Performance assessment and sustainability of Civil Society Organizations: quanti-qualitative theoretical contributions

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ABSTRACT

This article presents the results of a quanti-qualitative research process that introduces a theoretical model of sustainability assessment of non-profit Civil Society Organizations (CSO), **SACSO,** *within the tertiary sector. The theoretical model, in the quantitative approach, is composed of performance assessment indicators, efficiency and efficacy metrics, and a cash flow generation matrix (CGM) by applying basic matrix algebra. In the qualitative approach, the model encompasses indicators of satisfaction and social integration. In both approaches, the evaluation is separated by project, both individual and joint, taking into consideration each project's independence and autonomy. The evaluation process is executed within the context of a governance commitment that uses voluntary service and offers non-state public services. The answers of the model, tested with academic data, anchor robust and meaningful contributions to the literature of sustainability assessment of tertiary sector organizations. Lastly, considering that the results obtained with standardized financial and accounting statements may hinder the model's potential, it is encouraged that empirical research is conducted with managerial data.*

Keywords: Sustainability. Operational Performance. Cash flow generation matrix. Civil Society Organizations. Governance and non-state public service.

1. INTRODUCTION

This article introduces discussions about a research process, with a quanti-qualitative approach, that presents a theoretical model of sustainability evaluation of non-profit Civil Society Organizations (CSO), **SACSO**, within the tertiary sector, having as a starting point the commitment to Governance, the Operational Performance (OP) assessment, and the proposal of a Cash flow Generation Matrix (CGM), for individual and joint projects, considering the independence of each project. In general terms, the discussion is aligned with OECD[1] propositions (1960), Article 1 of the Paris Convention, which includes in its objectives the promotion of public policies aiming

[1] Organisation for Economic Co-operation and Development (OECD).

> "to achieve the highest sustainable economic growth and employment and a rising standard of living in Member countries, while maintaining financial stability, and thus to contribute to the development of the world economy".

In addition to this multilateral statement, the UN[2] (1987, *Our Common Future*, p. 32) expresses another commitment by stating that

> "Human progress has always depended on our technical ingenuity and a capacity for cooperative action. These qualities have often been used constructively to achieve development and environmental progress".

A CSO can be constituted through several legal means like, for example, associations, foundations, class-based workers associations, mutual-help organizations, among others, so as to play a relevant role in the reduction of inequalities, and to contribute to social welfare, as well as to sustainable development.

Performance, in order to indicate the sustainability of a CSO, has as a starting point the capacity to build the mindset for a collective welfare. In this construction, performance and sustainability are the binomial that leads the way towards an organization's success. Performance is assessed so that the level of fulfilment of the goals designed during planning is known, whereas sustainability is analyzed in order to assess the capacity of an Organization to stay in the market, maintaining its activities. It is within this scope that planning is associated with performance and with sustainability, as an instrument of proposition of goals, as discussed by Jackson (2007). Thus, achieving the planned goals, with a satisfactory performance of activities, is what enables a CSO towards sustainability, in short periods of times, in order to reach the long-term horizon, as evaluated by Bell, Masaoka and Zimmerman (2010).

Sustainability is the 11th of the 17 goals proposed by the UN (2015), which constitutes the Sustainable Development Goals (SDG). These propositions address, in broad terms, the cities as the space for urban agglomeration, contemplating statements that

> "Cities are the spaces where all SDGs can be integrated to provide holistic solutions to the challenges of poverty, exclusion, climate change and risks" and "… where struggle for sustainability 'will be won or lost'".

Thus, sustainability is related to ecological, social, operational and financial-economic commitments, in a triple bottom line agenda, as argued by Elkington (1997). Hence, if at least one of these commitments is left unmet, there is no full sustainable development.

The context of this discussion produces the main motivation and concern to present a model of sustainability assessment of Civil Society Organizations, grounded on the operational performance assessment, on governance contributions, and on a cash flow generation matrix, separating projects conducted individually and in a partnership.

The research contributions are relevant for the literature because they combine, in a multiple approach, the efficiency and efficacy of a CSO's operational performance from a cash flow matrix viewpoint, in which the individual activity and each joint project are independent, with a distinct financial planning and sustainability. The model is tested by using data from academic examples for the evaluation of the premises.

[2] United Nations (UN).

In addition to the introductory section, this article discusses, in (2), performance and productivity, focusing on operational performance, non-state public service productivity, productivity in joint project management, efficiency and efficacy that indicate the sustainability of individual activities and of joint projects; in (3), governance and sustainability, in which is presented the informational content of the model focused on the cash flow generation matrix of the business that is sustainable; in (4), the conclusions where the main research contributions are summarized and presented. Lastly, the references.

