal increased the perceived resistance to social influence. In another study devoted to promoting green energy (Hedlin & Sunstein, 2016), there were two interesting findings. Firstly, getting participants to make an active choice between a green energy provider and a standard energy provider led to higher enrollment in the green

program than did the defaults in the green and standard energy categories. Secondly, active choosing caused participants to feel guiltier about not enrolling in the green energy program than did either green energy defaults or standard energy defaults.

Yet another study (Montoy Dow & Kaplan, 2016) explored the impact of the manner in which an offer was framed on the likelihood of acceptance of an HIV test among patients receiving care in an emergency department. The test was offered in three ways. The first one was an opt-in: “You can let me, your nurse, or your doctor know if you'd like a test today”. The second one was an active choice: “Would you like a test today?” and the third one an opt-out: “You will be tested unless you decline.” The results revealed that in comparison to a strict opt-in scheme, the active choice method increased test acceptance by 13 percentage points.

A second study (Keller et al., 2011) in the health domain hypothesized that active choice is more effective than opt-in when it comes to increasing participation rates to get a flu shot. Results from one of the studies showed that as hypothesized, more respondents (69%) said they would get a flu shot that very fall in the active choice conditions than when they were asked to opt-in (42%). In fact, across all the studies conducted in the paper, the data clearly supported the advantages of active choice over opt-in in increasing participation rates.

Overall, when comparing active choosing to defaults, it has been theorized that active choosing has the advantage of promoting learning, leading to a subsequent development of preferences and values (Sunstein, 2015). For instance, in domains like health and retirement, it could be of value for individuals to develop a kind of understanding that will help them make sound choices without having to nudge them to do so. Those who favor active choosing tend to emphasize this point, and see it as a powerful objection to the use of default rules. Additionally, it has also been suggested (Carroll et al., 2005) that active decisions are optimal when decision-makers have a strong tendency to procrastinate and have preferences that are highly heterogeneous.

#### IV. Active Choice versus Opt-in:

Although the distinction between the two is subtle (Montoy, Dow & Kaplan, 2016), the comparison between active choice and opt-in mechanisms have been highlighted in two primary



domains – 401(k) savings and organ donations. The contradictory findings call for a deeper understanding of the underlying methodologies in the studies undertaken within these two domains.

#### 401(k)

Research on savings has highlighted that one of the most prominent characteristics of 401(k) employee contribution rates is their high level of inertia with respect to a preference for the status quo. One consequence of the same is that changing the status quo, or default, can have a significant impact on contribution rates. Moreover, it is also important to note that historically, enrollment in a 401(k) plan was designed as an opt-in. This meant that if employees took no action, they were not enrolled in a 401(k) plan.

In an observational study, Carroll et al. (2009) measured the impact on savings plan enrollment in a firm that required all new employees to explicitly choose between enrolling and not enrolling in a 401(k) plan. While not as effective as the 50% increase in 401(k) enrollment when employees were automatically enrolled in line with an opt-out frame (Madrian & Shea, 2001), Carroll et al. (2009) found a 28% increase in enrollment in the active decision condition compared to the opt-in condition. The article demonstrates that forcing respondents to choose one alternative may overcome some of the ethical concerns related to automatic enrollment (opt-out frame) while still performing better than an opt-in frame.

#### Organ Donation

While research on savings behavior herald active choice as the winner over opt-in, research on organ donation tells a different tale. In a study that tested the effect of active choice on the decision to become an organ donor (Buffat et al., 2015), two field experiments were conducted to delve into the two channels through which active choice is believed to impact outcomes – reflection and commitment. The results revealed that reflection has a statistically significant negative effect on the decision to become an organ donor. Additionally, it found that the commitment nudge reduced putting off the decision but did not lead to donation rates higher than those observed in the control group. The results suggest that “active choice mechanisms as a policy instrument may be far more limited than previously thought” (Buffat et al., 2015).

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Given the pressing need to increase organ donation registrations, efforts towards altering how the organ donor registration question is posed have been undertaken in the United States and other countries. California, for example, switched their organ donor registration question from an opt-in frame to an active choice frame (Kessler & Roth, 2014). As seen in Figure 3 below, in the opt-in frame, the individual was required to make an explicit positive statement or skip the question. In an active choice frame, the individual was asked to respond to a question that has a positive or a negative response.

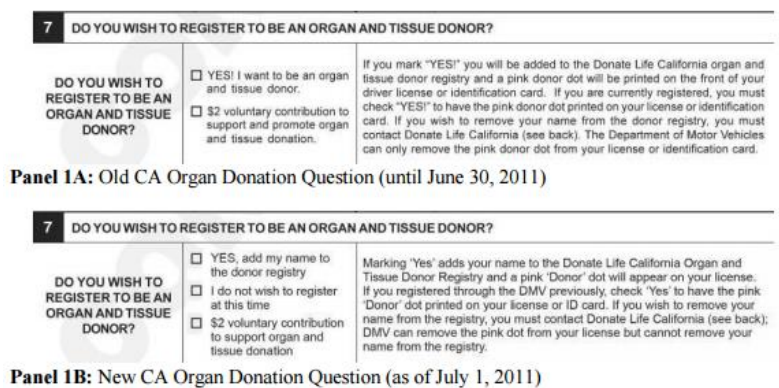


Figure 4. Opt-in versus active choice – Organ donation in California (Kessler & Roth, 2014)

A study devoted to analyzing this change from an opt-in to active choice frame in organ donations in California (Kessler & Roth, 2014) found that the transition to an active choice frame actually decreased registration rates. Additionally, a "field in the lab" experiment run on actual organ donor registration decisions found no increase in registrations after switching to an active choice frame.

As in the example of organ donations where active choice backfires, there is another scenario where active choosing does not emerge as the preferred mechanism – when people “choose not to choose”. While there are people that look at defaults as a form of paternalism, leading to an automatic preference for active choosing, Sunstein (2015) argues that people often “choose not to choose” whereby individuals prefer situations where the decisions are simplified. In this scenario, active choosing is seen as paternalistic and defaults are preferred. This line of

thinking assumes that the reluctance to make an active choice stems from the lack of information (among other factors).

Overall, while Active choice emerges victorious in the 401(k) domain, it backfires with organ donations and in situations where individuals “choose not to choose”. This leads to the understanding that when comparing opt-in and active choice, the verdict on the better-suited method is situation specific and cannot be generalized, making a compelling case for further research that tests this comparison in varied contexts.

In addition to looking at different contexts to establish a difference between opt-in and active choice, it may be of some value to include factors that particularly strengthen one of the two factors. For instance, it has been postulated (Sunstein, 2015) that a lack of information contributes to the reluctance towards making an active choice. The role of information has been previously analyzed in the context of decision-making to enroll in a Tax Deferred Account (TDA) retirement plan within a large university (Duflo, & Saez, 2002). The findings of the study show that five and eleven months after an information fair, individuals in the treatment departments (encouraged to attend the fair) were significantly more likely to have started contributing to the TDA than individuals belonging to the control department. Seeing as information has proven useful in a context that is familiar with active choice – savings behavior, it would be of value to include a factor like information while testing for a possible difference between opt-in and active choice in different contexts.

## V. Choice architecture and prosocial behavior

In terms of picking a context for testing of the effectiveness of choice architecture, a large portion of the existing literature has focused on savings and organ donation, as elaborated upon in the previous sections. However, there is also a section of literature that looks at the impact of choice architecture on some other domains of prosocial behavior, which will be described in further detail in this section.

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One study looks at active choosing as capable of transforming a “latent willingness to donate, contribute, or share into actual prosocial behavior” (Stutzer, Goette & Zehnder, 2011). The study hypothesized that confronting individuals with the choice of whether to engage in a specific prosocial behavior contributes to the formation of “issue-specific altruistic preferences” (Stutzer, Goette & Zehnder, 2011), while also involving a commitment. This contrasts with some noncommittal appeals to behave prosocially that address everybody in a similar manner. A large-scale field experiment on blood donations was chosen as the testing ground for the hypotheses. The results showed that active decisions “substantially increases the actual donation behavior of people who had not fully formed preferences beforehand”.

