

Information Asymmetry Mitigators

Subjects: Social Issues

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The research aims to identify indicators of representative information on sustainability from the cooperative organizations' primary stakeholders' perspective to mitigate information asymmetry. The study develops in seven stages: the primary stakeholders' selection and training; the evidence survey; the triangulation between stakeholder responses, forming an indicators list; the indicators analysis by specialists; tests for indicators disclosure; and the indicators validation through the disclosure analysis. As a result, a list contains 61 sustainability indicators from the primary stakeholders' perspective, in four pillars: economic, 20; social, 18; environmental, 13; and cultural, 10. With the cooperative organizations' websites disclosure analysis, we found that the disclosure policies focus more on information asymmetry mitigating in the pillars: cultural and social, with the environmental and economic being neglected. Therefore, the procedures for disclosing information on sustainability have weaknesses. These policies reduce the primary stakeholders' reliability about the cooperatives management system respective, limiting the primary stakeholders' perspective on the cooperative organization value.

Keywords: disclosure indicators ; sustainability information ; stakeholders ; non-profit organizations

1. Introduction

The problem established by information asymmetry, which refers to the adverse selection and moral risk emergence possibility ^{[1][2]}, can also support the relationship between cooperative organizations managers and stakeholders. The adverse selection could happen whenever the members delivers their product or service to another purchasing organization due to the information lack that would refer to the cooperative organization sustainability differentials which they linked. The asymmetric information problem would result in losses of supply and cooperative organization sustainability. On the other hand, moral hazard is related to the possibility that the managers' decisions does not meet the stakeholders' interests. Thus, information asymmetry refers to the efficiency loss possibility, leading to difficulties in cooperative sustainability.

As a mitigating information asymmetry mechanism, the literature recommends organizations provide discretionary but material information that enables stakeholders to know them ^{[1][2][3][4][5][6]}. The representative and material information of their sustainability would lead to their legitimization and economic/financial valorization ^{[7][8][9][10]}.

Furthermore, communication tools have significantly advanced with the information technology and the Internet advent, facilitating new communication channels and making them cheaper ^{[9][11]}. Hence, the difficulties related to the publishing information are cost-mitigated, enabling greater transparency about the managers' decisions ^[12]. However, in studying the information disclosure, there are challenges such as the universe of possibilities for expressing a reality or even the fact that disclosure is an abstract concept. Face this reality: the disclosure literature recommends the use of indicators, representing information about a given reality ^{[13][14][15][16][17]}.

The literature review on organizations' sustainability information representative indicators has been enriched in recent years. However, this enrichment focuses on the manager's choice perspective. In other words, the literature that disclosure level analyzes using information indicators constructed from the analysis of what was published is significant. Research that presents the stakeholders' perspective is much more restricted ^[11].

The research problem refers to the need to create indicators that allow contributions as a guide for managers to meet the stakeholders' demand on cooperatives' sustainability representative information ^{[11][13]}. Therefore, this study aims to identify indicators of representative information on sustainability from the cooperative organizations' primary stakeholders' perspective to mitigate information asymmetry. The absence of a patronized perspective on demand for information from stakeholders, who may present different interests about their economic, environmental, social, and cultural performance, points to the study's relevance.

Brazilian Cooperative Organizations [18] were chosen because they have essential participation in the Brazilian economy in the most diverse activity branches. The research development started with the primary stakeholders' selection and sustainability theme qualification. As primary stakeholders, there are members, who assume the role of cooperative owners, and collaborators, who work and depend economically and financially on cooperative organizations. Subsequently, we send a research form requesting them indicating information, referring to each sustainability pillar, which they considered significant for cooperative organizations' websites disclosing. We obtained 110 responses from 58 cooperative members and 52 collaborators, which, after more than five research stages, resulted in 61 indicators—economic, 20; social, 18; environmental, 13; and cultural, 10—which were information asymmetry mitigators on cooperative organizations sustainability. We established a simple random sample [19] composed of 91 cooperatives, of which we analyzed the respective websites.

This analysis found that disclosure policies focus on mitigating information asymmetry on the pillars: cultural and social, environmental, and economic aspects being neglected. Therefore, disclosing information policy on the cooperative organization's sustainability presents weaknesses. These results allow inferring the communicational relationship fragility between managers and primary stakeholders. In other words, the adverse selection and moral hazard problems find room to manifest themselves, consequently establishing less appreciation of the respective cooperative organization management by the primary stakeholders.

By disclosing sustainability information, cooperatives increase transparency, increasing reliability, reputation, and legitimacy and enabling strengthening the relationship between cooperatives' management and members [20]. They can also allow benchmarking concerning competitors, signal competitiveness, motivate employees, and support information by encouraging its cooperative culture [21][22]. In addition, sustainability information reporting is an essential contributing factor for organizational sustainability [23].

It is necessary to consider weakness in the managers' communication with stakeholders related to other problems, such as a lack of training or the guide inexistence for a better disclosure policy that can meet the demand for information. In this regard, this article contributes to the cooperative organizations themselves by presenting a sustainability-representative information indicators list for information asymmetry mitigation between them and their primary stakeholders, which can be used to establish strategic disclosure policies. It also contributes to regulatory and supervisory bodies that would be able to use the indicators list, setting disclosure standards for cooperative organizations, knowing these indicators are of primary stakeholders' interest and considered for the cooperative organizations' legitimization with the communities.

2. Research Results

The research results presentation and discussion divide into the indicators survey stages and the indicators disclosure analysis on the cooperative organizations' websites.