2. THEORETICAL MODEL OF SUSTAINABILITY ASSESSMENT OF NON-PROFIT CIVIL SOCIETY ORGANIZATIONS (SACSO)

The theoretical model of sustainability assessment of non-profit civil society organizations (SACSO), which is now being introduced, consists of equations for assessing operational performance (OP), non-state public services (nSPS), productivity in the management of a joint project and the cash generation matrix (CGM). All these equations are specified and described in the following sections.

2.1 The assessment of the operational performance (OP)

Operational performance is measured within the context of productivity. In the economic approach, productivity is an operational measure related to an organization's installed capacity to produce by cost, in such a way that allows adequate compensation for the investment.

In the context of a CSO, as a non-profit entity, productivity can be assessed by observing the coverage of costs, the supply of non-state public services, and even the fulfillment of each project's purpose, as a proposal of Sustainability Governance. These measures, which indicate a business's sustainable development, are known as operational performance and compose the process of quantitative and qualitative evaluation.

The OP, addressed in the previous paragraph, as a process of quantitative evaluation, is associated to a business's installed capacity, which produces fixed costs to be covered or recovered by the revenue of the activity in the operating breakeven point (OBP). In the OBP, the revenue equals the sum of the fixed cost with the variable cost proportional to the breakeven quantity of each project to indicate sustainability.

In a CSO, the OBP must be calculated individually for each project of individual and joint activities, taking into consideration that each one of them is independent from one other, differently from a secondary sector organization, where the OBP is calculated for the business as a whole. Since the financial resources of each project executed by a CSO follow a work plan, the OBP calculated as a whole causes an erroneous interpretation of performance and sustainability.

Performance assessment by the OBP. The calculation model of the OBP uses the variables fixed cost (FC) and contribution margin (CM). The CM, as discussed in the literature, is the difference between the unitary sales price and the unitary variable cost ($SP_u - VC_u$). The answer to the model is given in physical quantity of the product, understood as service or commodity, for each project identified as $\boldsymbol{i}$, as shown by the following equation (1).

$$OBP_i = FC_i * CM_i^{-1} > 0;\ i = 1, \dots, n;\ CM \neq 0 \qquad (1)$$

From the OBP's answer, the revenue volume (Y) that recovers costs, by project, can be observed as shown by the following equation (2).

$$Y_i = OBP_i * SPu_i > 0 \qquad (2)$$

This minimum revenue volume is one of the management measures used to evaluate the OP of a production that indicates sustainable development.

Now, from this minimum revenue volume, given by the OBP, it is necessary to calculate the total cost of each project [$(OBP_i * VCu_i = VC_i) + FC_i$] and subtract it from the total revenue (Equation 2). The difference between the total revenue and the total cost of each project is the OP, which indicates whether a project is sustainable or not. In order for the project to be sustainable, the equality/inequality of equation (3) must be met. This condition is necessary so that each project has continuity.

$$Y_i - (FC_i + VC_i) \geq 0 \qquad (3)$$

To test the application of the model, numerical data from Academic Example 1 are used, so as to evaluate the theoretical premises.

Academic example 1. The scenery is composed of three projects, with project 1 having its own resources, project 2 with Government resources, and project 3 with resources from the Market. The work plan for each project is presented in Table 1. Project 1 encompasses a production of 3,000 units of service at a unitary Reference Price (RP_u) of R$ 350.00, with a variable cost of R$ 951,000.00 and a fixed cost of R$ 50,094.00; the object of project 2 is for 9,000 units of service at a RP_u of R$ 551.00, a variable cost of R$ 4,932,000.00 and a fixed cost of R$ 35,070.00; project 3 estimates a production of 5,000 units of service at a RP_u of R$ 450.00, a variable cost of R$ 2,200,000.00 and a fixed cost of R$ 50,160.00. The values set by the funding bodies for project 2 and 3 only recover the variable cost of production.

Table 1: Data from the work plans of individual and joint projects

Project (i)	Q	RP_u	VC	FC
Proj 1	3.000	350,00	951.000,00	50.094,00
Proj 2	9.000	551,00	4.932.000,00	35.070,00
Proj 3	5.000	450,00	2.200.000,00	50.160,00

Q=quantity. RPu= unitary reference price. VC= variable cost; FC= fixed cost (maintenance and compensation for the investment).

Now, based on the data from Figure 1, the contribution margin (CM_i) of each project is initially obtained according to equation (4), and then the breakeven quantities.

$$CM_i = SP_{u(i)} - \frac{VC_i}{Q_i} > 0 \qquad (4)$$

The $SP_{u(i)}$ corresponds to the RP_u of each project and $\frac{VC_i}{Q_i}$ is the variable unitary price of each project. The difference between the RPu_i and the VCu_i of Projects 2 and 3 is assumed by the CSO.