In a second study (Altmann, Armin, Heidhues & Jayaraman, 2014), a natural field experiment was conducted on one of Germany’s largest web based platform dedicated towards making charitable contributions. The authors varied the default options in two dimensions where the first dimension was concerned with how much to contribute to the charitable cause. In this dimension, website visitors were randomly assigned to one of three default donation amounts – 10, 20 or 50 Euros. The different amounts allowed the authors to test the impact of defaults on behavior for smaller and larger denominations. Additionally, there was also a treatment where the donation field was initially set to zero and individuals wanting to make a donation would have to decide on their contribution level. The modal positive contributions in both choice dimensions correlated with the specified default amounts. Defaults, however, were found to have no impact on aggregate donations. Furthermore, there was also no difference when comparing overall donation levels to the environment where donors have to actively decide on their contribution amounts.

In a study (Schulz, Thiemann & Thoeni, 2015) that analyzed the effects of defaults on charitable giving, subjects belonging to the treatment group could either specify a charity of their choice, or choose one from a default list of five well-known charities; there was no list provided in the control group. In a sample of 869 subjects, it was shown that offering a list of default charities “doubles both the fraction of donors and the aggregate amount of donation” (Schulz, Thiemann & Thoeni, 2015), highlighting the importance of choice architecture in donation decisions.

## VI. The context – Charitable giving

In looking at literature on choice architecture and prosocial behavior, the previous section concludes with a paper (Schulz et al., 2015) that showcases the impact of defaults on charitable giving. Considering the commonplace nature of charitable solicitations, the heterogeneity in framing of choices and in the decision makers individual preferences, charitable giving makes for an interesting testing ground for establishing a difference between two categories of choice architecture – opt-in and active choice. Additionally, the lack of significant research in the field of choice architecture that employs this specific context makes a compelling case for selecting charitable giving as the context in this study.

In assessing the various methods to measure altruistic behavior in a laboratory setting (charitable giving can be viewed as a type of altruistic behavior), dictator games have often featured as a popular method to measure the same (Andreoni, Harbaugh & Vesterlund, 2010). In a dictator game, the proposer receives a sum of money, a proportion of which can be given to a responder. Self-interest dictates that the proposer gives 0, however, the average contribution of 28% found in previous studies (Engel, 2011) indicates significant altruism.

In the existing literature on charitable giving, there has been a significant amount of research conducted on the giver's mind with the usage of dictator games. A number of studies elaborate upon how people seem to be uncomfortable about saying “yes” when it comes to giving, seem to show a reluctance to give and try to avoid solicitation when possible. For instance, Dana, Cain, and Dawes (2006) showed that, instead of participating in a \$10 dictator game with an anonymous partner, many people would accept \$9 and be allowed to leave with the potential recipient not being made aware of the choice to quit. Thus, the various motivations to give (and if so, how much to give), or not to give can be influenced by the way the choice is framed.

To summarize, the literature so far has established that although choice architecture has an impact on decision-making, the success of the type of tool being used is situation dependent. Results from two heavily researched prosocial domains of savings behavior and organ donation present contradictory results on the role of active choice in decision-making. Taken together with

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research by Sunstein (2015), including information (which by itself is seen to influence decision-making) as a factor may aid in strengthening active choice in select additional prosocial contexts. Finally, seeing as charitable giving is relatively new territory for choice architecture research, it makes for a compelling domain to test for the differences between opt-in and active choice coupled with the role of information. A consolidation of the above leads to the following 3 (null) hypotheses, all of which I expect to reject by way of an experimental analysis:

- H1: Active choice has no effect on contributions to a charitable cause as compared to opt-in.*
- H2: Providing relevant information has no positive effect on contributions to a charitable cause as compared to providing no information.*
- H3: Active choice coupled with relevant information has no positive effect on contributions to a charitable cause as compared to opt-in frame with no information.*

### 3. The Experiment

#### I. India

In order to test the hypotheses, an experiment with a between-subjects design was conducted at the Hiranandani Foundation School in Mumbai, India. A total sample of 264 students between the ages of 13-17 (Grade VIII to Grade XII) were randomly assigned to six treatment conditions. Further details concerning the sample can be found in the Appendix (section A2). The treatments were designed to incorporate all possible combinations of types of information (of which there were three) and the manner in which the choice was presented (of which there were two). Figure 4 below presents a more detailed overview of the experimental design.

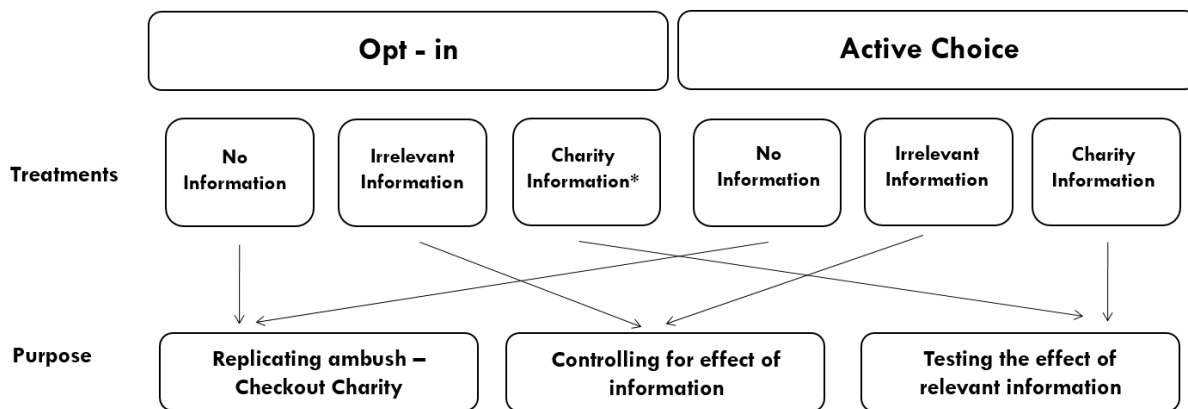


Figure 5. Experimental design - An overview.

Since the impact of choice architecture on decision-making constitutes the foundation of this thesis, the Opt-in and Active Choice conditions can be viewed as the larger umbrellas within which the type of information provided varies. This was executed via the inclusion of three information categories namely “No Information”, “Irrelevant Information” and “Charity Information” leading to a total of six treatments. Here, it is important to note that the combination of the Opt-in + No Information treatment is meant to replicate charity solicitations in the real world

(e.g. checkout charity). Contrastingly, the Active Choice + Charity Information treatment can be viewed as the other end of the spectrum where subjects are provided with the necessary information which should ideally resolve the cognitive burden or informational gap that has been attributed to the reluctance towards making an active choice. Additionally, the Irrelevant Information conditions are included to simply control for the effect of providing information regardless of the purpose it serves.

Data for the six treatments was gathered via online surveys differentiated per treatment using Google Forms. Each survey begins with an instructional page and concludes with a set of questions that stays constant across treatments. The points of difference between the surveys arise in two ways - the manner in which the choice to donate is presented and the type of information provided (if at all). Sample surveys can be found in the Appendix (section A4).

The primary difference between the Opt-in and Active Choice treatments was in the manner in which the choice to donate was presented. After reading the text *'You are given Rs. 200. You now have the option to donate some or all of it to UNICEF and keep the rest. Please make your choice below'*, subjects assigned to the Opt-in treatments were only presented with a *'Yes, I want to donate'* option which they could select by checking a box. Alternatively, they could skip the section entirely. Contrastingly, the subjects assigned to the Active Choice treatments had the option to select either *'Yes, I want to donate'* or *'No, I do not want to donate'*. Here however, subjects could not skip ahead and were thus required to make a decision.

