Survival of the Fittest: Examining Utility Maximization and Consumer Choice Theory in an Attempt Maximize Nonprofit Funding

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I. Introduction

Ever sine the first nonprofit organizations (NPOs) were created with the intention of correcting for market failures and negative externalities, as well as to provide public goods and services, underfunding has been a serious problem that has resulted in the failure of too many NPOs. While NPOs have been successful in overcoming market failures such as asymmetric information, contract failures and issues with trustworthiness, among others, one market failure continues to significantly inhibit NPOS from being as effective as they were intended. The concept of "free-riding" is a market failure that is often associated with public goods, or goods that are both non-rival and non-excludable in consumptions. Free-riding occurs when a firm, or in this case a NPO, provides a public good or service but there is no way of regulating who uses the good. While this may not seem like a problem to some, the fact of the matter is that some individuals that benefit from the public good aren't the ones paying for it. This creates the mentality of "Why pay for something that I don't have to pay for but can still use and benefit from?" Furthermore, if everyone has this same mentality, the result will be a lack of funds for the NPO.

There is significant literature, models and theories aimed at correcting free-riding, none of which have yielded much success. However, in my studies of the economics of NPOs, I argue that before free riding can even pose a threat to NPOs, there is a level of risk and uncertainty facing potential donors that may cause NPOs to receive insufficient or less than optimal donations.

The support for this assertion lies within the fundamental economic idea that individuals make decisions keeping their own self-interests in mind, seeking to maximize

their utility. The source of this utility varies depending on what category donors fall in from pure altruists to impure altruists or "warm glow" donors, which will be discussed in the following sections. Using models that demonstrate an individual's expected utility and the risk impeding them from maximizing their utility, it is apparent that risk and uncertainty hinders individuals seeking to maximize their utility.

The goal of this paper is to explore the idea that risk affects the short- and long-term viability of NPOs more significantly than other factors such a free-riding. Additionally, applying economic theory to the risk facing potential donors will give insight as to ways NPOs could lessen the impact of risk and increase the amount of donations they are receiving. *Section III* of this paper presents a relatively novel theory and accompanying model aimed at transferring the risk and uncertainty facing potential donors away from those donors with the hope that people will acknowledge this transfer of risk. Based on microeconomic theory and the theory presented in *Section III*, it is apparent that risk and uncertainty regarding the survivability of a NPO impacts the amount of donations that a NPO receives. The theory presented in Section III what I will refer to from now on as an "involuntary insurance program". The logic behind using this is that insurance is the most efficient way of transferring risk away from those participating in risky transactions. By providing an involuntary insurance program to be used by relatively young NPOs, potential donors will recognize that they have this insurance. Assuming the donor understands the purposed of the insurance program, donors who wouldn't have donated without the insurance program will now have the necessary incentives that will allow them to donate. With this involuntary insurance program, risk will be transferred away from the donors, thus providing potential donors

with the incentives necessary to donate the optimal amount of donations, insuring the survival of nonprofit organizations and the nonprofit sector as a whole.

II. Review of Literature

Previous literature examining the concepts used in this paper provides a solid framework for my argument. The psychological concept of altruism as discussed by Roberts (1984) is the idea that an individual's consumption enters the utility function of another is one of the driving forces behind this paper. This concept suggests that individuals not only receive utility from the goods they consume but also the goods that others are able to consume as a result of an individual's donation. However, as Andreoni (1989) states, altruism isn't the only psychological notion behind an individual's decision-making. He argues that some individuals get a "warm glow" feeling simply from the act of giving to a NPO, regardless of the consumption gained by the beneficiaries of the goods or services provided by the NPO. Andreoni (1989) goes even further to explain that altruists "simply demand more of the public good" whereas "warm glow" individuals "get some private benefit from their gift *per se*". Making this distinction is vital for explaining how different individuals are going to react to risk and uncertainty. For some, risk and uncertainty isn't going to enter in to their decision-making process, however, for others, risk and uncertainty may be just enough to cause them *not* to donate to a NPO.