Once the CM is known, the OPB of each project is calculated. The basic premise of the OP is that the OBP be lower than the total quantity (Q_t) of each project so that there is sustainability ($OBP_i < Qt_i$).

Breakeven quantities of each project

$$OBP_1 = \frac{50{,}094}{33} = 1518\ units$$

$$OBP_2 = \frac{35{,}070}{3} = 11690\ units$$

$$OBP_3 = \frac{50{,}160}{10} > 0 = 5016\ units$$

The answers of the OBP for each one of projects 2 and 3 indicate, at first, that the basic premise of sustainability has been violated because the breakeven quantities exceed the total quantities.

Evaluating the OP of each project. Now the metric is for the final result of the project. Thus, for each project ***i*** in which the result of Equation (5) is higher than zero, the project is operationally sustainable, as shown in Table 2. Thus, $OP_i \geq 0$, suggests sustainability.

$$OP_i - [RP_i * Q_i - (VC_i + FC_i)] \geq 0 \quad (5)$$

Table 2: Evaluation of the operational performance of each project

Project (i)	Total revenue (i)	Total cost (i)	OP (i)
Project 1	1,050,000	1,001,094	48,906
Project 2	4,959,000	4,967,070	-8,072
Project 3	2,250,000	2,250,160	-160

Based on the premises of the model, only project 1 is sustainable because it presents an OP higher than zero, whereas projects 2 and 2 are not sustainable, which corroborates the premises of the OBP. If the CSO executes projects 2 and 3, it reduces the funding capacity of its own activities and, consequently, it becomes less sustainable, which can jeopardize its continuity.

This example reinforces the argument that the performance assessment of a CSO differs from that of a secondary sector Organization. Here, each project must be sustainable independently. Hence, the evaluation must be done individually for each project.

2.2 Productivity of non-state public services (nSPS)

Non-state public services (nSPS), as a quantitative obligation, are associated to the commitment of a CSO to offer society a quantity of services equivalent, at least, to the quantity of benefits this CSO gets from the State, through direct or indirect transfers. Generally, every non-profit CSO is a tertiary sector organization benefited with indirect transfers of tax exonerations, through immunity and/or exemptions, which is called tax break (TB).

What is observed in Brazil is that the State is not present to inspect whether the obligation to offer nSPS by a CSO is being met, except when it comes to a CSO whose business purpose is the provision of services in the areas of social assistance, healthcare or education, for which is granted a Certificate of Beneficent Social Assistance Entities (CEBAS), but only when it comes to the TB of employer contributions for social welfare.

One of the metrics to assess whether a CSO gives the nSPS back to society, at least at an equal value to that of the TB received, is presented in the model introduced by Equation (6).

$$nSPS - TB \geq 0 \; ou \; \frac{nSPS}{TB} \geq 1 \quad (6)$$

To illustrate this situation, the hypothetical data of a CSO are tested based on Academic Example 2.

Academic Exemple 2. A CSO benefited with CEBAS works in the field of education, and the annual sum of the TB referent to the monthly employer contribution to social welfare totals R$ 480,000.000. The nSPS offered by the CSO must be at least equivalent to the TB value, considering that the CSO receives other benefits of tax exoneration. But the nSPS and the TB are only those associated to a CSO's own individual activities, which does not include any joint projects.

The way to offer a nSPS through a CSO that explores education services is through a study grant. These grants can be given in full amount or partial amount. Thus, consider that a CSO offers, monthly, 30 full-amount grants at a unitary value of R$ 980.00, plus 22 partial-amount grants at a value of R$ 490.00 each. Table 3 shows the monthly distribution (M) of the unitary value of each grant and annual value of all grants.

Table 3: Monthly unitary value of each study grant and the total of nSPS offered by a CSO

GRANT	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	SUM
Full	980	980	980	980	980	980	980	980	980	980	980	980	352,800
Partial	490	490	490	490	490	490	490	490	490	490	490	490	129,360
Sum	1470	1470	1470	1470	1470	1470	1470	1470	1470	1470	1470	1470	482,160

The column SUM represents the total annual value of the grants offered as a nSPS to society. By applying the metric, the result shows that the nSPS value is higher than the TB value received. This result suggests that the public policy of tax exoneration associated to CEBAS is sustainable.

2.3 Productivity in the management of a joint project.

The Brazilian State has established a legal means to regulate partnerships between the public administration and CSOs, in a system of mutual cooperation (Law no. 13,016/2014), as a quanti-qualitative process. Such system has established that partnerships must be formalized through **(a)** terms of collaboration, **(b)** terms of funding, and even **(c)** cooperation agreements.