When considering the three information categories, it is important to note that video was preferred over text as the source of information. Over the years, a number of studies have heralded the benefits of visual forms of learning over purely text based approaches. The preference for the same comes from the finding that 90% of all information that is sent to the brain is visual (Jensen, 2008). Another study found that video cases were better suited to specific cognitive processes like theory building and evaluation as compared to text based cases in the domain of problem based learning (Balslev, De Grave, Muijtjens & Scherpbier, 2005). In light of these findings, videos were chosen as the medium of communication in this study. In the experiment, subjects assigned to the No Information category did not see a video prior to making their choice on how much to donate



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to UNICEF. Subjects assigned to the Irrelevant Information category saw a brief photography tutorial video prior to making their choice. The photography video was selected after it met the two essential criteria that were necessary for inclusion in this condition. First, the content in the video had to be irrelevant or in other words, unrelated to the topic of interest - charitable giving. Second, the video had to be informative in the sense that it conveyed information of some kind. Finally, subjects assigned to the Charity Information category saw a video on a UNICEF project before making their decision. The Sudan project video was selected after it met the two essential criteria that were necessary for inclusion in this condition. First, the content in the video had to be relevant to what was being studied - charitable giving. Second, the video had to necessarily provide factual information as opposed to being some generic advertisement that simply plucks an emotional string. The Sudan project successfully met both the aforementioned criteria.

Given that the research question tests decision-making in the context of charitable giving, the question, ‘which charity should be chosen?’ becomes an important one. This is due to the fact that individuals today are spoilt for choice with hundreds, if not thousands of charities they can donate to. Moreover, a number of charitable organizations like PETA, UNICEF or the Bill & Melinda Gates Foundation function as businesses with models that are differentiated by cause, location, scale, medium, reach, etc. It is therefore safe to assume that the degree of altruism and the subsequent amount donated varies with how worthy a charitable cause/organization is in the eyes of the donor. In fact, in one study, experimental treatments describing recipients as worthy significantly increase giving in a dictator game (Fong & Luttmer, 2011) alluding to its importance in altruistic behavior.

Conducting the experiment in India leads to the immediate assumption that selecting something local (in Mumbai or India) would be best since subjects are more likely deem a cause concerning members of their own race as more worthy than a cause concerning members of a different race. This claim is supported by a Fong & Luttmer (2011) who find a significant racial bias in the perceptions of worthiness. However, selecting a country or race specific cause leads to valid concerns regarding the external validity and ability to generalize the results to a global level. Therefore, the aim was to select a “global” charity that students in India are familiar with, which

also circumvents the issue of external validity in this context. In line with the above argumentation, UNICEF was the charity of choice.

Yet another pertinent question with regard to the design is, ‘how do we measure altruistic behavior?’ As described in the Literature Review, a method used frequently in past studies is the dictator game, in which a subject (the proposer) distributes a fixed amount amongst himself and another subject (the responder). In this scenario, the responder is not another subject, but the charitable organization in question – UNICEF. A follow-up question would be ‘what should be the fixed amount presented to subjects?’ Of course, this is seldom a concern when it comes to charitable solicitations in the real world where there is no upper bound on the amount one can donate. However, since the aim to test altruistic behavior in a laboratory setting using a dictator game, deciding a fixed amount is necessary. Moreover, seeing as charitable solicitations that most people are faced with on a regular basis involve smaller denominations (‘Would you like to donate 1\$ to...?’ or ‘If we all gave \$3, the fundraiser would be over in an hour’), the amount selected was Rs. 200 (Purchasing Power Parity<sup>1</sup> = 10 Euros). The amount selected and its corresponding value in, for example, the Netherlands raises the question of purchasing power parity. Simply put, the purchasing power is determined when the expenditure on a particular good/service is set to be the same in two given currencies (for example, Rupees and Euro) after accounting for the exchange rate between the two currencies. In other words, Rs. 200 will buy a similar number of goods/services in India, as would 10 Euros in the Netherlands.

Following the setup of a controlled lab experiment, subjects were invited in groups of six to participate in the experiment. Seeing as subjects came in groups according to their class, a random allotment mechanism was implemented in order to address the issue of friends sitting next to each other (increasing the risk of communication during the experiment). This was done by asking students to pick a chit from a basket of six chits, with the numbers 1-6 (for the six treatments) written on them. The subject was then asked to sit by the laptop with the matching number. Once

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<sup>1</sup> <http://salaryconverter.nigelb.me>

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the subjects were assigned to the respective treatments, the survey was launched and subjects were directed through three or four stages (depending on treatment condition).

1. Introduction page with basic instructions
2. Information
  - a. Subjects in the No Information treatment condition did not have this stage
  - b. Subjects in the Irrelevant Information and Charity Information treatment conditions watched a video.
3. The dictator game where subjects had to make their donation decision. Choice was framed as either
  - a. Opt-in
  - b. Active Choice
4. Questionnaire asking for demographic information, familiarity with UNICEF, whether they had sufficient information about UNICEF prior to making their choice, income/allowance<sup>2</sup> levels and email addresses

Prior to the section where choices are made in the dictator game, subjects are told that the experiment is hypothetical, and that they have to imagine the scenario presented. However, in order to moderately satisfy salience, which is one of the key precepts of economics experiments, it is important that the experiment is incentive compatible. Given budgetary constraints, the manner in which this was implemented was by letting subjects know that at the completion of the study, two subjects would be selected at random and would have their choices implemented (Wakker, 2007). The details of the execution of the same are described in the Appendix (section A6).

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<sup>2</sup> The usage of the word 'allowance' for the India sample stemmed from the fact that participants were school students or dependents. This made it unlikely that they earned a monthly income.

## II. Eurozone

A follow up experiment, with two of the six previously outlined treatment conditions was conducted in the Eurozone. The Eurozone was specifically selected (as opposed to the EU or Europe) due to the common currency used by the member countries, the Euro. A common currency was necessary for consistency with regards to purchasing power. Although there was no automatic restriction established for subjects outside the Eurozone, the message request attached to the survey link clearly stated that the experiment was only for subjects currently living in the Eurozone.

The two selected treatments were Opt-in + No Information and Active Choice + No Information. The rationale behind conducting the experiment in the Eurozone was to observe possible cultural differences. Additionally, this sample belonged to age groups 21-35 years, making it interesting to see whether the impact of framing choices a certain way has a similar impact across age groups.

As seen in the literature, the differences between opt-in and active choice has been described as subtle (Montoy et al., 2016). However, this assessment was made when looking at these two forms of choice architecture in specific contexts. Thus, keeping the effect of information out of the picture, the purpose of the Eurozone sample was to simply explore possible differences between opt-in and active choice in a context that is yet to be explored extensively – charitable giving.

The sample comprised 42 subjects between the ages 21-35. Data for the two treatments was gathered via online surveys differentiated per treatment using Qualtrics. Subjects were recruited via Facebook and were randomly directed to one of the two treatment conditions. The amount received in the dictator game was 10 Euros and the experiment was made incentive compatible in the manner similar to the India sample, however, for this sample, one subject would be selected at random to have their choice implemented.

## **4. Data Analysis**

### **I. Data from India Sample**

#### *Description*

There are 259 independent observations at the individual level, 6 independent observations at the group level and 1 independent observation at the session level. 42 responses were collected for the Opt-in + No information condition, 43 for the Opt-in + Irrelevant information condition, 44 for the Opt-in + Charity information condition, 47 for the Active choice + No information condition, 42 for the Active choice + Irrelevant information condition, and 41 for the Active choice + Charity information condition. An equal number of responses of 44 was desired for each condition however, data points from some conditions had to be excluded due to erroneous responses. Particularly, three subjects entered amounts greater than the upper limit of Rs. 200 for their dictator game contributions due to which, their responses had to be dropped from the analysis. For a description of how the optimal sample size was determined, power calculations were conducted. Details of the same are described in the Appendix (section A1).

Table 1: Variables employed & description

Variable	Type	Description
contribution	Continuous	Amount. contributed to UNICEF (INR)
age	Continuous	Age of subject
male	Binary	Gender of subject. Female=0, Male=1
AC	Binary	Condition. Opt-in=0, Active Choice = 1
Info category	Categorical	3 categories. No information = base category
- irrinfo	Binary	Dummy variable for Irrelevant Information
- charinfo	Binary	Dummy variable for Charity information
income category	Categorical	5 categories. Rs. 0 – Rs. 500 = base category
- IncomeCat2	Binary	Dummy variable for Rs. 501 – Rs. 1000
- IncomeCat3	Binary	Dummy variable for Rs. 1001 – Rs. 1500
- IncomeCat4	Binary	Dummy variable for Rs. 1501 – Rs. 2000
- IncomeCat5	Binary	Dummy variable for Above Rs. 2000

A majority of the subjects were female (57%) and 14 and 15 years of age (60% of the sample). 59% of the sample had a monthly income/allowance in the Rs. 0 – Rs. 500 range. Average contribution to UNICEF in the dictator game was Rs. 127 (63% of the pie) and median contribution was Rs. 150 (75% of the pie). A tabular representation of these statistics can be found in the Appendix (section A2).

