

Economy of Non-Profit Organizations Charities and Donations

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Abstract

This paper analyzes the arguments used to justify the existence of non-profit organizations financed exclusively by donations from a position of economics and finance. The concept of donation capital cost is used to provide an economic interpretation of charity, establishing its limits. The concept of charity is analyzed from an economic point of view, concluding with a more general overview of charity, always dependant on the level of donations received by the non-profit organization. This paper presents a taxonomy of charity organizations that can be useful for establishing policies to encourage donations: Total Charity Organizations and Mixed Charity Organizations. The work ends with a case study in which the concepts presented herein are applied numerically.

Keywords: Non-profit organizations, donors, charity, donation capital cost

JEL Classification Code: L31

Introduction

Although non-profit companies or organizations have been around for centuries, in the fields of economics and business administration, they have only been considered as secondary aspects in theoretical research. The same is true for the concept of charity, which is normally implicit in the labor of a non-profit organization. Towards the end of the 20th century, a greater number of analytical and normative studies began to emerge, focusing on the economic motivations and managerial aspects of these subjects.

Charity or altruism is not a foreign topic in economics. Given the existence of hundreds of charity works, the concept was mentioned by both classical and ancient economists. Herein, we tackle several aspects of this subject, ranging from the importance that charity be financed by donations to altruism towards others, always basing our work on characteristic economic aspects and concepts. We also analyze the cost that financing by donations implies for a non-profit organization and the effect of this on setting the billing value for the services provided by the charity, thereby rendering a probable description of charity.

I. Non-Profit Institutions and Their Theoretical Focus

Donations and the functioning of non-profit companies have not typically been central subjects of research in either economics or business administration. Hansmann's (1987) "Economics Theory of Non-profit Organization" points out four theories that are competitive at times and complementary at

others: “The Public Goods Theory”, “The Contract Failure Theory”, Subsidy Theories, and “The Consumer Control Theory”. Rose-Ackerman (1996), on the other hand, indicates that, in recent decades, economists have begun to re-examine the disciplines, reconsidering their psychological and organizational premises. In turn, this has led to analyses of different aspects and institutions (e.g., such as political parties, sports clubs, churches, hospitals, care of the elderly, and non-profit charity institutions in general) that have a certain interest in both theoretical research and management studies.

Non-profit institutions usually receive the resources to finance their normally charity-oriented objectives from public sources and private donations. Economics has traditionally treated these as subsidies, following Marshall’s approach, which maintains that industries (not necessarily non-profit) that have decreasing costs (through the demand curve) should receive subsidies in order to promote maximum well-being. Currently, this discussion emphasizes electric and other services that are supposed to be characterized by decreasing costs (Ekelund and Hébert, 1992).

However, non-profit companies and organizations traditionally operate in social sectors in order to resolve or reduce social problems such as hunger, lack of housing, health problems, environmental pollution, domestic violence, child care, nursing care, etc. Non-profits also provide social goods such as education, art, and health care, which are sometimes difficult to solve through the market (Dees, 1998). Rose-Ackerman (op. cit.) and Steinberg and Bradford (1993) maintain that non-profit organizations can provide an answer to the asymmetrical information faced by consumers. Glaeser and Shleifer (1998) state that many founders of non-profit organizations are motivated by a public spirit and sense of altruism more than by fair financial gain; these authors develop a model to explain the functioning of non-profit institutions using the literature of incomplete contracts, citing authors such as Grout (1984), Grossman and Hart (1986), and Holmstrom and Milgrom (1991, 1994).

Economic studies on non-profit organizations have centered mainly on analyses of the tax benefits enjoyed by these entities. According to Weisbrod (1998) and Glaeser and Shleifer (op. cit.), however, these tax benefits do not totally explain the actions of such organizations since non-profits also exist and operate, carrying out their intended tasks, in situations in which tax benefits do not exist. These authors also show that most donors in the U.S.A. are relatively poor people who contribute to religious organizations and do not perceive these tax benefits. Moreover, it is possible that the great contribution made by non-profit organizations comes from the work done by millions of volunteers who donate – rather than money – time, making up around 40% of the total costs of the work done by the non-profits. On the other hand, Colombo and Hall (1995), explain the relevance of the charitable tax exemption as incentive for the non profit organization to obtain donation from the society, the legal and theoretical foundations, community benefit and the not profit ethic, moral theory are explained.

Von Mises (1968) explains the problem of charity and the market from a philosophic-economic point of view, stating that the existence of individuals who are unable to work and cannot be hired on the labor market for different reasons, mainly physiological, is a typical problem of human society. According to this author, capitalism will improve the quality of life of the masses, providing them better health and combating sicknesses with ever better methods. Nonetheless, the existence of people incapacitated to work due to illnesses or malformations cannot be avoided, and the extension of the average life expectancy implies increased numbers of elderly people. Moreover, Von Mises points out that the care of the ill, invalids, and handicapped who do not have family members or means of attention is typically a task for charity. In such cases, Catholic congregations, monastic orders, and Protestant institutions have worked wonders, collecting large amounts of money and then administering it. However, Von Mises gives no other explanation for the existence of charity, which also occurs in cases of individuals that cannot work due to social rather than physiological reasons. For example, some charities help people who do not have the means to get an education, suffer wage or gender discrimination, or are victims of religious or political persecutions. In other words, charity extends beyond the natural causes of disability.