For each one of these formalized terms, the partnership manager, be it ongoing or finished, must evaluate the efficacy and effectiveness of the actions of the partner CSO by considering the results and

benefits obtained and, mainly, whether there is evidence that the actions are sustainable after the partnership's purpose is concluded.

The manager's evaluation must take into consideration the work plan that quantifies and qualifies the partnership's purpose, from which all actions are executed. So, the work plan quantifies the partnership goals, and the execution reports indicate the status of completion of each goal.

The evaluation of the goals happens quantitatively and qualitatively. It is quantitatively observed through the physical and financial fulfilment of the purpose, while it is qualitatively observed through the evaluation of socioeconomic and environmental impacts, among others.

To analyze the efficacy and the effectiveness, and decide for sustainability, it is necessary that indicators are introduced in order to signal the completeness of said purpose. In this sense, a model of three indicators is proposed, which is composed of **(1)** Estimated expenditure per capita (EEP), **(2)** Realized expenditure per capita (REP), **(3)** Project efficiency index (PEI), **(4)** Qualitative evaluation index (QEI), and a variable ***i*** that identifies the partnership's project.

Estimated expenditure per capita (EEP). The EEP is obtained by the quotient between the estimated project value (EPV) and the estimated project quantity (EPQ). This quotient indicates the project's average resource cost, which is the expected productivity of the partnership.

$$EEP_{(i)} = \frac{EPV_{(i)}}{EPQ_{(i)}} \qquad (7)$$

Realized expenditure per capita (REP). The REP shows the ratio between the realized project value (RPV) and the realized project quantity (RPQ), and indicates the average cost of the project's execution, which is the effective productivity of the partnership. It is assumed that the project's funding body takes on the totality of resources present in the work plan, resulting in the RPV equal to the RPQ.

$$REP_{(i)} = \frac{RPV_{(i)}}{RPQ_{(i)}} \qquad (8)$$

Project efficiency index (PEI). The PEI is the quantitative evaluation measure of an individual or joint project. This measure shows the completeness of the goal defined in the work plan and translates efficiency and efficacy in the execution of each project with metrics that indicate whether the project is sustainable or not.

$$PEI_{(i)} = \frac{REP_{(i)}}{EEP_{(i)}} \qquad (9)$$

The PEI metrics combine efficiency and efficacy of each project. Thus, each one of them considers that the absorption of resources is constant (EPV=RPV), whereas the efficiency and efficacy are results of the coefficient's magnitude.

$$PEI_{(i)} = \begin{cases} 1 => effective\ execution \\ < 1 => effective\ and\ efficient\ execution \\ > 1 => ineffective\ and\ inefficient\ execution \end{cases}$$

Definition 1. The execution of a project is said to be effective if the $PEI_{(i)} = 1$. With this metric, the CSO linearly performs the purpose of the work plan (EPQ=RPQ) using the totality of resources (EV=RV).

Definition 2. The execution is said to be inefficient if the $PEI_{(i)} > 1$. This metric indicates that the CSO does not fulfill the purpose of the work plan, producing less than what was commissioned (RPQ < EPQ) using the same resources (RPV=EPV).

Definition 3. The execution is said to be efficient if the $PEI_{(i)} < 1$. This execution indicates that the CSO overachieved the goal defined by the work plan (RPQ > EPQ) with the same resources (RPV=EPV).

Definition 4. The Project is sustainable if the $PEI_{(i)}$ is at most equal to 1, a metric that translates efficacy or efficiency. As the model shows, efficacy comes from fulfilling the commissioned purpose, in its entirety, and efficiency translates gain in productivity with the same resources. Thus, the sum of these attributes, efficacy and efficiency, generates synergy that gives the project sustainability.

Qualitative evaluation index (QEI). The QEI, as a qualitative measure, is a combination of the percentage of satisfaction (PSA) with the percentage of socialization success (PSS). The PSA is the quotient between the satisfied quantity of the project (SQP) and the RQ. The PSS is the quotient between the quantity of the project put on the market (QPM) and the RPQ. Thus, a QEI approaching 1 indicates that the partnership is qualitatively sustainable.

$$PSA_i = \frac{SQP_i}{RPQ_i} \quad (10)$$

$$PSS_i = \frac{QPM_i}{RPQ_i} \quad (11)$$

$$QEI_i = PSA_i * PSS_i = \frac{SQP_i * QPM_i}{RPQ_i^2} \equiv 1 \quad (12)$$

The premises of qualitative sustainability are evaluated considering the data from Academic Example 3, in which a CSO receives direct transfer of a State Body to provide training to young people with skills for the assistance to the elderly.

Academic Example 3. A CSO established a partnership with a Government Secretariat to train an EPQ with 250 young adults between the ages of 20 and 25 with specific skills to care for the elderly. The partnership has a one-year term and the EPV is R$ 1,250,000.00. By the end of the partnership, they will assess efficacy, efficiency, and project's sustainability by quantitative and qualitative criteria.