The ideas of altruism and "warm glow" provide the basis for this paper because depending on whether or not an individual is a pure altruist, impure altruist or "warm glow" individual, the effects of risk on their decision-making will vary. A donor experiencing "warm glow" won't care if there is an involuntary insurance program in

place at the NPO to which they are donating because they only gain utility from the act of giving and nothing else. Having said that, once a "warm glow" individual makes a donation, they don't care where the money goes and therefore wont be affected (either positively or negatively) should the NPO fail. In contrast, for a pure altruist, who is only concerned with their consumption and the consumption of others (Konow, 2006), risk plays a significant role in their decision-making process. Pure altruists want their donation to benefit an individual who consumes the NPO's output; therefore, when they assess their possible options as to which NPO they should donate to, they base their decision on how much better off the beneficiary will be as well as the risk that their donation may never be used to enhance the well being of the beneficiary. In other words, if a pure altruist has the decision to donate to a relatively old or young NPO, the risk associated with each of these is going to have a significant impact on their decision.

James (1983) hypothesizes that most NPOs face a constant shortage of funds, which inhibits them from growing or even surviving much past their inception. While it is difficult to pinpoint the reason for this perpetual shortage of funds, it is very likely that the uncertainty facing donors attributes to this shortage. Frady (2009) quoted an article published in 2006 titeled "Nonprofits Can Improve by Changing Focus" in which the top executives and board members of nonprofits cited "expanding the current donor base" and "increasing donations from current donors" as the first and third most important goals facing NPOs, respectively. The fact that these are the most important goals as cited by the top executives and board members of NPOs indicates that NPOs are in constant need of donations in order to insure their survival. Rose-Ackerman (1997) also supports James' idea that NPOs need constant funding and argues that, in order to survive in both

the short- and long-term, NPOs need to attract donations and customers. Without a constant source of funding, it is very difficult for NPOs to not only survive but achieve the mission of the NPO.

Transferring risk is vital to the success of a NPO and insurance is arguably the most efficient way to transfer this risk. Friedman and Savage (1948) use homeowners insurance to demonstrate this. This idea is that an individual purchases homeowners insurance and pays a small premium to insure they will be compensated in the event that their home is destroyed they will be compensated for it. In other words, individuals who purchase homeowners insurance are demonstrating their preference for certainty over uncertainty. If a NPO institutes an involuntary insurance policy, individuals aren't necessarily choosing certainty over uncertainty but it is rather given to them at no cost. By doing this, in the event that the nonprofit fails, donors will be compensated for losses they may incur.

Another important concept to note is what the word "failure" suggests in the nonprofit sector. As Frady (2009) puts it, the word "failure" in the nonprofit sector has a significantly different connotation than in the for-profit sector. Failure in the for-profit sector implies having a lower bottom-line than you were expecting, having low gross profit margins or going bankrupt. However, failure in the nonprofit sector, doesn't necessarily mean "closure of the corporation" but rather failing to meet the demands of the customers or failing to uphold the mission set forth by the NPO (Frady, 2009)

Observations from Rabin's (1997) experiment that he conducted to determine the magnitude of risk aversion based on income yielded some interesting conclusions. First of all, it is important to note from Rabin's experiment that individual's tend to be risk

neutral when the stakes are small. Additionally, he asserts that an individual will receive

a lower marginal utility of wealth when an individual is wealthy and have a higher

marginal utility of wealth when they are poor. Based on this assertion, we are likely to

see wealthy individuals donate more to NPOs than poorer individuals, which doesn't

come as a surprise, because an individual with more money won't lose as much utility of

wealth by donating $100 as a poorer individual would from donating $100, ceterus

paribus.

III. Economic Theories

Consumer Choice and Utility Maximization

Rational consumer choice plays a significant role in the study of economics and

will serve an important role in explaining my model. The microeconomic concept of

consumer choice allows us to examine various bundles of two goods to which an

individual is indifferent given a budget constraint. Understanding what bundles of goods

an individual would be indifferent between is very important for understanding when an