The existence of non-profit organizations can also be justified on spiritual, religious, and ideological grounds. The different beliefs of some people and groups in society, ranging from sociopolitical to spiritual and religious justifications, are manifested in the organization of non-profit

enterprises as a way of transmitting these ideas and beliefs regarding redistribution, be it economic or philosophical. In this sense, the most developed sector is education, on all levels. Normally, some schools and universities adopt an explicit non-profit character, seeking the donation of resources as a basic source of financing. However, non-profit organizations in the educational sector participate in a very active market and their operational and educational labor costs are usually highly concentrated on salaries – not a minor point – because free, volunteer teaching labor is very scarce. This generates tension, especially in terms of the selection of the board and workers in such companies. The resulting management problem is just as complex as the economic interpretation of this matter. Taylor, Chait, and Holland (1996) focus on the work that the board must do to be successful in the organizations, whereas Drucker (1990) develops the altruistic spirit that motivates the administration of non-profit organizations.

In order to avoid the risk of financial bankruptcy in some non-profit entities, legal separations are generated within these organizations so that one company provides labor or services and another legal real estate company provides the physical goods for the non-profit society. In these cases, the real estate company rents buildings to the non-profit society; this rent could lead to a truly nominal non-profit organization and the rent paid is withdrawn from the funds for the actual founders of the organization, which can also be reinvested in the organization. Thus, some non-profit educational organizations can legally charge children from high income families for educational services, using the surplus, in this case, to cover the cost of the rent to be paid the owner of the material goods (real estate), thereby financing the schools of the same organization dedicated to children from lower income families. This indirect income redistribution is not normally recorded in the national accounting. The danger of this manner of operation is that the non-profit organizations become fully commercial societies under the guise of non-profitability, for which they are accorded all the corresponding social and tax benefits. These organizations become societies that are profitable only for their owners, who are not necessarily altruistic or charitable, which is the description of non-profit societies.

Non-profit companies render services that are not necessarily exclusive to them. Rather, these same services can be offered on the market by for-profit companies that charge a market price. Because of this, the non-profit companies must take into account the quality of their services. Glaeser and Shleifer (1998) use a model to explain the quality aspect as a factor to be considered because, clearly, it is not very useful to provide a charitable service that is not efficient in obtaining its ultimate goal. The existence of for-profit organizations that offer the same services in an efficient manner is an important reference point for non-profit organizations, as it is directly related to the donations they might receive.

Sometimes, mixed situations occur in which non-profit organizations use market mechanisms to satisfy the needs of groups such as those indicated by Von Mises.

Dees (1998) analyzes the problem faced by non-profit societies when acting within an economy of increasing costs, decreased donations and subsidies, and rivalries with other non-profit institutions for capturing new donations. These conditions force the non-profits to enter the commercial world in order to obtain funding and, at the same time, the charities are induced to reformulate the way they are financed without rejecting the use of external financing with financial costs. This situation generates tension in the non-profits because it has direct repercussions on the final objective: to provide a charitable and effective good or service. Hence, the organizations must necessarily redefine their normally charitable role, being much more precise in coming up with a more rigorous definition of charity, in an economic sense, as the ultimate goal of the non-profit organizations.

II. Charity and Its Economic Basis

From an economic point of view, charity has been left out of analytical studies; however it is necessary to specify what the foundations of charity are. For the purposes of the analysis presented herein, charity will be understood to be that service or product received by a user (not necessarily a consumer) who does not pay money for it or pays a highly reduced amount with respect to the price of the service or

product on an alternative market; in other words, it is a free service. This definition conditions non-profit companies, since the fact that they do not seek profits does not necessarily mean that they should not charge for their services. What makes them non-profit is not only the price they charge, but also the cost assumed by the company for providing these services. In fact, if the organization does not charge for its services (is charitable) and must pay to cover its input as well as invest in its assets, it is very likely that it will go bankrupt or develop a low-quality product. According to this, the charity will only make sense and be feasible when the institution receives contributions – mainly donations and voluntary altruist work – that allow financing the operation and the investments of the non-profit society.

Thus, in the economic sense of a non-profit society, charity is only possible when it is able to finance its activities and when this financing has an almost null cost or is subsidized. It is very difficult to sustain an effective charitable organization (that is, one that does not charge for its services) over time when its infrastructure is not renewed and when it is difficult to engage the productive factors that it needs. This leads to the conclusion that charity, as an economic concept, is intimately bound to the financial cost and, since this is a function, it has a domain and range that must be analyzed. This is only possible when donations exist, as will be discussed in the following paragraphs.

In the case of the previously mentioned economic interpretation of charity as an analogue to a free service, the degree of altruism as a part of human action has a defined space for acting and is not exempt from the traditional focus of the economic man who is the central subject of economy. In fact, in altruism, there is necessarily space for an economic interpretation in contraposition to the ordinary version of the common citizen, that is, the economic man as an insensitive, individualistic, selfish person. This is the subject of theoretical economics, but the subject of the real economy is altruistic, selfish, and solidary at the same time; moreover, on occasion, some of these characteristics are more developed than others. This suggests that charity has an economic motivation and foundation when we define its price as zero, and it is not in contraposition to the economic man as a subject of economy; that is to say, man as a complete being can be charitable and economic at the same time.