The assessment's results are important for the Secretariat to decide on future partnerships with the CSO. The RPQ of trained young people is 260. The data from the work plan and the results of the project's execution are shown in Table 4.

Table 4: Data for the quantitative and qualitative evaluation of the project

Partnership	EPQ	EVP (R$)	RPQ	SQP	QPM
Work plan	250	1,250,000			
Execution Report		1,250,000	260	260	255

Now, by applying the model described in Equations 7 to 12 to the partnership data, the results shown in Table 5 are found.

Table 5: Indicators from quantitative and qualitative evaluations of the project

Indicators	Equation 7	Equation 8	Equation 9	Equation 10	Equation 11	Equation 12
EEP	5,000					
REP		4,808				
PEI			0.9616			
PSA				1.000		
PSS					0.9808	
QEI						0.9808

The answers to the model indicate that a CSO produces more than the required by the work plan, with the same resources, and, thus, presents a REP lower than the EEP. This performance translates efficiency and efficacy in the execution of the partnership because the PEI is lower than 1, indicating that the project is sustainable.

3. GOVERNANCE AND SUSTAINABILITY

Governance and sustainability are a binomial of reciprocity. Sustainability needs an effective Governance, and Governance promotes sustainable development. So, a sustainable CSO is one with efficacy in Governance and management.

3.1 Governance

The terminology Governance has lately been used to denote the capacity to govern in a rational, participative, and democratic manner, as addressed by Lafferty (2004), and constitutes one of the means to achieve sustainability, as a quanti-qualitative process. A non-profit CSO, by nature, has a democratic characteristic, in which decisions are made in a collegiate, pluralist, and participative manner. In this context, the OECD (2001) emphasizes the relevance of the human capital stock and the social capital stock associated with Information and Communication Technologies (ICT), which allow for the interaction between individuals, communities, organizations, and society to produce welfare and sustainable development.

For the OECD, human capital in the context of Governance is addressed as

> "Human capital is the familiar notion that knowledge and skills, derived from education, training and experience, represent some of our most valuable resources"

because it includes knowledge and abilities, and it represents an investment with economic and financial return that raises employment rates and gains.

Social capital, in this same approach, represents the relationship inter- and between groups, in the contexts of rules and values that promote cooperation. This capital is multiplied in networks in the interaction between people.

Corroborating these conceptual approaches, Renz & Smith (2010) assess that Governance should be performed through a Council with legal authority to exert power over the other members of the Organization, observing the principles of legality and of ethics. Even if they are not in the Organization's routine, the members of the Council are trustees of the organization's resources and enthusiasts of the accomplishment of the Organization's mission, giving focus to the vision, values, transparency ethos, conformity, and integrity.

With this understanding of Governance, a CSO's Mission is the focal point for accountability, guarantor for credibility, which justifies its reason for existing and leads to sustainability, even if the CSO benefits from tax exoneration. This takes place because a CSO is constituted to cater to underlying needs not fulfilled by the state, such as caring for ecology and caring for the basic needs of vulnerable people, among others. Thus, the Mission must be in the focus of strategic planning and financial planning embodied in a cash flow generation matrix, in the service of the objectives that the Organization has chosen to pursue.

3.2 Sustainability in a comprehensive context

Sustainability is an attribute observed in the context of sustainable development, in which the UN (1987), in *Our Common Future* (p.37), states that

> "Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs"

and that this development promotes progressive transformations of the economy and of society in order to meet individuals' basic needs through productivity.

Still in *Our Common Future* - UN (1987-p.32), the authors pose the question of "How long can we go on and safely pretend that the environment is not the
economy, is not health, is not the prerequisite to development, is not recreation? Is it realistic to see ourselves as managers of an entity out there called the environment, extraneous to us, an alternative to the economy, too expensive a value to protect in difficult economic times?" But the answers to these questions are not yet given.

One of the difficulties to give these answers is possibly that different political actors seem to ignore and deny that life is being degraded by predatory action against nature. Pragmatic denial, which ignores science, ignores evidence of the destruction of forests and springs, while it neglects education, maintaining people in the poverty of ignorance that directly affects sustainability.

The literature has presented us with relevant discussions on the agenda of the United Nations for the fulfillment of the planet's sustainability goals. Immersed in this discussion, Holden, Linnerud & Branister (2014) analyzed the combination of four goals that they named primary dimensions, derived from Our Common Future - UN (1987), with four social indicators. The authors stated that they used a sample of 167 countries, in the period spanning 2008 and 2009, and the result of the combinations indicates the fulfillment of the goals between 8.98% and 36.53% in relation to the total of each of them. The results are tentative, but the deadline for the complete fulfillment of the agenda is set for 2030.