individual would be likely to donate to a NPO.
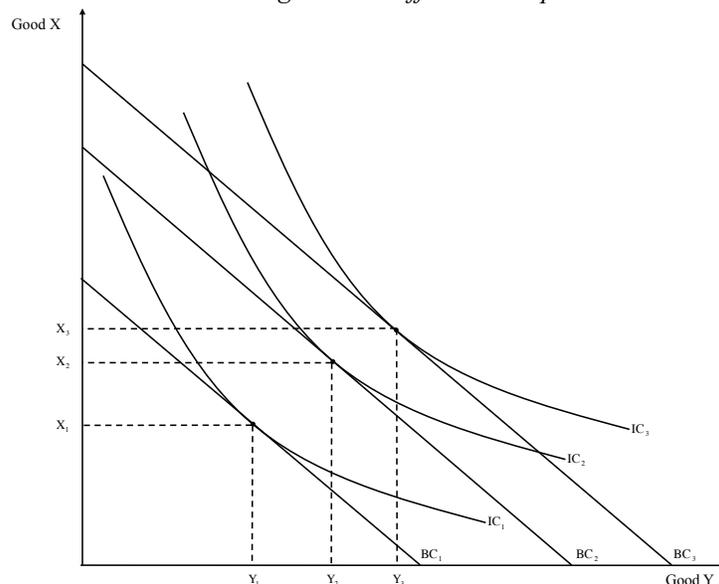
Figure 1- Indifference Map

Figure 1 is an individual's indifference map, which indicates the various bundles of "Good X" and "Good Y" that the individual is indifferent between. In this case, "Good X" may represent a good that an individual desires while "Good Y" represents a donation to a NPO (See *Figure 3* for a more specific example). Rational individuals are always making decisions to maximize their utility, or consuming the bundle of goods where their indifference curve lies tangent to their budget constraint (BC_1, BC_2, or BC_3). The budget constraint represents an individual's marginal rate of substitution or how many units of "Good X" they would have to give up to get more units of "Good Y" while still maximizing their utility. Any point to the left of the budget constraint will leave the individual with utility lower than what their budget constraint will allow them to achieve. Conversely, any point to the right of the budget constraint is not feasible given an individual's budget constraint.

Understanding an individual's indifference maps is vital to understanding their willingness to consume a good or donate to a NPO. For some individuals, there may not be any way to compensate them enough to the point where they are maximizing their utility. However, this is where the discussion of altruism and "warm glow" becomes a factor (reference Section II). For some individuals, utility may still be maximized even if they can't consume more of a good. This is a result of the sense of knowing they contributed to something that they support or feel as though they have done their duty in enhancing the lives of other individuals. In other words, for some individuals, knowing that they donated to a cause that they support may be sufficient compensation for being

unable to consume more goods even though they may not be the beneficiary of the

NPO's mission.

Risk and Uncertainty

Risk and uncertainty play a very influential role in setting the stage for the model

presented in section IV. For the purpose of this paper we will assume that individuals are

risk averse, that is, they prefer certainty to uncertainty. *Figure 2* illustrates the risk

preferences of a risk averse individual.

Figure 2- Risk Aversion
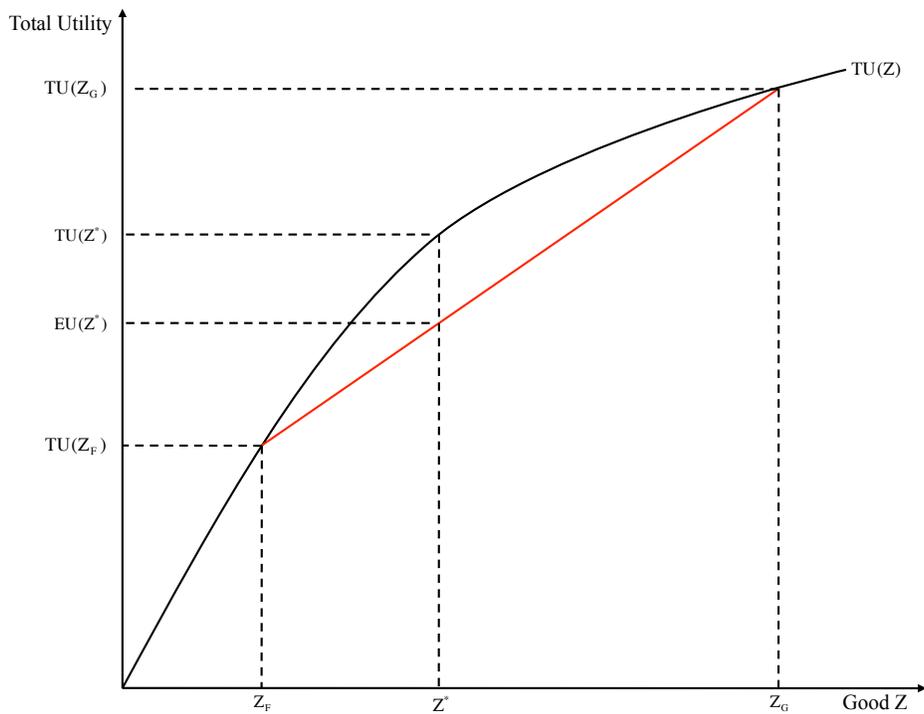
In a world of uncertainty, an individual's actual utility that they receive from