The operative economic definition of charity used herein appears to be reduced from the concept of global charity. In fact, charity as a global and religious concept has to do with a theological version of loving God and fellow humans as we love ourselves and, at the same time, charity is defined as a virtue that stands in opposition to envy and ill will. Consequently, charity is defined as the donations given to the needy. Seen from this perspective, charity begins with oneself and emphasizes considering the needs of others before one's own. In order to make charity operative, this interpretation is manifested in charity works, herein, non-profit organizations. This last interpretation comes from the Company of the Daughters of Charity (also known as Daughters of Charity), an organization founded by San Vicente de Paul in France in 1633 that is dedicated to helping the poor and needy. From this point of view, the derived operative definition of charity – the providing of a service or good at zero cost – does not contrast with the general view of charity. Thus defined, charity also fails to be in opposition to the concept of charity held by other (not necessarily religious) organizations that also have charitable ends.

This work attempts to evaluate the extent to which charity, as an economic concept of zero price or notoriously less-than-market price, has a dimension and what the range of its economic interpretation is. By deduction, the part that does not have an economic interpretation completes the global concept of charity.

III. Donation

Donations for charitable purposes have existed for a long time and have become an important part of non-profit institutions whose objectives include the provision of some beneficial service. Societies have created mechanisms to encourage donations through tax benefits and favorable legal status. However, from a not purely economic point of view, many donations are believed to be motivated by the emotional and social satisfaction of altruism on the part of the donor, as well as the prestige that

these donations can bring. In the U.S.A., where there is systematic data on the subject, Weisbrod (1998) reports that the contributions in 1974 covered 53.5 % of all the operating expenses of non-profit companies whereas, in 1993, this amount dropped to 23.6 %. This implies that donations are given to these institutions without a particular purpose.

Economically, Glaeser and Shleifer (1998) indicate that donations given to non-profit companies, unlike for-profit enterprises, influence the marginal utility of tips or donations, thereby affecting the quality of the service provided. Furthermore, in a stable balance, donations reduce the effort of non-profit activity, which leads to increased quality of the service. This suggests that tax-deductible donations will be very high among donors that face high marginal tax rates. It is very important for non-profit organizations to receive sources from alternative services since, once the non-profits companies have become rich, donors expect their donations to have a lower marginal impact in relation to the quality of the service and contribute less. This explains why state-associated institutions receive fewer donations than do private institutions; in the former case, the donations are not expected to have a high impact on quality. In practice, this leads to private charity and state funds being substitutes; for example, state-owned North American universities traditionally have less success collecting donations than do private universities.

The use of the charity or donation system as a valid mechanism for solving social problems has been criticized. Von Mises (op. cit.) summarizes two such criticisms. In the first, the author refers to the exiguousness of the available means, sustaining that progress in the economic system will result in wealth and, therefore, greater charitable funds, since people give more when their own needs are met and, at the same time, increased wealth decreases the number of needy individuals. However, the need for funding for social purposes also tends to increase and, on the other, economic progress also creates other problems that cause higher demands. For example, more resources must be destined to charitable activities due to environmental pollution, people handicapped by work and car accidents, invalidity due to psychiatric problems, and diseases due to genetic alterations caused by exogenous factors, to name a few.

The second criticism of the charity system is that it is based on pure feelings of charity and compassion. This implies that whoever receives the benefit is not protected nor assured that the benefit will always be available. Furthermore, this situation can be embarrassing and even humiliating. This criticism, in the words of Von Mises, is justified by the fact that charity always follows the reasoning that charity corrupts both the giver and the receiver: the first by auto-beatification and the second by humbling and weakening oneself. This statement should be contextualized since generalizations cannot be made, nor can the reason be shown for its existence and presence in human action. Hence, the inverse interpretation can also be made: some people who receive charity do not feel humiliated by it and are very thankful, just as some anonymous donors do not seek retribution nor do they auto-beatify themselves. We can only state that charity exists, has existed for hundreds of years, and does not seem likely to decline.

The matter of donations and charity has also been considered from the perspective of a company's social responsibility; this was developed by Carnegie and is cited by Stoner, Freeman, and Gilbert (1995). According to these authors, businesses have certain social responsibilities based on two principles: that of charity and that of custody.

The principle of charity assumes that the more fortunate members of society should help the less fortunate, including the unemployed, the disabled, the ill, and the elderly. These people could receive direct or indirect help through institutions such as churches and residence homes. The principle of custody assumes that companies and the wealthy are custodians and guardians of goods. Thus, the wealthy are entrusted with the money of the rest of society and may use it for any purpose that society considers legitimate. These principles have guided companies to date, as can be seen in many examples such as those mentioned by Stoner, Freeman, and Gilbert (op. cit.).