### *Data Analysis & Results*

#### a. Differences between the conditions

Seeing as the treatments are designed in a manner that a difference between them would help test the hypotheses, statistical tests to establish a difference between the conditions were conducted. Having established the end goal, it was necessary to then determine the type of test that is best suited for the data – parametric or non-parametric.

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In general, parametric tests are preferred over non-parametric tests as long as the underlying assumptions are met. For a more detailed overview of the assumptions of parametric tests, see Appendix (section B1). Given that parametric tests have more power, the first step is to check the assumptions to see if they are satisfied. Although the independence of observations, no outliers and homogeneity of variances assumptions were met, the normality assumption was not satisfied. To test for normality, the Shapiro-Wilk test of normality was employed. The null hypothesis of the Shapiro-Wilk test is that the distribution of the data is equal to a normal distribution. Thus, if the null hypothesis is rejected ( $p < .05$ ), the distribution of the data is not equal to a normal distribution, and if there is a failure to reject the null hypothesis, the data is normally distributed. As seen in Table 2 below, the null hypothesis is rejected for each group implying that the normality assumption is not satisfied.

Table 2: Results of Shapiro-Wilk test - India

Condition	Abbreviation	Shapiro-Wilk		
		Statistic	Df	Sig.
Active Choice + Charity Information	ACC	.803	41	.000
Active Choice + Irrelevant Information	ACI	.886	42	.001
Active Choice + No Information	ACN	.886	47	.000
Opt-in + Charity Information	OIC	.768	44	.000
Opt-in + Irrelevant Information	OII	.848	43	.000
Opt-in + No Information	OIN	.892	42	.001

Since the assumption of normality was violated, non-parametric tests were chosen for the analysis and the non-parametric analysis was conducted using SPSS. It has also been theorized that non-normality does not affect the affect Type I error rate substantially and the one-way ANOVA (the parametric test chosen to test possible differences between k groups) can be considered “robust to non-normality” (see Maxwell & Delaney (2004)). Seeing as a parametric test would not be entirely incorrect, results of the one way ANOVA are presented in the Appendix (section B2).

To examine if the dictator game contributions of the six treatments differ from one another, the Kruskal-Wallis H test was performed in SPSS. This is used to test if the median of k different

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samples comes from populations with the same distribution. The hypotheses of this test can be stated as follows:

$H_0$ : the dictator game contributions for the groups are equal i.e.

$$OIN=OII=OIC=ACN=ACI=ACC$$

$H_A$ : the dictator game contributions for the groups are not equal i.e.

$$OIN \neq OII \neq OIC \neq ACN \neq ACI \neq ACC$$

The results of the Kruskal-Wallis test show that there was no statistically significant difference in median contributions made in each group ( $\chi^2(5) = 6.004, p = 0.306$ ). Thus, there is not enough evidence for establishing a difference between the treatments. It is also useful to note here that the statistically insignificant results of the Kruskal-Wallis H test indicate that no two treatment conditions within the six, are significantly different from each other. This leads to the first result:

*Result I: For the India sample, the null hypothesis H3, which states that active choice coupled with relevant information has no positive effect on contributions to a charitable cause as compared to opt-in frame with no information, cannot be rejected.*

The analysis in the previous paragraphs was conducted on data that is sorted by the combination of choice architecture type and information type, leading to six groups. Alternatively, the data can also be organized by purely choice architecture type (two groups) or information type (three groups). As done previously, the appropriate non-parametric tests were chosen to conduct the statistical tests.

When the data is organized by choice architecture type, all observations fall into either the opt-in condition or the active choice condition leading to two groups. Since the experiment follows a between-subjects design, a Mann-Whitney U test was chosen in this case to determine whether



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the two independent samples come from the same population. The hypothesis of this test can be stated as follows:

$H_0$ : the dictator game contributions for both groups are equal i.e.  $OI=AC$

$H_A$ : the dictator game contributions for both groups are not equal i.e.  $OI \neq AC$

The results of the Mann-Whitney U Test show that distributions of the contributions for opt-in and active choice were similar. In other words, the amount contributed was not statistically significantly different between the opt-in conditions (Median = 150) and active choice conditions (median = 135),  $z = 0.737$ ,  $p = .461$ . Thus, the findings can be translated as follows:

*Result II: For the India sample, the null hypothesis  $H_0$  which states that active choice has no effect on contributions to a charitable cause as compared to opt-in cannot be rejected.*

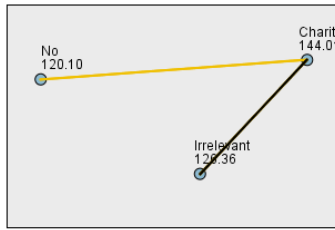
When the data is organized by information category type, all observations fall into No Information, Irrelevant Information or Charity Information conditions, leading to three groups. Since the experiment follows a between-subjects design, a Kruskal-Wallis H test was chosen in this case to determine whether the three independent samples come from the same population.

Table 3. Median values for Information groups

<b>Information Type</b>	<b>N</b>	<b>Median</b>
Irrelevant	85	100.00
No	89	106.00
Charity	85	175.00

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Table 4. Pairwise comparisons of the Kruskal-Wallis H Test



Sample 1- Sample 2	Test Statistic	Std. Error	Adj. Sig.
No-Irrelevant	-6.258	11.030	1.000
<b>No-Charity</b>	<b>-23.905</b>	<b>11.030</b>	<b>0.091</b>
Irrelevant-Charity	-17.647	11.156	0.341

The results of the Kruskal-Wallis test show median contributions were statistically significantly different between the three groups, ( $\chi^2(2) = 5.014, p = 0.081$ ). Subsequently, results in Table 4 highlight where the difference stems from by conducting pairwise combinations of information type. As seen in the table and figure, the distribution of the No Information treatment conditions significantly differ from the Charity Information treatment conditions ( $p < 0.1$ ) with a lower mean rank of 120.10 as compared to the mean rank of the Charity Information treatments that have a rank of 144.01 This leads to the following:

*Result III: For the India sample, the distribution of the No Information treatment conditions significantly differ from the Charity Information treatment conditions at the 10% level.*

In looking at Result III, it is important to note that the Kruskal-Wallis H test only establishes if the groups significantly differ from one another. To determine if the direction of the effect in line with H2, further analysis is conducted in the next section.

Overall, the non-parametric tests help establish if the groups significantly differ from one another. While the results indicate that there is not enough evidence to establish a difference between a) Active Choice + Charity Information and Opt-in + No Information and b) Active Choice and Opt-in, there is a significant difference (10% level) between groups when they are

organized by information category. Since the results presented in this section are two-tailed, they only point to whether the groups differ from one another. For understanding the size and direction of effect, further analysis is required.

b. Impact of the independent variables

In the previous section, statistical tests performed tested whether the treatment conditions differed from one another with respect to the contributions to UNICEF in the dictator game. However, the impact of the various independent variables like age, gender, etc. are yet to be tested. Additionally, a further understanding of the impact of information is required to test hypothesis H2. In order to do so, a Tobit regression is conducted. Also known as a censored regression model, a Tobit regression tests for linear relationships between variables when the dependent variable has a lower and/or upper bound, which is the case with the present study since contribution, the dependent variable, is censored at Rs. 0 and at Rs. 200. It is also possible to conduct an OLS regression however, an OLS regression will treat Rs. 200 simply as the actual value and not as the upper limit of possible contribution to UNICEF. Another limitation of the OLS approach is that when the dependent variable is censored as in this case, OLS provides inconsistent estimates of the parameters implying that as the sample size increases, the coefficients will be unlikely to approach the true population parameters (Long, 1997).