3.3 Sustainability in the context of the cash flow generation matrix (CGM)

The sequencing of the CGM of a CSO, as a consequence of operational performance, is the challenge of the sustainability of the business that imposes a dynamic manner of evaluating each project within the scope of the Organization.

A CSO's cash flow generation differs from the cash flow generation of an Organization in the primary and secondary sectors. An Organization of the primary sector generates cash flow through the compulsory financial obligations of each taxpayer through the payment of taxes. An Organization of the secondary sector generates cash flow through the production of goods and services in demand by consumers.

A CSO's CGM is a dynamic instrument of financial management stemming from its own sources, from financial transfers from partnerships and from donations, which materializes cash flow separately, by project. This instrument allows for the monitoring of the fulfillment of the objectives and goals planned in the financial budget, and thus must be the object of special attention from Governance, for the maintenance of the Organization's activities. In assessing this context, Linzer & Richard (2008) argued that

> *"Predicting cash flow is important because it requires a comprehensive understanding of all strategic elements faced by a non-profit institution... If ensuring profitability is a classic test for the CEO of a trade company, then accurately predicting the cash flow of a non-profit institution is a comparable skill in the non-profit world.*"

As a dynamic instrument for financial management, the CGM contributes to a holistic view of financial budgeting and planning for cash flow management. But, considering that a CSO does not aim for profit, **one poses the question:** where do the resources feeding its cash flow come from? The **answer** to this question considers that the cash flow generation sources for a non-profit CSO are **(a)** proprietary activities, such as income from the sale of services and/or commodities; **(b)** financial transfers of activities in partnership with the State and/or with the Market; **(c)** financial transfers received in voluntary donations; and **(d)** income from assets.

Another question that may disquiet the reader is why use a CGM and not the traditional cash flow that is widely known by most managers. The answer to this question is given in the following three stages.

First. A CSO's cash flow management is done through projects, and one project is independent from another. For this reason, the leftover funds from a solvent project cannot rescue the insufficiency of funds for an insolvent project. This manner of cash flow management differs from an Organization of the primary and secondary sectors.

Second. A CGM results from basic matrix algebra of addition of matrices of cash inflows and outflows, whose elements represent each project, by unit of time. Cash inflows are distributed in a matrix named C^+ and cash outflows in another matrix named C^-. So, CGM = $(C^+ - C^-)$ is the cash balance of each project in each unit of time.

Third. The focus is objectivity and simplicity in the visualization of the cash balance represented by an element of the matrix that identifies each project in its respective unit of time. This balance indicates whether the projects are solvent or not for each time unit. If solvent, the project is sustainable; if not, the project is non-sustainable, a situation in which governance and the managers must negotiate time and resources to honor their commitments.

But, before moving on, it is important to clarify the use of matrix notation. The properties of a matrix are varied, and we do not intend to explore them here. The use of matrix notation is solely for the reading of each element of the matrix that represents cash balance individualized by project per unit of time, in a dynamic manner.

So, for the algebra of the CGM to indicate the dynamics of a project's cash flow in a period of time, it is necessary that indexes are attributed, which form the *elements* of each matrix to indicate the project and the unit of time to which each one of them makes reference. Thus, the letters ***i*** and ***j*** are attributed, in subscript, to each of the elements of the matrices to denote this dynamic, such as $\boldsymbol{C^{+}_{(i,j)}}$, $\boldsymbol{C^{-}_{(i,j)}}$, and $\boldsymbol{CGM_{(i,j)}}$. From now on, ***i*** represents each project, and ***j*** represents each unit of time (day, month, year, etc.). The matrix model and representation are thus defined.

Model

$$CGM_{(i,j)} = [C^{+}_{(i,j)} - C^{-}_{(i,j)}]; \quad i = 1,2,\dots,n; \quad j = 1,2,\dots,n; \quad i = j \; ou \; i \neq j$$

Matrix notation

$$CGM_{(i,j)} = \begin{bmatrix} CGM_{1,1} & CGM_{1,2} & CGM_{1,3} \\ CGM_{2,1} & CGM_{2,2} & CGM_{2,3} \\ CGM_{3,1} & CGM_{3,2} & CGM_{3,3} \end{bmatrix}; \; \boldsymbol{C^{+}_{(i,j)}} = \begin{bmatrix} C^{+}_{1,1} & C^{+}_{1,2} & C^{+}_{1,3} \\ C^{+}_{2,1} & C^{+}_{2,2} & C^{+}_{2,3} \\ C^{+}_{3,1} & C^{+}_{3,2} & C^{+}_{3,3} \end{bmatrix}; \boldsymbol{C^{-}_{(i,j)}} = \begin{bmatrix} C^{-}_{1,1} & C^{-}_{1,2} & C^{-}_{1,3} \\ C^{-}_{2,1} & C^{-}_{2,2} & C^{-}_{2,3} \\ C^{-}_{3,1} & C^{-}_{3,2} & C^{-}_{3,3} \end{bmatrix}$$