According to these ideas, whether taking an economic or management approach, donations to non-profit institutions can be considered to be sources of funding designated to covering both operational costs and investments in infrastructure. Thus, donations as a mechanism for financing have

a financial cost: the implicit cost of normal financing sources or the minimum profitability required by the investments that are financed by donations. So, as defined in this article, charity as a beneficial service or product with a zero price should imply that the financial cost of the donation be zero. However, the problem has another interpretation: the cost of the donation is not zero, as will be shown in the coming paragraphs. In other hand, Jegers (2008) mentioned: "In practice, measuring the cost of debt, both market debt and nonmarket debt, should not pose insurmountable problems" for non-profit organizations, but he also mentioned that: "this not the case for the return on non-profit equity, for which no satisfying theory has been developed yet"

IV. Implicit Economic Cost of Donations and Economic Value of Charity

4.1. Implicit Economic Cost of Donation

When considering donations as a financial source, it is necessary to analyze their cost and probable economic value. For this, we make the following proposition: The financial cost of a donation, at a continually compounded rate, is infinitely negative, and compounded at discrety time period, at interest rate is -100% .

For the proof: D = Donation received by a non-profit institution. $A(n,i)$ = Actualization factor of a unitary income for "n" years, at an interest rate of i per period with continuous capitalization. R = Return of the donation for each period, that is, zero if the donation is total.

To obtain a payment of \$0 during each period, because donation by definition is not returned, then the actualization factor should be very large. In mathematical terms, this implies that: For discreet capitalization: $\lim_{i \rightarrow x} A(n,i) \rightarrow \infty$, or for continuous capitalization: $\lim_{i \rightarrow x} (1 - e^{-it}) / i \rightarrow \infty$. The interest rate or implicit cost x must be found such that $\lim A(n, i) \rightarrow \infty$. To find this rate x by substitution, we will assume that:

$$A(n,i) = (1 - e^{-it}) / i = z/w \quad (1)$$

That is, $z = 1 - e^{-it}$ and $w = i$. By applying l'Hopital's rule, with $dw/di = 1$, then $\frac{z}{w} = te^{-it}$. If $i \rightarrow -\infty$
 $\Rightarrow \lim_{x \rightarrow -\infty} te^{-it} = \infty$.

Then, given the definition of the current value, we have: $D = RA(n,i)$. As $A(n,i) \rightarrow -\infty$, with $i \rightarrow -\infty$, then $R \rightarrow 0$, which is the definition of a complete donation. In other words, it is a financing source with an infinitely negative financial cost, or, from another perspective, a gift. This interpretation, through the implicit cost shows that the financing cost obtained through a donation is not zero, as we normally tend to think. The financial cost of a financing source is zero when only the total sum of the financing is returned without the respective interests. When there is subsidized financing, that is, only a part of the total amount of financing is returned, then the interest rate is negative. In the case of donations, the mathematical relationship indicates that the gift is total. This point is fundamentally important for understanding the concept of charity.

If the financial cost of a donation is highly negative, then the cost rate required of the investment, in this case the charity, is also very low. That is, any business can be carried out by giving services or not charging for them. Therefore, charity may not have positive profitability but it can still be economically attractive. Thus, charity exists economically when it is completely financed with donations. If the charity is not financed with one hundred percent subsidized loans, then there is less space to give charity because, as the subsidy decreases, the interest gradually increases until it reaches zero, which is the borderline case of subsidy. In the case of no subsidy, the implicit cost rate of that financing is equal to zero, in which case, sufficient income must be required of the charity so as to pay the financing, that is, to pay off the loan.

Porterfield (1965) used the concept of implicit cost to estimate that, with discreet capitalization, the implicit cost of the donation to bargain is -100% . Porterfield explains this calculation and generalizes it for periodical payments by calculating it for just one payment, as follows: $D = R A(n,i)$.

So, $\lim_{i \rightarrow -1} A(n, i) \rightarrow \infty$. This proof was also done using a function limit calculation through l'Hopital's rule.

This interpretation of the problem reduces the space of charity, because only the "businesses" or services provided that have a maximum profitability limit, in this case negative (-100%), can be considered to be charities. The reason for this difference is due to the system of capitalization used, as explained in the following.

The equivalency between systems of discreet and continuous capitalization, according to Copeland and Weston (1988), is as follows:

$$(e^{r_c})^n = (1 + r_d)^n \quad (2)$$

Where r_c = Interest rate with continuous capitalization, r_d = Interest rate with discreet capitalization. If $r_d = -1$, then we have: $e^{r_c} = 0$

Equation (2) is only valid if $r_c \rightarrow \infty$. Hence, if the discreet interest rate tends toward -100%, then, in continuous capitalization, it tends towards $-\infty$, as stated previously.

$$\text{Therefore: } r_d = -1 \Leftrightarrow r_c \rightarrow -\infty \quad (3)$$

Equation 3 shows that both rates are equivalent and clears the discrepancies from both approaches (continuous and discreet capitalization).

4.2. Economy Value of Charity

As corolary of Proposition, we have that the economic value of charity is always positive if it is completely financed with donations. This situation is evident and obviously follows from equation (1). The economic value will be taken to be the current value of the cash flows of the institutions that provide charity services and that are non-profit organizations. For the proof, Let: Cc_t = Operational costs of the non-profit organization, in period t ; n = Life period of the organization; I_o = Investment in infrastructure; D_t = Donations that finance the operation in period t ; D_o = Initial donation to finance the infrastructure; $D_t = \alpha_t Cc_t$; α_t = Proportion of the operational cost financed with donation in t .