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Table 5: Results of Tobit regression

	Contribution	Two-tailed <i>p</i> -value	One-tailed <i>p</i> -value
model			
Age	-169.8	(0.269)	(0.1345)
agesqr	5.397	(0.289)	(0.1445)
male	-12.58	(0.421)	(0.2105)
AC	-11.87	(0.439)	(0.2195)
irrinfo	11.53	(0.543)	(0.2715)
charinfo	37.66*	(0.052)	(0.026)
IncomeCat2	0.988	(0.962)	(0.481)
IncomeCat3	29.03	(0.292)	(0.146)
IncomeCat4	-24.42	(0.582)	(0.291)
IncomeCat5	0.0289	(0.999)	(0.4995)
Constant	1464.6	(0.204)	(0.102)
Observations	259		

*p*-values in parentheses

\*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

As seen in Table 5 above, the results of the Tobit regression reveal that most of the independent variables have no significant effect on contributions to UNICEF in the dictator game. Information, however, seems to have a significant effect on contributions. Specifically, belonging to the CharInfo category increases predicted contribution by Rs. 37.66 as compared to the NoInfo category, *ceteris paribus*. This result is significant at the 5% level ( $p=0.026$ ) when considering the one-tailed *p*-value.

Using the coefficients in the table above, it is also possible to make judgments about pairwise differences between the six treatment conditions. Since the current model includes the binary variable for choice architecture type and the categorical variable for information type, a linear combination of the two can reveal whether two given treatment conditions differ from each other. The table below illustrates the same.

Table 6: Linear combinations

	<b>No Information</b>	<b>Irrelevant Information</b>	<b>Charity Information</b>
Opt-in	$\alpha$	$\alpha + \beta_{\text{irinfo}}$	$\alpha + \beta_{\text{charinfo}}$
Active Choice	$\alpha + \beta_{\text{AC}}$	$\alpha + \beta_{\text{AC}} + \beta_{\text{irinfo}}$	$\alpha + \beta_{\text{AC}} + \beta_{\text{charinfo}}$

Looking at Table 6, it is evident that comparisons between three out of the five treatments (keeping the Opt-in + No Information treatment as the base category) can be made by directly looking at specific coefficients. For example, compared to the base treatment condition Opt-in + No information, subjects in the Opt-in + Charity information treatment condition contribute Rs. 37.66 more. This difference is significant at the 5% level ( $p = 0.026$ ). Compared to the base treatment condition, contributions made in the other treatment conditions do not statistically differ. As seen in Table 7 however, contributions to the Opt-in + Charity Information treatment condition are higher by Rs. 49.53 as compared to contributions to the Active Choice + No Information condition. This difference is significant at the 5% level ( $p = 0.023$ ).

Table 7: Linear combination

	<b>Contribution</b>	
charinfo	49.530**	(0.045)

*p*-values in parentheses

\*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Although the results from the regression have been presented as a part of this analysis, it is important to conduct tests to assess if a regression and specifically, a Tobit regression is suited for the data. Two key assumptions that a standard OLS and a Tobit regression share in common are those of normality and homoskedasticity. While the data satisfy some of the assumptions of a standard OLS (for example: the homoskedasticity assumption is satisfied in accordance with the results from the Breusch-Pagan test. See Appendix section B3 for a detailed overview of assumptions), these post-estimation tests for an OLS are invalid for censored data because the “fitted values and residuals from a censored model do not share the properties of their ordinary regression counterparts” Cameron and Trivedi (2010).

For the Tobit model, the test for normality was conducted using a user-written `-tobcm` command in Stata (Drukker, 2002). What followed was a rejection of the null hypothesis of normality in the errors, with a test statistic of 209.29 (See Appendix B5 for test results). A second test was conducted to test the appropriateness of the Tobit model. Using the `bctobit` command, the appropriateness of the model was tested against the alternative that the model has heteroskedasticity and non-normal errors. Therefore, the null hypothesis of the suitability of the model is rejected since the critical values are less than the LM statistic of 116.66 (See Appendix B5 for test results). Despite the apparent lack of suitability of the model, results from the Tobit regression are nonetheless reported because both tests were conducted with only the left censor at 0 (right censor at 200 had to be excluded) due to command restrictions.

Overall, results from the non-parametric tests indicate that a comparison based on the three information categories shows that there is a weak statistically significant difference between the categories (at the 10% level). Results from the Tobit regression confirm this finding by showcasing that contributions in the Charity Information treatment conditions are higher ( $p < 0.05$ ) than contributions in the No Information treatment conditions leading to the following:

*Result IV: For the India sample, the null hypothesis H2, which states that providing relevant information has no positive effect on contributions to a charitable cause as compared to providing no information, is rejected at the 5% level.*

## II. Data from Eurozone Sample

A follow up experiment was conducted in the Eurozone area with two treatment conditions – Opt-in + No information and Active choice + No information. There were 42 independent observations at the individual level, 2 at the group level and 1 at the session level. Subjects were randomly assigned to one of the two treatment conditions. There were 19 observations in the Opt-in + No information condition and 23 observations in the Active choice + No information condition.

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A majority of the subjects were Male (52%) and subjects' ranged from 21-35 years. 64% of the sample had a monthly income/allowance in the 0 Euros – 1000 Euros range. The average and median contribution to UNICEF in the dictator game was 5 Euros (50% of the pie). 33% of the sample contributed nothing, another 33% contributed 10 Euros, 24% of the sample contributed 5 Euros and the remaining 10% contributed other amounts. A visual representation of these statistics can be found in the Appendix (section A3).

As done with the India sample, the first step was to determine if a parametric or a non-parametric test is to be chosen. Results from the Shapiro-Wilk test of normality (p-values < 0.5) show that the normality assumption is not satisfied therefore, a non-parametric test is performed.

Table 8: Results of Shapiro-Wilk test - Eurozone

Condition	Shapiro-Wilk		
	Statistic	Df	Sig.
OI	.842	19	.005
AC	.761	23	.000

The results from the Mann-Whitney U Test show that distributions of the contributions for opt-in (mean rank = 21.71) and active choice (mean rank = 21.33) were similar. In other words, the amount contributed was not statistically significantly different between the opt-in conditions and active choice conditions ( $z = -0.106$ ,  $p = .916$ ). Thus, the findings lead to the final result.

*Result V: For the Eurozone sample, the null hypothesis H1, which states that active choice has no effect on contributions to a charitable cause as compared to opt-in, cannot be rejected.*

## 5. Discussion

### I. General Discussion

Data from the India sample shows a lack of evidence for a difference between the six treatments that combine the two categories of choice architecture and information type. However, overall comparisons between the information categories reveal that there is a weakly significant difference between the No Information and Charity Information categories. The results of the Tobit regression confirm this finding since the results reveal that participants in the Charity Information condition made larger contributions to UNICEF as compared to participants in the No Information condition.

The overall comparison between the Opt-in and Active Choice treatments is statistically insignificant. This finding is resonated in the Eurozone sample which compared the Opt-in + No information and Active choice + No information treatments, the results showed that the difference between the two treatment conditions are insignificant.

The results from both samples reveal that there is no evidence for a difference between opt-in frames active choice frames. Therefore, the results of this study suggest that the line between these two sub-categories still remain unsharpened. However, before elaborating upon the possible scope of future research, it is worth shedding light on some key factors that may have contributed to the results.

Firstly, the role of information is noteworthy. Past research on choice architecture has identified the lack of information as a factor that feeds into the reluctance to choose actively which justifies its inclusion in the present study. Although information can be seen as advantageous to one of the choice architecture tools, it seems to have a stronger effect than type of architecture itself. This is the case despite the fact that for subjects in the India sample (where these results were observed), knowledge about UNICEF was fairly top of mind. After the completion of the experiment, it was discovered that subjects had to briefly read about UNICEF's work as a part of their curriculum during seventh grade (12 years). Of course, as students' age, this effect fades away but continued association with charitable work is likely to moderate the effect of information.



Seeing as this was not the case, it can be concluded that information plays a crucial role in decision-making.