consuming a good will never fall on the $TU(Z)$ but rather the chord (represented by the

red line). Z_G represents a good outcome in which you consume a certain amount of

"Good Z" while Z_F represents a negative outcome in which you consume less of "Good

Z". As long as there is a level of uncertainty that an individual may not consume Z_G units of "Good Z", the utility that this individual receives will lie somewhere on the chord. The chord represents the expected utility of consuming "Good Z", which lies in the concavity of the curve because it is the average probability that the individual will consume "Good Z" or not consume "Good Z". As a result, an individual will never receive $TU(Z^*)$ but rather $EU(Z^*)$.

IV. "Involuntary Insurance Program"

Background

While some individuals may not donate simply because they do not want to or do not feel obligated to donate to something that they are not going to be the main beneficiary of, I argue that individuals sometimes don't donate to NPOs because of the inherent risk involved. This is especially true for relatively new NPOs because they don't have the public exposure that more mature NPOs have. Having said that, the model presented in this section is aimed at helping new NPOs achieve an optimal amount of donations, which will allow them to grow. As James (1983) asserts, NPOs are constantly experiencing a shortage of funds, which consequently inhibits them from growing and receiving the funds necessary to insure their long-term viability. As a result, it is essential that a system be instituted that will give donors more incentives to donate, alleviating the perpetual shortage of funds.

The model that I developed uses what I will refer to as an "involuntary insurance program". Insurance was developed as a way of transferring the risk away from its users. The primary goal of insurance is to provide its users with a sense of certainty, which is almost always preferred to uncertainty. How my model works is that an individual

donates $D to an NPO, the NPO takes a percentage of that donation and puts it into a savings account. In the event that the NPO fails, the funds that have accumulated in the savings account will be redistributed to the donors based on how much of their donation was put into the savings account. The basis for presenting this model is that an individual may not donate to a NPO because of the inherent risk involved in doing so. In other words, an individual will not donate to a NPO if the probability of the NPO failing is greater than the probability of the NPO succeeding. If the NPO succeeds in fulfilling its mission, the donor will receive a high level of utility knowing that the NPO used their funds to achieve its mission. Conversely, if the NPO fails, donors will receive very little utility knowing that their donation did not help the NPO achieve its mission.

However, it is important to discuss the risk preferences of the donors and the internal forces driving and individual's decision to donate. First of all, for the sake of this model, we will assume that all individuals are risk averse, that is, they will always prefer a certain outcome to an uncertain outcome. Additionally, this model may not affect those individuals who get a sense of "warm glow" from donating. This is because "warm glow" individuals get utility simply from the act of donating. Therefore, once the donation is made, "warm glow" individuals have received their maximum utility and they are indifferent between the NPO's success or failure. Conversely, pure altruists gain utility from seeing their donations help another individual's wellbeing. Having said that, a pure altruist will benefit the most from this model because if the NPO fails, they will receive a portion of their donations back and will be able to either use it for their own consumption or donate it to another NPO of their choice. Finally, impure altruists, or those who get utility from the act of giving as well as knowing they enhanced the beneficiary's

wellbeing, will benefit from this insurance program, but not as much as a pure altruist will. The reason behind this is that the utility gained by an impure altruist is a function of their own consumption, the enhanced well-being of the beneficiary and the act of giving.