Then, the economic value (EV) of the non-profit organization, with k = Cost required by the non-profit organization, is as follows:

$$EV = \int_0^n (D_t - Cc_t) e^{-kt} dt \quad (4)$$

Normally, non-profit organizations have a long life since their objective is to solve problems that have persisted for centuries. Thus, it is not a risky assumption to think that their life periods tend to be infinite. In order to simplify matters, let us suppose that payments and donations are constant over time, so (4) becomes:

$$VE = (D_o - I_o) + \frac{D - Cc}{k} \text{ and reducing: } EV = I_o(\alpha_o - 1) + \frac{Cc(\alpha - 1)}{k} \quad (5)$$

Since $I_o(\alpha_o - 1) \geq 0$ and $Cc(\alpha - 1) < 0$, and since we know from initial proposition that the cost, when there are donations, is negative, then the economic value of the organization will always be positive. Due to the fact that an organization should not be created if it is not financed entirely by donations, the $I_o(\alpha_o - 1) > 0$. This deduction is valid when the period of time is infinite, whether using discreet or continuous capitalization since either way the second addend becomes positive.

On the other hand, the operating expenses may not be completely covered by donations, which is why the second addend can be negative. Now, if the donations surpass the periodic operating expenses, that is, if $\alpha_t > 1$, then the economic value will be even more positive.

In the analysis so far, the concept of the cost of opportunity in non-profit institutional funds has been ignored and only the implicit cost of the donations has been taken into account. Although a valid criticism, non-profit institutions normally do not have objectives other than those of the Daughters of Charity type; that is, their ultimate goal is to provide a free service. It would be counterproductive for

the donors or financiers of these organizations to begin to speculate or to designate funds to ends other than charity. It is a different matter if, at any given moment, a surplus of stock were to result from a decline in the needs of the institution's beneficiaries and this surplus were to be invested in a deposit or financial instrument at near-zero risk rates. However, specific situations of surplus are not normal in charitable organizations and it is more common for them to be lacking in funds. For this reason, the relative value of the opportunity cost in these non-profit organizations, in economics terms and, herein, representative of charity works, declines.

Also from (4), it is deduced that, without donations, the charity rendered by an institution has no economic value. Furthermore, this problem would be of the financial type, since the institution would not be able to pay for the services. If a non-profit institution or charity ever finances a temporary cash deficit with bank credits, these must then be covered by future donations; otherwise, there would be financial tension since charitable organizations cannot charge for their services or products. In other words, without donations, the charity would have to quantitatively diminish its services in the medium-term to pay off the loans or, if the debt level grows too high, close the organization.

V. Total and Mixed Charity Institutions

A charity institution offers a service or good at a lower-than-market price, that is, at a subsidized price. This allows us to calculate the return of the charity institution as:

$$\text{Return on Investment} = R = \frac{U}{I} \quad (6)$$

U= Operating Income of the charity institution; U= Charity Revenue (Y) – Charity Cost (Cc) and V= Value of the investment of the charity institution; I= Investment Value.

On the other hand, the Weighted Average Cost of Capital is obtained by supposing that the charity is financed with debt, capital, and donations, as follows:

$$\text{Weighted Average Cost of Capital (WACC)} = \rho = \frac{D}{V}k + \frac{C}{V}k_p + \frac{Do}{V}k_d \quad (7)$$

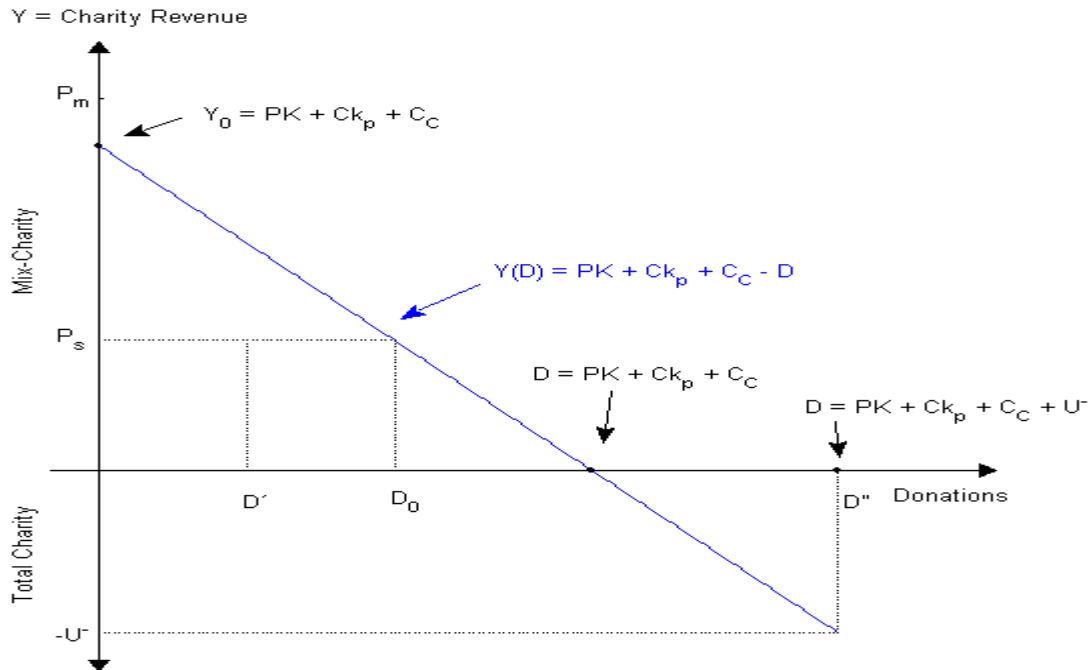
D = Debt value; k = Cost of debt; C = Patrimony value; k_p = Cost of owners; Do = Donations; k_d = Cost of Donations and $V = P + C + Do$