Secondly, it is also interesting to note the high contributions made in the dictator game in the India sample. Past research on dictator games has shown that dictators, on average, give 28.35% of the total pie (Engel, 2011). Contrastingly, average contribution of the dictators in the India sample is 127 INR or 63% of the total pie which is unusually high. In exploring why this is the case, it is important to note that the design of the dictator game in this study deviates from to a standard dictator game where there is more anonymity and where the recipient generally belongs to the same subject pool. In this study, participant awareness that the contribution was in fact a donation to UNICEF could for instance explain the unusually high contributions seen in the India sample. In fact, in a study conducted by Eckel and Grossman (1996), contributions to an anonymous student subject were compared to contributions to an established charity. The results show that when the anonymous individual is replaced with the established charity, the donations triple. While subjects in the anonymous recipient condition donated on average 10.6% of their payoffs, subjects in the charity treatment donated 31.0% (Eckel & Grossman, 1996).

In looking at the context of charitable giving and comparing the manner in which individuals are approached by solicitors (either through the web or in person), it is worth acknowledging that the replication of this situation in a laboratory setting with the employment of a dictator game is both novel and unusual for subjects. It is therefore not unnatural to assume that the more far removed a situation is from reality, the less likely it is for results to reflect what would happen if the experiment was conducted on the field. Secondly, the importance of the context also requires consideration. Past research in this area has looked at contexts that include 401(k) and organ donation. Although distinct in nature, both these domains share one thing in common in that they are important. In the context of delegating or simplifying decision making, Sunstein talks about the relevance of the same in unimportant domains. In important domains, however, the opposite may hold true. If the outcome has a significant bearing on an individual's existence, much like the decision to be an organ donor or save for retirement, the individual is likely to pay attention to how the choice is framed. In this study, the context of charitable giving can be considered a

considerably less important one. Combined with the small stakes and smaller chances of winning, it is highly possible that the subtleties of the way the choice was framed received little attention.

Results from the India and Eurozone sample indicate that there is not enough evidence to establish a difference between opt-in and active choice. Tying this finding together with previous research on organ donation that posits that switching to an active choice mechanism backfires, a pattern can be observed. When the context satisfies some individual purpose, active choice is the better option. For example, 401(k) contributions are designed to help the individual after retirement and past research shows that active choice results in higher registrations as compared to an opt-in mechanism. When the context is purely altruistic however, active choice seems to backfire. Results from organ donation coupled with results of this study which uses charitable giving as the context show that active choice does not result in higher registrations or contributions, and in some cases, even reduces the same. This begs the question, ‘Does active choice make people more selfish in purely altruistic contexts?’ It is probable that the active choice frame, designed to force people to consider the choice carefully, leads to a search for some individual benefit, which is lacking in a purely altruistic context, making people inclined toward saying “No”. Interestingly, results from one study that aimed to test “other-regarding” preferences related to decision-making found that these preferences (that include altruism) fade when the experiment is conducted with the same subjects after a passage of time segueing into selfish behavior (Brosig, Riechmann, & Weimann, 2007). Although not directly related, the findings indicate that the altruistic component of preferences may not hold in certain contexts, and that individuals may behave more selfishly after they have had some time to ponder on their choice.

In addition to exploring the question of whether active choice makes people more selfish in altruistic contexts, future research can combine the categories of choice architecture and social norms to sharpen the distinction between opt-in and active choice. Another possible direction to discover a strong effect could be the employment of default amounts in addition to a simple “yes/no” frame. Finally, seeing as the context plays an important role in decision-making, future research in the area can take two possible directions. The first one is selecting a new context for testing the difference between opt-in and active choice. For example, lending and/or borrowing

behavior may make for an interesting testing ground. Second, the existing context of charitable giving can be employed but in a method that the decision maker is familiar with. For instance, the design of this study can be converted into a field experiment as opposed to a lab experiment, possibly leading to higher external validity.

## II. Limitations of current research

On the one hand, venturing into novel territory, as was done in this study, often leads to interesting discoveries and on the other hand, it also forces us to reflect upon what was done. While the previous section outlines the interesting findings, it is also crucial to reflect on some limitations and pitfalls of the current research.

Firstly, there was a tradeoff between making the experiment incentive compatible and providing anonymity and the present study chose incentive compatibility over anonymity. Providing incentives was necessary to control for self-selection bias since the lack of incentives would lead to participation by purely intrinsically motivated participants. However, providing anonymity is crucial since subjects are likely to be influenced by normative mechanisms like social desirability, or the need to respond in ways that are socially acceptable (Carini et al., 2003, p.2f). Secondly, different platforms were used for the India sample (Google Forms) and the Eurozone (Qualtrics) sample. While the content and design was kept uniform, there are other platform differences that may influence the results. Thirdly, although the amount selected for the dictator game was designed to be a smaller denomination, 10 Euros was a number selected as the benchmark and the purchasing power parity equivalent of the same was used in India. However, the amount of Rs. 200 may still be insignificant for subjects that hail from an upper middle class neighborhood in the city of Mumbai. Therefore, the amount may have been more insignificant than desired. To avoid this pitfall, accounting for the neighborhood, city and other local factors in addition to Purchasing Power Parity are necessary while determining the stakes. The lower age range for the India sample also led to some limitations with regards to comprehension and communication. Subjects required frequent clarification regarding what was asked of them, had trouble responding on a computer and sometimes, even communicated with one another only to

## THE IMPACT OF CHOICE ARCHITECTURE ON CHARITABLE GIVING

be stopped by the experimenter. These limitations are associated with the fact that subjects in the India sample were school students between the ages of 13-17. When working with a similar sample, it is advised that the study be conducted one subject at a time and that instructions are simple enough for comprehension purposes. The European sample faced the limitations of selection bias and low sample size. There was a selection bias as a result of subjects being recruited from the Facebook friends list of the experimenter thus the sample was non-randomly selected. A related issue is one of the experimenter demand effect where participants constitute actual friends who participate as a favor to the experimenter. Additionally, a large enough sample size was not obtained in order to make conclusive claims about the results obtained.

## 6. Conclusion

The aim of the present study was to test for possible differences between an opt-in and active choice mechanism in a context that has not been extensively explored previously namely charitable giving. Seeing as responses to charitable solicitations one may encounter fall into what can be considered an “unimportant domain”, choice architects may benefit from manipulating the choice environment to achieve the desired outcome in this domain – higher aggregate contributions. The results of the present study do not find enough evidence to make a distinction between opt-in and active choice in the domain of charitable giving based on amount contributed.

Given the results of the present study, it can be said that the debate between opt-in and active choice, and when to use which mechanism is far from settled. Even though the line between the two is yet to be sharpened, information is seen to play an important role in decision-making. Furthermore, a combination of previous research on choice architecture and results from this study highlight that the context also plays a crucial role in determining the end outcome.

Taken together, Sunstein’s (2015) theoretical framework that helps policymakers decide when to use which choice architecture tool may prove insufficient, since a number of external factors that influence the end outcome need to be incorporated into the design.

Overall, past and current results make an interesting argument for the limits of nudging. Choice architecture is not the most important influencer of decision-making, since results in one context cannot be generalized. Interestingly enough, the positive effect of information on decision-making heralds the rational school of thought in Economics. Therefore, decision-making may very well stem from a combination of rational thinking and from being influenced by what behavioral economists know as choice architecture. Incorporating findings from both may prove useful in attempts to create a demarcation between opt-in frames and active choice.

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## Appendix

### A. Experiment

#### A1. Power calculations

For determining the optimal sample size, power calculations are necessary. First, we take the commonly used values of significance with  $\alpha = 0.05$  and  $\beta = 0.2$  which translates to a power of 80%, and assume that variance remains constant across conditions. Assuming a standard deviation of 0.5 and a 15% difference,  $\delta = 0.3$ . Now, the number of observations per group can be calculated using the formula:

$$\rightarrow N = 2(t_{\alpha/2} + t_{\beta})^2 * (\sigma/\delta)^2$$

$$\rightarrow N = 2(1.96 + 0.84)^2 * (0.5/0.3)^2$$

$$\rightarrow N = 44 \text{ observations per treatment condition.}$$

It is important to note that this is only an approximation since it has been calculated using the rule of thumb that assumes that a student t-test is being employed which is not the case in the present study.