Based on the ideas of risk aversion and utility maximization, I assert that if a NPO can transfer the risk away from the donor, individuals will have more incentive to donate, allowing NPOs to receive an optimal level of funding. By implementing this involuntary insurance program, individuals will receive more utility in the event of failure than they would without this involuntary insurance program. However, some may argue that the NPO may not want to implement this sort of insurance program because, instead of being able to use the full donation they receive, they are only able to use what is left from the donation after the NPO has invested a portion of it into the savings account. For example, if an individual donates $100 to a NPO but the NPO puts $30 of it into the savings program, the NPO will only have $70 to use, leaving some NPO owners unhappy. However, one must consider whether or not the individual who donated $100 would have made that donation if they didn't have some sort of insurance. If the insurance program was able to change this individual's attitude towards risk just enough to cause them to donate, the owners of NPOs should be willing to give up $30 to insure that they have $70 more to use than they would have had if they didn't have this insurance program. In essence, owners of NPOs must look at this as receiving $70 instead of $0 (because the "involuntary insurance program" transferred enough risk to cause the donor, who wouldn't have donated without the insurance,to donate $100, $30 of which went in to the savings account), *not* as receiving $70 instead of $100 because they had to put $30 into the insurance program.

The Model

Figure 3
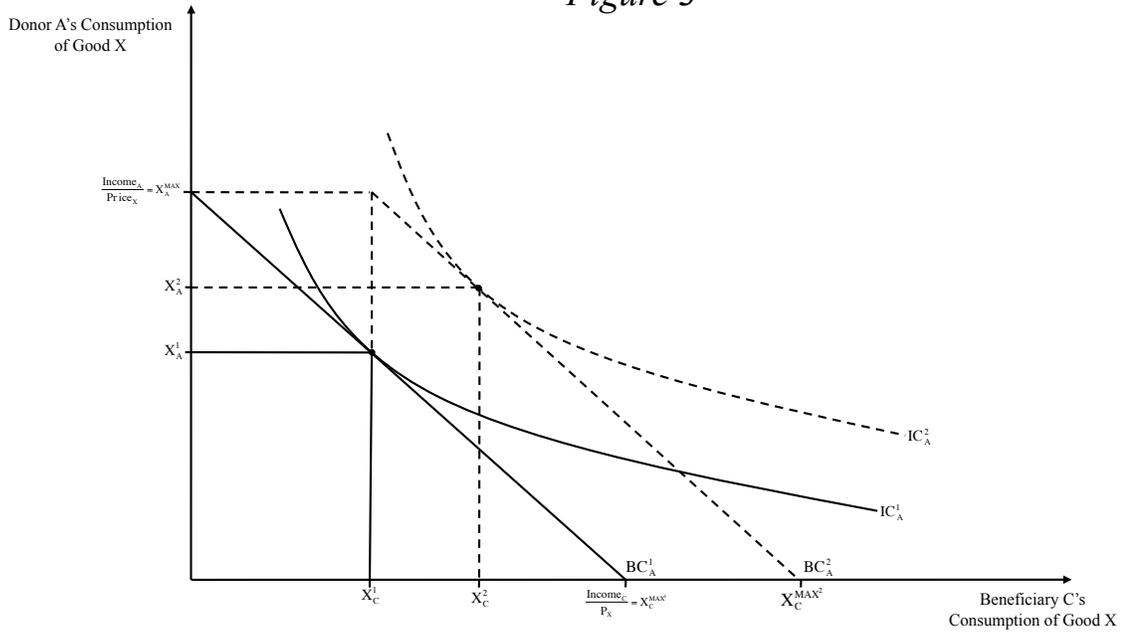
To begin my model, let's assume that *Figure 3* represents Donor A's ("A")

indifference curve, that is, "A" has a budget constraint of BC_A^1 (without donations from

other donors) or BC_A^2 (with donations from other donors). IC_A^1 and IC_A^2 represent the

various bundles that "A" is indifferent between, where "A" can either consume X_A^1 or

X_A^2 of good X or donate to a NPO allowing Beneficiary C ("C") to consume X_C^1 or X_C^2

of good X.