According to the rule of investment and yields, this should lead to at least (5) = (6) or $R = \frac{D}{V}k + \frac{C}{V}k_p + \frac{Do}{V}k_d$. Solving algebraically, with $I = V$, we have:

$$Y = Dk + Ck_p + Cc + (Do)k_d \quad (8)$$

The interpretation of (8) is that the income that must be charged for providing a charity service or selling a charity product must be enough to cover the expenses of the interest on the debt (Dk), the economic requirements of the owners (Ck_p), and the operational cost of the charity (Cc). Since $k_d = -1$ according to proposition No. 1, then the value of the donation received by the charity institution must be subtracted from the three previous costs. Do is the level of donation necessary to support an income level of Y, which could be less than the costs necessary to offer the service or product to the users.

To summarize, when donation exists, an income lower than the three costs required of any organization can be charged. This situation allows the organizations that offer charity services to be separated into two types, as shown in Graph 1: Mixed Charity Organizations and Total Charity Organizations. This separation in such organizations is done with the purpose of setting public policies, such as: taxes on donations, incentives for donors, subsidies and contributions to charity organizations, and tax exemptions for charity organizations, among others. This allows improved designations of economic resources by the State to educational, health, and community support institutions.

Graph 1: Mixed and total charity businesses

5.1. Mixed Charity Organizations

Graph 1 shows that the income to be charged for offering charity depends on the level of donations received. Thus, if there are no donations, the institution must charge a Y that covers all three costs, that is: $Dk + Ck_p + C_c$. In this case, the net income is zero. On the other hand, when all the costs are covered by donations, the Income to be charged is \$0. This indicates that companies that can charge income for charity services lower than the corresponding market cost are located in the first quadrant of the graph. The difference needed to cover the costs is made up by donations. These companies, known as mixed charity organizations, have the following characteristics:

- They are institutions whose only objective is to provide goods or services at lower-than-market price to people who need them. These are subsidized prices (P_s) such that $P_s < Dk + Ck_p + C_c$. Consequently, they are non-profit institutions.
- They are institutions that finance themselves with donations and debts. When donations are insufficient for covering the costs, the subsidized prices allow the difference to be made up by selling the product or service to people who are not in need of charity, require this service, and will pay a higher, nearer-to-market price (P_m).
- When the real donation (D') is lower than the necessary donation (D_0) for the subsidized price, then the difference ($D_0 - D'$) may be made up by selling the service to other people at market price (P_m).
- There is an analogue good or product sold simultaneously by other companies on the market, at the market price (P_m). These companies may be for-profit.

In Graph 1, we see that to sell at $P_s < Dk + Ck_p + C_c$, a level of donations (D_0) is required, but since the real donation is $D' < D_0$, additional resources are required for $D_0 - D'$. These are sold on the market at P_m to people who do not need charity. These organizations may have two types of users: a) ordinary users that require charity, which are the most important ones, and b) some temporary users that pay the market price for the institution's service. This is an important point because the organization must generate the image of a non-profit institution that does charity and not that of a regular for-profit service company.

Charity institutions normally have owners. These may be the very donors, in which case, then $k_p = k_d = -1$, because they are the same people. Herein, we will assume that the owners at least demand

a risk-free rate equal to R_f , that is $k_p = R_f$. The reason for this is that, as companies that serve two clients, they must renew their infrastructure. Thus, the requirements of the owners, that is CR_f , are reinvested in the same organization for maintenance and renovation of the service structure.

Graph 1 also reveals that, for each additional \$1 of donation, the company may lower its income in \$1. This is obtained by the slope in expression No. 3. In effect, we have $dY/dDo = -1$.

5.2. Total Charity Organizations

These organizations are located in the fourth quadrant of Graph 1. They offer free services to the community and so may have losses and returns on investment, but their efficiency can only be based on financing with donations, which can also result in a negative Weighted Average Cost of Capital (WACC) because $k_d = -1$. In this case, the donation must cover all costs, that is: $Dk + Ck_p + Cc$, plus the loss caused by offering a service at a cost without its respective income. In Graph 1, we can see that any loss of U requires a necessary donation to cover that loss and the costs must be at least equal to: $Dk + Ck_p + Cc + U$.

Examples of such organizations are: religious and spiritual works, societies that aid those with catastrophic illnesses, schools that educate children from socially poor sectors, etc. These organizations can only exist economically if the donations that they receive are high enough to cover all the costs associated with their works as well as the corresponding economic losses. This explains why charity organizations show economic losses for long periods of time, going against the principle of the "homo oeconomicus" and economically the existence of total charity organizations can only be explained through donations.