#### A2. Sample statistics – India

Age	Percentage
13	10.0
14	29.0
15	30.1
16	18.9
17	11.6
18	0.4

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<b>Income Category</b>	<b>Percentage</b>
Rs. 0 - Rs. 500	59.5
Rs. 501 - Rs. 1000	17.4
Rs. 1001 - Rs. 1500	9.3
Rs. 1501 - Rs. 2000	3.5
Above Rs. 2000	10.4

<b>Gender</b>	<b>Percentage</b>
Male	43.2
Female	56.8

### A3. Sample statistics – Eurozone

<b>Contribution</b>	<b>Percentage</b>
0	33.3
10	33.3
5	23.8
Other	9.5

<b>Gender</b>	<b>Percentage</b>
Male	52.4
Female	47.6

## A4. Sample surveys - India

### *Introduction Page*

## Experiment

### Please read the following instructions.

You are about to participate in a study conducted by researchers at the Erasmus University Rotterdam in the Netherlands. In what follows, you will be required to imagine what is asked and respond accordingly.

After the completion of the current experiment, two participants will be selected at random. Their responses will actually be implemented for real. If you are one of those selected participants, real payments will be made according to your choice. For that reason, you will be asked to enter your e-mail address at the end.

The collected data will only be used for scientific purposes. If you have any questions or concerns, you can contact the responsible researcher, Poorvi Iyer, at [434384pi@student.eur.nl](mailto:434384pi@student.eur.nl)

Please read the instructions in the following sections carefully.

Please do not communicate with other participants during the experiment.

### *Condition: Opt-in+No information*

## Experiment

### UNICEF is currently accepting donations.

You are given Rs. 200. You now have the option to donate some or all of it to UNICEF and keep the rest. Please make your choice below.

Yes, I want to donate

Please state the amount (Rs. 0 - Rs. 200) below.

Your answer \_\_\_\_\_

BACK

NEXT

 75% complete

## THE IMPACT OF CHOICE ARCHITECTURE ON CHARITABLE GIVING

*Condition: Opt-in + Charity Information*

### Experiment

Please watch the following video.



BACK

NEXT

50% complete

### Experiment

UNICEF is currently accepting donations.

You are given Rs. 200. You now have the option to donate some or all of it to UNICEF and keep the rest. Please make your choice below.

Yes, I want to donate

Please state the amount (Rs. 0 - Rs. 200) below.

Your answer

BACK

NEXT

66% complete

## THE IMPACT OF CHOICE ARCHITECTURE ON CHARITABLE GIVING

*Condition: Active choice + Charity information*

### Experiment

Please watch the following video.



BACK

NEXT

50% complete

### Experiment

UNICEF is currently accepting donations.

You are given Rs. 200. You now have the option to donate some or all of it to UNICEF and keep the rest. Please make your choice below.

- Yes, I want to donate
- No, I do not want to donate

If you answered 'Yes', please state the amount (Rs. 0 - Rs. 200) below. If you answered 'No', please skip this question.

Your answer

BACK

NEXT

75% complete

## THE IMPACT OF CHOICE ARCHITECTURE ON CHARITABLE GIVING

### Questionnaire

Please answer the following questions.

**Age \***

Your answer

**Gender \***

Male

Female

**Country of residence \***

Your answer

**Have you heard of UNICEF before? \***

Yes

No

**Do you feel like you had sufficient information about UNICEF while making your choice? \***

Yes

No

**Please indicate your monthly income/allowance below. \***

Rs. 0 - Rs. 500

Rs. 501 - Rs. 1000

Rs. 1001 - Rs. 1500

Rs. 1500 - Rs. 2000

Above Rs. 2000

Please enter your email address below. This information will only be used to contact you if you are one of the randomly drawn participants to have their choice implemented. After the completion of the study, this information will be deleted. \*

Your answer

A5. Videos

*Irrelevant information:*

<https://www.youtube.com/watch?v=IGr8-vKxtN8>

*Charity Information:*

<https://www.youtube.com/watch?v=OZMUdpAKCFg>

A6. Incentive compatibility

To make the experiment incentive compatible, 2 subjects from the India sample are selected at random to have their choices implemented. To randomly select two participants, a website that generates random numbers - random.org - was selected. After entering the range (1-259), numbers 240 and 4 were generated. Subjects with the corresponding ID had their choices implemented. Similarly, for the Eurozone sample, the random number generated was 1 so the subject corresponding to that ID had their choice implemented. This was done in the form of an actual donation to UNICEF (if the amount was greater than 0). If the amount donated was less than the upper limit, the remaining amount was transferred to the Eurozone participant. The subjects in India were paid in cash through a school representative who was later reimbursed by me.



## **B. Data Analysis**

### B1. Assumptions of parametric tests

1. The observations are independent
  - The value/selection of one observation must not influence the value/selection of another observation.
2. The observations must be drawn from a normally distributed population.
3. In case two groups are analyzed, they must have the same variance.
4. Variables must be measured in an 'interval scale', in order to interpret results.

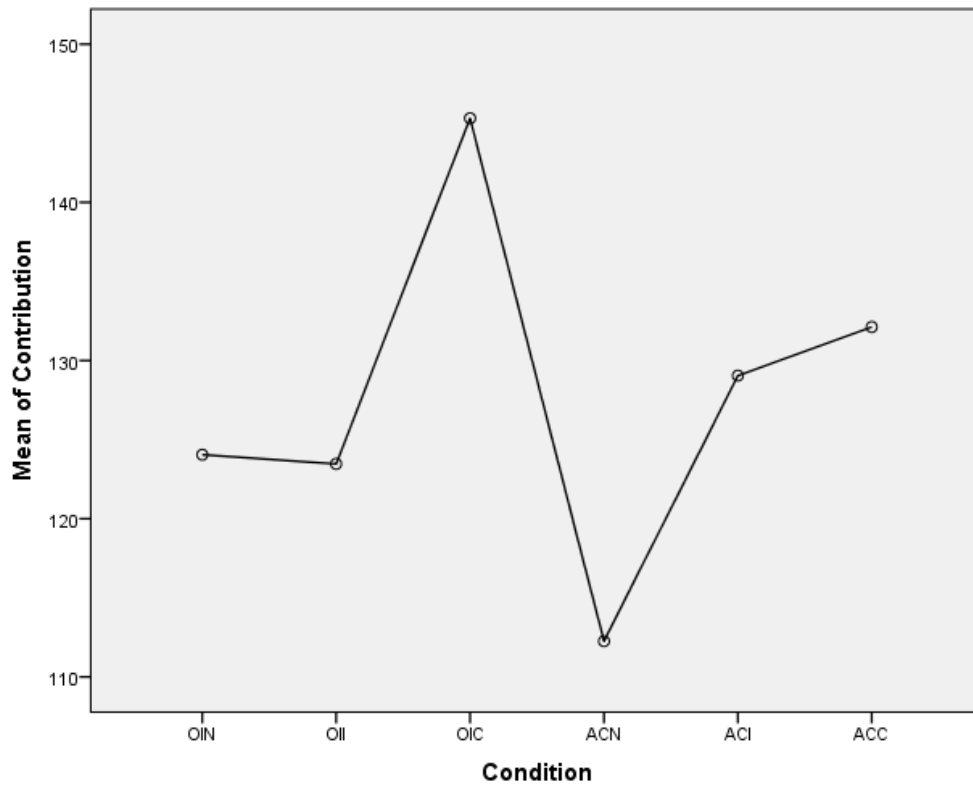
THE IMPACT OF CHOICE ARCHITECTURE ON CHARITABLE GIVING

B2. India sample - parametric tests

**Descriptives**

Contribution

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
OIN	42	124.05	62.706	9.676	104.51	143.59	0	200
OII	43	123.47	68.916	10.510	102.26	144.67	0	200
OIC	44	145.32	69.225	10.436	124.27	166.36	0	200
ACN	47	112.26	72.939	10.639	90.84	133.67	0	200
ACI	42	129.05	59.819	9.230	110.41	147.69	0	200
ACC	41	132.12	74.945	11.705	108.47	155.78	0	200
Total	259	127.51	68.481	4.255	119.13	135.89	0	200



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Testing for assumptions:

*Homogeneity of variances*

**Test of Homogeneity of Variances**

Contribution

Levene Statistic	df1	df2	Sig.
1.024	5	253	.404

Levene's test for equality of variances tests the null hypothesis that the population variances are equal or, stated another way, that the group samples are drawn from populations with the same variance. There was homogeneity of variances, as assessed by Levene's test for equality of variances ( $p = .404$ ).