Using the Von Neuman-Morgenstern model for expected utility, we are able to

hypothesize the expected level of utility that an individual receives from making a

donation to a NPO. Since there is a certain level of uncertainty as to how much of a good

the NPO will produce, the utility that a donor receives from making a donation will lie

somewhere on the chord (see *Figures 4* and *5* on page 15). However, before we move on

we must return to the ideas of altruism and "warm glow".

An individual who experiences a sense of "warm glow" from making a donation will always receive TU_S^1 or TU_S^2 since the only factor contributing to their utility function are that they have made a donation, which carries no risk (they either make a donation or they don't) and how much of "Good X" they are able to consume (see *Equation 1* below). In contrast, a pure altruist's utility function is comprised of how much of "Good X" the pure altruist can consume as well as the beneficiary's endowment after the donation is made (see *Equation 2* below). Similarly, an impure altruist is essentially a hybrid of a pure altruist and an individual that experiences "warm glow" from making a donation (see *Equation 3* below):

$$U_D = U(X) + f(\alpha + \theta) \qquad\qquad\qquad\qquad \textit{Equation 1}$$

$$U_D^{'} = U(X) + g(\theta) \qquad\qquad\qquad\qquad\qquad \textit{Equation 2}$$

$$U_D^{''} = U(X) + f(\alpha + \theta) + g(\theta) \qquad\qquad \textit{Equation 3}$$

where U(X) is the utility an individual receives from consuming "Good X", α is the beneficiary's initial endowment and θ is the donation that the beneficiary receives (Konow 2006).

With that said, while a "warm glow" individual will always receive TU_S^1 or TU_S^2, the utility that both pure and impure altruists will receive will lie somewhere on the chord (represented in *Figures 4* and *5* on the following page as a red line). One quick note, assuming a pure altruist and an impure altruist donate to the same NPO, the impure altruist is going to receive more utility than the pure altruist since the impure altruist's utility function also includes the utility they gain simply from making the donation.