The difference between the elements of the matrices of cash inflow and outflow forms the elements of the $CGM_{(i,j)}$. In this arrangement, ***i=1*** identifies project 1; ***i=2*** identifies project 2; and ***i=3*** identifies project 3. In the same manner, ***j=1*** identifies month 1; ***j=2*** identifies month 2; and ***j=3*** identifies month 3. In this notation, all matrices are composed of three lines and three columns, and thus, in this format, they are named 3x3 square matrices.

Given that what represents the matrix notation is known, consider the academic observations laid out in Table 6, in which a given CSO operates with three projects (i) and planned its cash flow based on a financial budget for three months (j) starting in January. Each project corresponds to a source of cash flow, and each month is a unit of time. Thus, in total, ***i*** = 3 and ***j*** = 3.

Table 6: Academic observations of cash inflows and outflows from January to March.

Source 1 linked to project 1	Inflows	Jan R$ 220	Feb R$ 210	Mar R$ 150
	Outflows	Jan R$ 205	Feb R$ 215	Mar R$ 140
Source 2 linked to project 2	Inflows	Jan R$ 600	Feb R$ 510	Mar R$ 750
	Outflows	Jan R$ 500	Feb R$ 600	Mar R$ 760
Source 2 linked to project 3	Inflows	Jan R$ 130	Feb R$ 130	Mar R$ 150
	Outflows	Jan R$ 120	Feb R$ 130	Mar R$ 165

Informational content of the elements of the CGM. Each element of the following $CGM_{(i,j)}$ represents the cash balance of each project ***i*** at each time unit ***j***, which corresponds only to the difference between the inflows and outflows in each period. No unit of time ***j*** carries over balance from the previous time unit. The first line corresponds to project 1, the second to project 2, and the third to project 3. In the same logic,

the first column corresponds to the month of January, the second one to the month of February, and the third one to the month of March.

$$CGM_{(3,3)} = \begin{bmatrix} 15 & -5 & 10 \\ 100 & -90 & -10 \\ 10 & 0 & -15 \end{bmatrix}$$

In j=1 (column 1), all projects present cash inflows larger than their outflows, showing solvency for that month.

In j=2 (second column), projects 1 and 2 (first and second lines) show negative balance for the month's movements. As there is no incorporation of any previous balance, this shows that the cash inflows for that month are inferior to the respective outflows. Project 3 (third line) is in better condition of solvency, with a balance equal to zero, meaning cash inflows were equal to the respective outflows for the month. This situation does not break the accounting rule stating that the cash balance cannot be lower than zero.

In j=3 (third column), projects 2 and 3 show cash inflows inferior to the respective outflows; project 1 shows the opposite.

Now, considering that j=3 is the last unit of time for each project, the three columns of each project are added to obtain the accumulated balance. In this context, projects 1 and 2 are sustainable because the balance for project 1 is R$ 20 and the one for project 2 is zero. Project 3 is non-sustainable, because its balance is lower than zero (R$ -5), thus it cannot be executed.

Informational content of the elements of matrix C^+. The informational content of each element of the matrix $C^+_{(i,j)}$ is the total of cash inflows of each project identified with ***i***, in each month identified by ***j***. Thus, when ***i*** = ***j***=***1***, the element is identified by $C^+_{(1,1)}$ that corresponds to the total of project 1's cash inflows in the month of January. $C^+_{(1,2)}$ identifies the total of the cash inflows in the month of February, and so on, as shown in the elements of the square matrix $C^+_{(3,3)}$.

$$C^+_{(3,3)} = \begin{bmatrix} 220 & 210 & 150 \\ 600 & 510 & 750 \\ 130 & 130 & 150 \end{bmatrix}$$

The informational content of the first line corresponds to project 1's inflows, the one on the second line shows the inflows for project 2, and those on the third line are for project 3. On the other hand, the informational content on the first column refers to the month of January, the second column to the month of February, and the third column to the month of March. Thus, $C^+_{(3,3)}$ informs the total inflows for project 3 in the month of March. The sum of all elements of a line indicates the total of the cash inflows for the respective project.