**ANOVA**

Contribution

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	27069.324	5	5413.865	1.158	.330
Within Groups	1182859.379	253	4675.334		
Total	1209928.703	258			

The dictator game contributions were statistically insignificantly different for the six different treatment conditions,  $F(5, 253) = 1.158, p > .05$ .

Summary:

A one-way ANOVA was conducted to determine if the contributions in a dictator game were different for different combinations of the way the choice was presented & type of information provided. Participants were classified into six groups: OIN, OII, OIC, ACN, ACI, ACC. There were no outliers, data was not normally distributed for each group, as assessed by Shapiro-Wilk test ( $p < .05$ ); and there was homogeneity of variances, as assessed by Levene's test of homogeneity of variances ( $p = .40$ ).

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Follow-up tests: Simple contrasts

Seeing as there is homogeneity of variances, if the difference between two groups of an independent variable is to be determined, a simple contrast needs to be run (e.g., a hypothesis that there is a mean difference between group D and group B). No statistical significance is found in any of the cases.

OIC VS ACC

**Test Results**

Dependent Variable: Contribution

Source	Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Contrast	3695.876	1	3695.876	.791	.375	.003
Error	1182859.379	253	4675.334			

OIN VS ACN

**Test Results**

Dependent Variable: Contribution

Source	Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Contrast	3084.283	1	3084.283	.660	.417	.003
Error	1182859.379	253	4675.334			

OII VS ACI

**Test Results**

Dependent Variable: Contribution

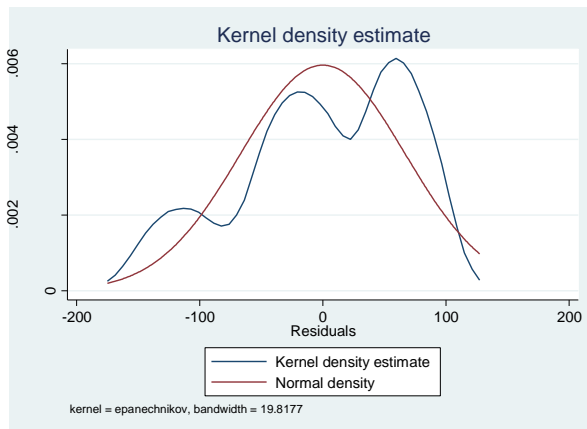
Source	Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Contrast	662.151	1	662.151	.142	.707	.001
Error	1182859.379	253	4675.334			

# THE IMPACT OF CHOICE ARCHITECTURE ON CHARITABLE GIVING

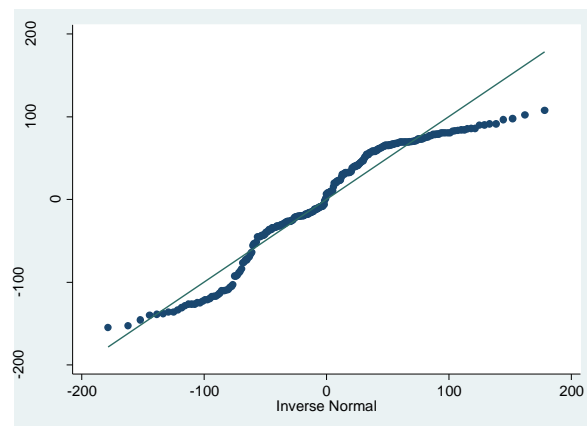
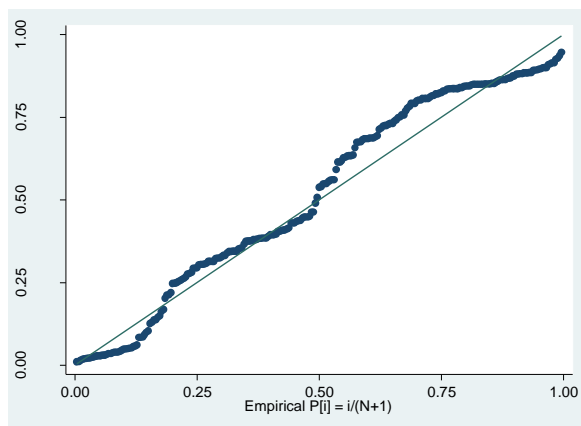
## B3. Assumptions of an OLS regression

*Normality – no major deviation from normality*

kdensity

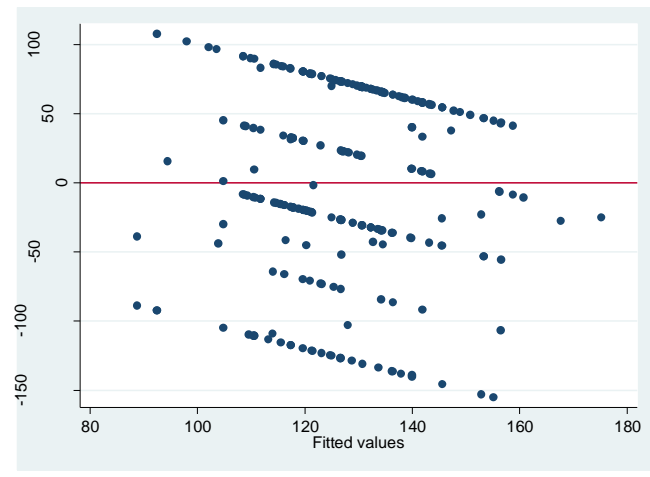


p-norm (left) ; q-norm (right)



## THE IMPACT OF CHOICE ARCHITECTURE ON CHARITABLE GIVING

*Heteroskedasticity – failure to reject null hypothesis of constant variance*



```
. estat hetttest
```

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

Ho: Constant variance

Variables: fitted values of contribution

chi2(1) = 0.64

Prob > chi2 = 0.4223

THE IMPACT OF CHOICE ARCHITECTURE ON CHARITABLE GIVING

B4. Tobit output

*Regression*

```
. tobit contribution age agesqr AC male irrinfo charinfo IncomeCat2 IncomeCat3 IncomeCat4 IncomeCat5, ll(0) ul(200)
```

Tobit regression

Number of obs = 259  
 LR chi2(10) = 10.56  
 Prob > chi2 = 0.3930  
 Pseudo R2 = 0.0054

Log likelihood = -973.66066

contribution	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
age	-169.836	153.3526	-1.11	0.269	-471.8696 132.1977
agesqr	5.397271	5.078972	1.06	0.289	-4.605953 15.40049
AC	-11.86707	15.32023	-0.77	0.439	-42.04082 18.30668
male	-12.57552	15.59715	-0.81	0.421	-43.29468 18.14365
irrinfo	11.52662	18.92214	0.61	0.543	-25.74123 48.79447
charinfo	37.66331	19.27297	1.95	0.052	-.2955199 75.62214
IncomeCat2	.9880666	20.78494	0.05	0.962	-39.94864 41.92477
IncomeCat3	29.02537	27.51517	1.05	0.292	-25.16676 83.2175
IncomeCat4	-24.41734	44.32108	-0.55	0.582	-111.7093 62.87466
IncomeCat5	.0288904	25.91579	0.00	0.999	-51.01321 51.07099
_cons	1464.597	1151.251	1.27	0.204	-802.8341 3732.029
/sigma	114.1937	7.832716			98.76685 129.6205

32 left-censored observations at contribution <= 0  
 140 uncensored observations  
 87 right-censored observations at contribution >= 200

## THE IMPACT OF CHOICE ARCHITECTURE ON CHARITABLE GIVING

### *Assumptions*

Tobcm - normality

```
. tobcm

Conditional moment test against the null of normal errors

      CM      Prob > chi2
209.29      0.00000

. tobcm, pbs reps(500)

Conditional moment test against the null of normal errors

      CM      critical values
      %10      %5      %1
209.29      7.57724      11.568765      26.482791
```

bctobit – test of appropriateness

```
. bctobit, nodots

LM test of Tobit specification

      lm      Bootstrap critical values
      %10      %5      %1
116.66      3.24885      4.9177799      8.37391
```