VI. A Numerical Application. Case Study

6.1. Presentation of the problem: mixed charity institutions

There is a non-profit institution that aims to offer health services to low-income people who suffer catastrophic illnesses, providing both medication and medical attention. The organization normally receives State funding to finance its activities. Apart from this, the organization receives private donations that it uses to finance its operations.

In the past, the organization has received bank loans to finance investments in assets. It has made associations with medical professionals to see other patients who pay prices that are higher than or equivalent to those charged by other for-profit institutions in the sector, thereby allowing the income of new money, which helps finance the operational aspects not covered by donations.

Strictly speaking, the funds given by the State are donations because there is no commitment to return them. With State contributions plus private donations, the costs of services can be lowered for low-income patients in relation to the same treatment in a private clinic. The Liabilities and Equity and the Statements of Income for this organization over a normal year are presented (data are expressed in millions of \$).

Liabilities and Equity	
Current Liabilities (1)	\$50.5
Long-term debt (2)	\$27.4
Equity (3)	<u>\$45.4</u>
Total	\$123..3

(1) Bank loans, Accounts payable, and accrued interest. Average cost is 6.5%

(2) Bank loans and Long-term debt. Average cost is 6.7%

(3) Consists of Capital, Retained Earning, and Net Income. Composition is as follows: Capital and Retained Earning: \$49.3 and Net Income (\$3.9). Average cost of the Capital and Retained Earning is 4%, equivalent to the rate of risk-free assets.

Statements of Income	
Government and private contributions	\$ 14.8
Donations through special laws	\$ 1.1
Income (revenue) from attending patients	\$ 23.0
Net income (revenue) of the medical center	\$ 19.8
Total Sales and Revenues	\$ 58.7
Less:	
Costs and Expenses:	
Wages and current expenses	\$ 36.9
Administrative expenses	\$ 11.8
Costs of attending patients	\$ 3.2
Depreciation	\$ 5.6
Total Costs and Expenses	(\$ 57.5)
Operating income	\$ 1.2
Less: Interest Expense	(\$ 5.1)
Net income before taxes	(\$ 3.9)
Less: Taxes (Exempt from or free of taxes)	<u>\$ 0</u>
Net income	(\$ 3.9)

The above data raise the following questions: a) What is the minimum Return on Investment that the Assets of this organization should yield? b) How do donations influence the value to charge for medical services?

6.2. Solving the Problem

- a) To answer the first question, we must calculate the Weighted Average Cost of Capital (WACC) for the institution. The donations are implied in the Liabilities and Equity and, therefore, must be identified and set apart because their cost is different from that of Capital and Retained Earning. As shown in Proposition 1, the Cost of Capital for a donation is $-100%$, with discreet capitalization, which is typically applied. In order to calculate the WACC, we must separate that part of the Equity that corresponds to donations. This requires identifying and setting apart this effect since the Net Result for the Value of the Patrimony is (\$3.9), but this changes when the donations are removed, for which we have:

Sales and Revenue (Without Donations)	\$ 42.8
Less:	
Costs and Expense	(\$ 57.5)
Interest Expense	(\$ 5.1)
Net Income without Donations	(\$ 19.8)
Add:	
Donations by:	
Government and private contributions	\$ 14.8
Donations by special laws	\$ 1.1
Total Donations:	\$ 15.9
Net Income after Donations	(\$ 3.9)

Thus, Equity with Donations identified and set apart, is as follows:

Capital and Retained Earning	\$29.5
Donations	<u>\$15.9</u>
Total	\$45.4

The Capital and Retained Earning is made up by the Initial Capital and Initial Retained Earning (\$49.3) minus the Net Income without Donations (\$19.8).

Therefore, the Liabilities and Equity with the Donations identified and set apart and their respective costs are the following:

	<u>Value</u>	<u>Costs</u>
Current Liabilities	\$50.5	6.5%
Long-term debt	\$27.4	6.7%
Equity:		
Capital and Retained Earning	\$29.5	4.0%
Donations	\$15.9	-100.0%
Total Equity	\$45.4	\$45.4
Total Liabilities and Equity		\$123.3

The WACC of this organization is the following:

$$\rho = \frac{50.5}{123.3}(0.065) + \frac{27.4}{123.3}(0.067) + \frac{29.5}{123.3}(0.04) + \frac{15.9}{123.3}(-1) = -0.0779$$

Therefore, the WACC is -7.79% , which indicates that the assets of this organization can have a negative minimum profitability. When the entity is efficiently managed, it can subsidize patients with catastrophic illnesses since the subsidy allows the institution to have a Net Negative Result. In fact, in this case, the minimum required profitability for the assets can be up to -7.79% , allowing the Statement of Income to withstand a Net Negative Result, which, in this case, is the following: $-0.0779 \times \$123.3 = -\9.60 .