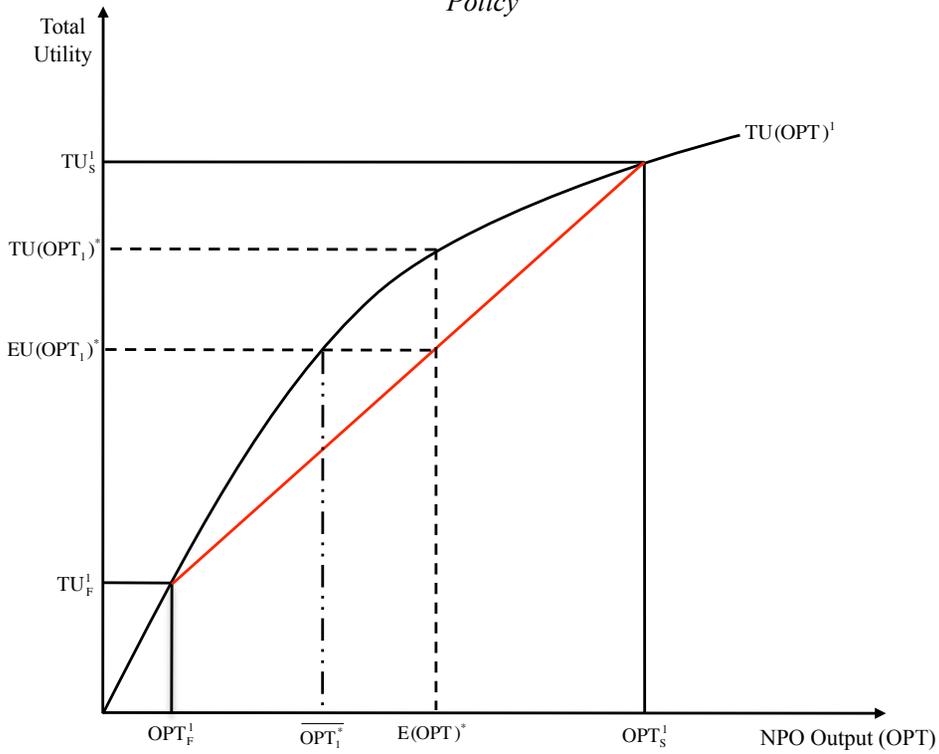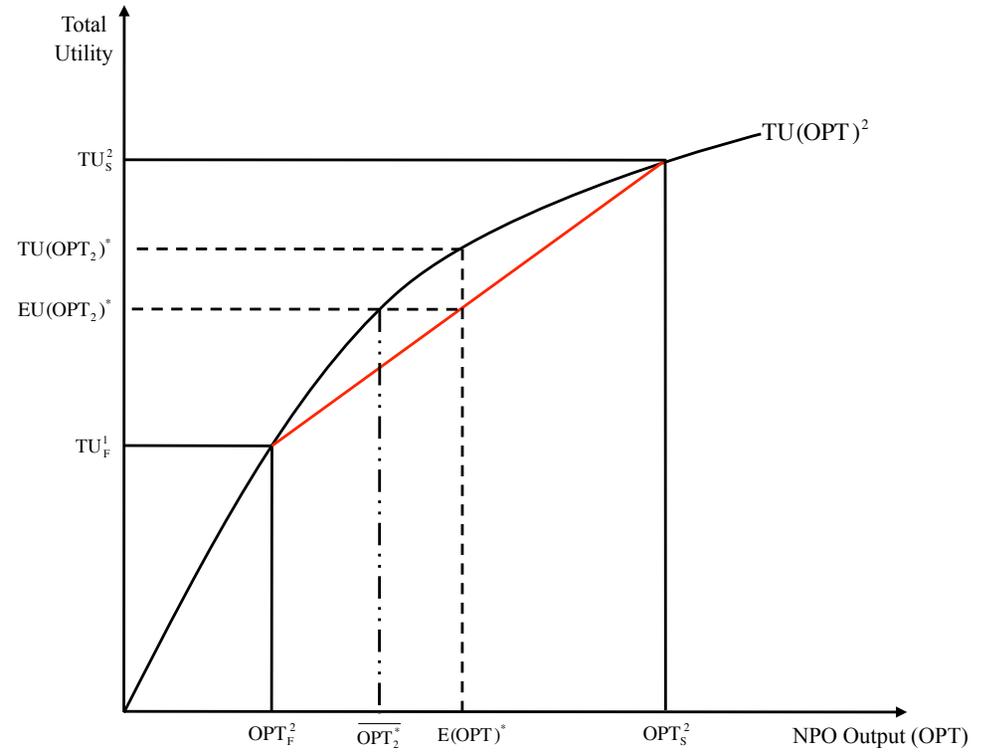Figure 4- Donor's Expected Utility Without the "Insurance Policy"

Figure 5- Donor's Expected Utility With the "Insurance Policy"

Now that we understand what factors contribute to the utility functions of pure and impure altruists we can turn our focus to *Figure 4* and *Figure 5* on the previous page (we will ignore "warm glow" individuals for the moment since they achieve utility maximization regardless of the NPO's output). In *Figure* 4, a donor will receive $EU(OPT_1)^*$ since there is the chance that the NPO will fail at fulfilling its mission. However, an important distinction needs to be made, which is that an impure altruist will receive $EU(OPT_1)^*$ plus whatever utility they receive from simply making the donation while a pure altruist will only receive $EU(OPT_1)^*$.

However, when we look at *Figure 5*, a donor will receive $EU(OPT_2)^*$ with the same idea as before holding true, which is that an impure altruist will receive $EU(OPT_2)^*$ plus the utility from making the donation. When we look at them side by side, the total utility that an individual will receive at $E(OPT)^*$ is the same for both *Figure 4* (without the "involuntary insurance program") and *Figure 5* (with the "involuntary insurance program"). It is essential to note that in *Figure 4* the expected utility, $EU(OPT_1)^*$, is less than the expected utility in *Figure 5*, which is $EU(OPT_2)^*$. This difference in utility is the result of the additional utility that a donor would receive from knowing that, in the event that the NPO fails, they will receive a portion of their donation back. As a result, the portion of individuals that would donate if there was an "involuntary insurance program" in place would be found by taking the difference between $EU(OPT)^* - \overline{OPT_1^*}$ and $EU(OPT)^* - \overline{OPT_2^*}$. Having said that, we can now address what exactly this "involuntary insurance program" is insuring, which is the gap between $\overline{OPT_1^*}$ and $\overline{OPT_2^*}$. As long as the insurance policy pays enough back to the donor in the event of a failure,

this gap will be filled giving donors (who wouldn't have donated without the involuntary insurance program") the necessary incentives to allow to donate while still maximizing their utility.