Informational content of the elements of matrix C^-. Similarly to the approach of the previous matrix ($C^+_{(3,3)}$), the informational content of matrix $C^-_{(3,3)}$ shows the total of each project's cash outflows, and the sum of each line informs the total cash outflow for each project. In this manner, for ***i*** = ***j***=***2***, the informational

content of the element $C^{-}_{(2,2)}$ represents the cash outflow for project 2 in the month of February. If $C^{-}_{2,3}$, the content represents project 2's cash outflows for the month of March and so forth.

$$C^{-}_{(3,3)} = \begin{bmatrix} 205 & 215 & 140 \\ 500 & 600 & 760 \\ 120 & 130 & 165 \end{bmatrix}$$

In sum, the use of matrices to demonstrate the evolution of a CSO's cash flow does not intend to explore other properties other than exhibiting, in a dynamic manner, the cash inflows, outflows, and balance for each month, maintaining the independence of each project.

3.4 The capillarity of voluntary work in sustainable development.

Volunteer work is a relevant source of resources to foster a CSO's activities. Even if voluntary work does not involve money, it is a force that saves financial resources that fund primary and ancillary activities and contributes to sustainability. One of these work forces is identified in Governance, a structure that gathers capacities and abilities of people that dedicate themselves in a dative manner, allocating their time and knowledge to promote the welfare of others.

In ancillary and principal activities, one identifies the voluntary work that acts in the realization of a CSO's business purpose, leveraging the production of welfare, such as promoting healthcare services for the elderly and children, as well as in the social assistance given to vulnerable people, and in the conduction of administrative processes.

The CSO that receives voluntary work must measure it and allocate it in the cost structure of the corresponding primary or ancillary activity, according to market value. Professional categories do not always divulge the hourly price for labor. For the adequate measuring of this labor, the CSO must consult the volunteer workers as to what the price of their labor would be if they were paid, and, from this price, conduct the allocation in the cost structure.

The adequate pricing of voluntary work contributes to the process of accountability and transparency in the quantitative and qualitative disclosure of information, especially when referring to the offer of non-state public services by the CSO. Accountability and transparency are relevant attributes in the accreditation of a CSO, and they contribute significantly to sustainability.

So, how does one measure and allocate voluntary work into a CSO's cost structure? This question can be answered in more than one way. In this study, we suggest the following:

- The CSO must sign a document with the volunteer worker, detailing the nature of the service provided, the amount of service, and the waiving of payment.
- The CSO must obtain the unit price for the labor with the worker or in the active market for this service.
- The CSO must draft a spreadsheet that prices the labor as if payment were owed, and allocate it to the cost center where the volunteer worker works.
- The CSO must recognize, in its accounting, the value of the priced work and disclose it in its financial statements.

Brazilian regulation establishes that the state does not possess the right to any social security taxes, or any other taxes on voluntary work. This regulation is an assurance that voluntary work will not produce

liability or financial cost to the CSO. In this context, it must be clear that voluntary work must be used in the benefit of society through the offering of nSPS. Thus, to contribute in a didactic manner to the process of the allocation of the costs of voluntary work in a CSO, we use the data from academic example 4, as follows.

Academic Example 4. The context refers to two volunteer workers. A volunteer in the area of healthcare who is available to work 20 hours a month for a CSO, assisting children. The other is available to work 15 hours a month for the same CSO, in administrative accounting services. The hourly price the market would pay for any of these positions is R$ 500.00. Therefore, the total cost to be allocated to the corresponding field, healthcare, is R$ 10,000.00, and, to the administrative division, it is R$ 7,500.00.

These two values must be recognized by the CSO, through the process of accounting records, and divulged to society in financial statements. The disclosure must contemplate the quantity of volunteer workers and their respective inexpensive costs, as well as the contribution of these services to the offer of nSPS.

4. CONCLUSIONS

The research presented the process for the sustainability assessment of the of non-profit Civil Society Organizations (CSO), SACSO, making up the tertiary sector, through a theoretical model exploring quanti-qualitative approaches.

The quantitative approach of the theoretical model is made up of performance assessment indicators, cash flow generation matrix, efficiency and efficacy metrics so that, as a whole, the fulfillment of each project's object can be assessed. The qualitative approach explores the informational content of the satisfaction and social integration indicators as complementary to the fulfillment of the object.

The model was tested using academic data, and the answers obtained make robust and significant contributions to the literature of the assessment of the sustainability of Civil Society Organizations, because they allow the regulator, based on the model's metrics, to decide reliably and safely.

The results also show the relevance of the governance structure, the contribution of voluntary work, and the supply of non-state public service, as a counterpart to the benefits received by direct and indirect transfers, by a CSO, to society.

Lastly, the use of data divulged in the CSO's standardized financial statements, due to them being consolidated, can limit the model's potential. Because of this possible restriction, we urge empirical assessments to use management data, due to their analytical character, and this characteristic means they can ensure quality and reliability to the decisions of regulators and the contributions of researchers.

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