This can be more clearly seen when analyzing what the WACC will be for an organization that does not receive contributions from donations of \$15.9. In this case, the total Liabilities and Equity, considering Circulating Liability, Long-Term Liability, and Patrimony, is the same as: $\$50.5 + \$27.4 + \$29.5 = \107.4 and the WACC is the following:

$$\rho = \frac{50.5}{107.4}(0.065) + \frac{27.4}{107.4}(0.067) + \frac{29.5}{107.4}(0.04) = 0.0586$$

Given this situation, the assets of the organization should yield at least 5.86% , giving it a smaller margin for economic management than other similar entities that do not receive donations and subsidies.

b) In response to the second question regarding the influence of donations on the value of the services, we see that the existence of donation is more advantageous than the lack of donation for determining the value of medical services and attention since donations allow the organization to confront a Net Negative Result, implying that the value of the Operational Income acquired by charging for services could be lower than the Operational Costs, in which case the organization can charge a lower value for medical services and medication. This situation, from a management point of view, can be misleading, exaggerating the deficit. To respond to question a), we show how to determine the maximum Net Negative Result that a not-for-profit organization can withstand when it is financed partially with donations, be these State subsidies or private Donations.

Conclusion

This article takes an economic and financial approach to the concepts of charity and donation, which normally are conceived of in more global terms. The definition used herein neither contrasts with the global view nor can be considered as a reduced vision of the matter, and it is useful for understanding how non-profit institutions work economically to carry out, from a financial point of view, their charitable intentions.

Every donation is seen to have a necessary financial cost that is negative for the institution that receives it and that can be enormously negative in the case of continuous capitalization. This situation has a second implication: the charity provided by a non-profit institution financed with donations will always have a positive economic value; this is as if the economic profitability of charity were very high, because the required financial cost is extremely negative.

Another conclusion of the article is that, financially, the level of charity is limited by the value of the donations. However, from a global point of view of charity and donations, these include values that are difficult to measure economically, so that the level of demarcation of both is clearly visible only for the case of the liquidity needed to pay commitments. However, from a global perspective, it acquires a

different dimension when the level of donations includes contributions that are more extensive than cash donations.

References

- [1] Colombo, John and Hall, Mark (1995). "The charitable tax exemption", WestviewPress, USA.
- [2] Copeland, Thomas and Weston, Fred, J. (1988) "Financial Theory and Corporate Policy", Third Edition, Addison-Wesley Pv.Pg. 903.
- [3] Dees, J. Gregory (1998), "Enterprising Nonprofits", Harvard Business Review, Vol. 76, No. 1, January-February 1998, Pg. 55-67.
- [4] Drucker, Peter (1990), "Managing the Non-profit Organization: Practices and Principles, New York, NY: Harper Collins.
- [5] Ekelund, Robert B. and Hébert, Robert F. (1990), "A History of Economic Theory and Method", Ed. McGraw-Hill College, 3rd Edition, Cap. 15 pg. 421-426.
- [6] Glaeser, Edward and Shleifer, Andrei (1998) "Not-For-Profit Entrepreneurs", NBER Working Paper Series, Working Paper 6810.
- [7] Grossman, Sanford J. and Hart, Oliver D. (1986) "The Cost and Benefits of Ownership: A Theory of Vertical and Lateral Integration", Journal of Political Economy 94, Pg. 691-714.
- [8] Grout, Paul (1984) "Investment and Wages in the Absence of Binding Contracts: a Nash Equilibrium Approach", Econometrica 52: Pg. 449-460.
- [9] Hansmann, Henry, (1987), "The Nonprofit Sector", W. Powell Edit. Yale University Press. Cap. 2, "Economic Theories of Nonprofit Organization".
- [10] Holmstrom, Bengt and Milgrom, Paul, (1991) "Multi-task Principal Agent Analyses: Incentive Contracts, Asset Ownership and Job Design", Journal of Law, Economics and Organization, Vol. 7 pg. 24-52.
- [11] Holmstrom, Bengt and Milgrom, Paul (1994) "The Firm as an Incentive System", American Economic Review 84, Pg. 972-991.
- [12] Jegers, Marc, (2008) "Managerial Economics of Non-Profit Organizations", Routledge, Taylor & Francis Group, London and New York
- [13] Porterfield, James, T.S. (1965), "Investment decisions and capital cost". Englewood. Cliff, New Jersey: Prentice Hall, Cap.IV.
- [14] Rose-Ackerman, Susan (1996), "Altruism, Nonprofits, and Economic Theory", Journal of Economic Literature, Vol. XXXIV, No. 2, June 1996, pg. 701-728.
- [15] Steinberg, R. and Bradford Grey, (1993) "The Role of Nonprofit Enterprise in Hansmann Revisited, "Nonprofit and Voluntary Sector Quart", 1993, Vol. 22, N°4, pp. 297-316.
- [16] Stoner, Freeman, and Gilbert (1995), Management, Prentice Hall (Englewood Cliffs, N.J.)
- [17] Taylor, Barbara E.; Chait, Richard P. and Holland, Thomas (1996) "The new work of the nonprofit Board", Harvard Business Review, vol. 74, No. 5, pg. 36-46.
- [18] Von Mises, Ludwig (1966), "Human Action. A treatise on Economics" Fox & Wilkes, San Francisco, Fourth Revised Edition.
- [19] Weisbrod, Burton (1998), "The Nonprofit Economy", Cambridge, MA: Harvard University Press.