V. Potential Future Improvements to the "Involuntary Insurance Program"

Like most novel concepts, this model does have some flaws. First of all, one might ask, "If a nonprofit organization has this reserve of donations that they set aside to repay donors in the event that the nonprofit fails, theoretically they should never fail since they can always tap into this reserve of funds". One way to combat this problem would to be to institute some regulations on when and how much the NPO can withdraw from its savings. In other words, have a rule that says that the funds can only be withdrawn from the savings account in the event of a failure or essentially have "reserve requirements" similar to what the Federal Reserve has for banks. Simply put, require the NPO to <u>always</u> have enough in the savings account to repay donors at a moment's notice. One benefit of this is that in a savings account, the money is accruing interest so a couple of years down the road the NPO could start withdrawing the funds generated through the interest accrual.

Another potential problem is that having an "involuntary insurance program" will carry extremely high monitoring costs. It would be imperative, time consuming and costly to record every single donation, the date the donation is made and the date when a portion of each donation is put into the savings account. While some may question why it is important to record the date that a portion of the donation is put into the savings account, this would be very important. The reason is that if a donor makes a one-time donation on January 1st, 2011 and the NPO fails on January 1st, 2020, the portion of the

donation that was used by the NPO (i.e- not put into the savings account), will have most likely been used for the operations of the NPO. If this is the case, the next question would be; should the donor still be insured and entitled to the insurance program even though they don't really have any stake left in the NPO? While this is undoubtedly an extremely important question, I am going to leave it open to pave the way for future papers expanding off of my idea.

The final potential downfall is more of a psychological concern having to do with sending the wrong message to potential donors. If a NPO sets up this "involuntary insurance program" potential donors may view this as the NPO covering up some loose ends or even, taken a step further, they aren't going to take care of their donations. However, when we look at any other sort of insurance, whether it be car insurance or life insurance, the primary reason insurance was developed in the first place was to transfer risk away from the user to a 3rd party. That said, the "involuntary insurance program" described in this paper is just like any other form of insurance and the psychological concerns should be mitigated.

VII. Conclusion

While nonprofit organizations have done a relatively decent job of providing goods and services that would not be provided without them, there is still some serious pitfalls associated with them, with the most important and influential problem being the riskiness. Nonprofit organizations have overcome market failures, asymmetric information and issues with trustworthiness, but their donors and their lifelines are still facing considerable risk and uncertainty. In a day and age when every penny matters to

some individuals, nonprofits need to do everything in their power to make themselves more attractive to potential donors if they have any hope in surviving.

While the model presented in this paper provides a solid starting point for making nonprofits more attractive, the fact of the matter is that it is a very novel concept in need of significantly more research before we will know whether or not it could help nonprofits overcome an ever present shortage of funds. That said, I am extremely confident that, with some work and the implementation of this model in some nonprofits as a way of gauging its usefulness, this model could be used by nonprofits large and small, young or mature as a way of coping with the everlasting shortage of funds that so many nonprofits face. This model provides potential donors with the necessary incentives to allow them to donate to a nonprofit while maintaining their optimal level of utility.

By transferring the risk away from the donor to the nonprofit, potential donor's risk preferences will be swayed in a way that will benefit both the individual as well as the nonprofit. By transferring the risk, potential donors will have an increased level of utility even in the event that the nonprofit fails and the nonprofit will be able to attract potential donors that were on the brink of donating but just felt as though it was too risky without having some sort of insurance. As previously stated, like any new idea, fine tuning and adjusting some of the concepts is necessary to create an effective tool to be used by individuals or groups. However, the model presented in this paper is well on its way to becoming a tool that every nonprofit should use on its path towards achieving long-term viability, allowing nonprofits to provide the goods and services to individuals as they were initially intended to do.

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