2.1. Survey of Sustainability Indicators

After selecting, the primary stakeholders—members and collaborators—were trained on organizations sustainability, configuring the first research stage, the evidence collected, was the second research stage. The form was submitted to primary stakeholders and answered by 110, comprising 58 members and 52 employees from different Brazilian cooperatives.

In the third research stage, the indicators considered essential by the stakeholders were transcribed, creating two lists: one based on the cooperative members and the other based on the cooperative collaborators' responses. The content analysis eliminated the same or similar indicators from the same group members' responses. This stage resulted in 151 and 162 sustainability indicators considered essential by the cooperative members and collaborators.

For the fourth stage, content analysis was carried out by triangulating the indicators obtained in the two initial lists, transforming them into just one. For this, common or similar indicators were eliminated. This step reduced the list to 258 cooperative sustainability indicators. In the fifth stage, two disclosure specialists analyzed the indicators list. In the first round, these experts analyzed whether the indicators were sustainability representative and adhered to the principles of exact definition, manageable interpretation, applicability, measurability, comparability, relevance, clarity, representation of reality, and reflection of the abstract concept being analyzed [13][14][15][16][17]. They were also consulted on whether the indicators contributed to the cooperative's reality knowledge and whether they served as tools for measuring and monitoring this reality [8][24][25]. These analyses reduced the list to 92 indicators.

In the second analysis round, the experts acted together, exploring each indicator, seeking consensus, and meeting the proposed requirements [8][13][14][15][16][17][24][25]. In this way, the indicators became more comprehensive due to the interpretation that they would adequately express reality and facilitate measurement and monitoring. This stage resulted in a 61 indicators list. The disclosure test was carried out on 16 cooperative organizations' websites, not sample components. This stage demonstrated that the list met the stakeholders' expectations, covered all sustainability pillars, and represented the cooperative's reality, giving indicators list reliability. The indicators constructed are in **Table 1, Table 2, Table 3, Table 4.**

Table 1. Economic indicators disclosure.

Pillar	Indicator from the Primary Stakeholders' Perspective	Cooperative Disclosure	% Disclosed
Economic	Financial Statements: Balance sheet and income statement	61	67.03%
	Investments	58	63.74%
	Audit report	56	61.54%
	Loans and financing	53	58.24%
	Cash flow	52	57.14%
	Economic and financial performance indicators	52	57.14%
	Member benefits/Participation in surplus	51	56.04%
	Management report	51	56.04%
	Supervisory board report	41	45.05%
	Collaborator benefits/participation in surplus	32	35.16%
	Strategic planning	30	32.97%
	Fines and litigation	19	20.88%
	Payroll	17	18.68%
	Compliant/Defaulting members	16	17.58%
	Management remuneration	15	16.48%
	Directors' remuneration	14	15.38%
	Member's turnover	12	13.19%
	Collaborator's turnover	10	10.99%
Budget (realized x budgeted)	7	7.69%	
Job and salary plan	2	2.20%	

Table 2. Social indicators disclosure.

Pillar	Indicator from the Primary Stakeholders' Perspective	Cooperative Disclosure	% Disclosed
Social	Actions and social campaigns of the cooperative	70	76.92%
	Members' number	70	76.92%
	Social projects	68	74.73%
	Continuing education program	63	69.23%
	Cooperative principles	60	65.93%
	Collaborators' number	59	64.84%
	Cooperative governance structure	51	56.04%
	Integration programs (field day; women; etc.)	48	52.75%
	Social programs (Union makes life, table Brazil; etc.)	46	50.55%
	Ethics and conduct code	46	50.55%
	Bylaws	44	48.35%
	Technical assistance	40	43.96%
	Social report	40	43.96%
	Continuing education for members	35	38.46%
	Social performance indexes	28	30.77%
	FATES social resources	27	29.67%
Members benefit plan	26	28.57%	
Collaborators benefit plan	15	16.48%	

Table 3. Environmental indicators disclosure.

Pillar	Indicator from the Primary Stakeholders' Perspective	Cooperative Disclosure	% Disclosed
Environmental	Environmental education and awareness campaigns	57	62.64%
	Environmental sustainability policies	49	53.85%
	Incentivize conscious consumption campaign	38	41.76%
	Technology for sustainability	37	40.66%
	Natural resources consumption	36	39.56%
	Environmental preservation project	35	38.46%
	Sustainability report	31	34.07%
	Recycling and waste treatment program	29	31.87%
	Pollutants reduction	23	25.27%
	Environmental permits	18	19.78%
	Environmental legislation	14	15.38%
	Environmental investments return	9	9.89%
	Environmental fines and litigation	2	2.20%

Table 4. Cultural indicators disclosure.

Pillar	Indicator from the Primary Stakeholders' Perspective	Cooperative Disclosure	% Disclosed
Cultural	Cooperative history	87	95.60%
	Cooperative mission, vision, principles, and values	82	90.11%
	Cultural actions developed by the cooperative	61	67.03%
	Sponsorship of actions /activities in local and regional culture	55	60.44%
	Encouraging local and regional culture	51	56.04%
	Awards and certifications	50	54.95%
	Events to strengthen cooperative identity	43	47.25%
	Cooperative education program	32	35.16%
	Library (physical or virtual) on cooperatives'	3	3.30%
	Policies for hiring children (relatives) of members	2	2.20%

2.2. Disclosure of Sustainability Indicators

The analysis of the sustainability disclosure was carried out on the 91 cooperative organizations' websites constituting the sample. **Table 1**, **Table 2**, **Table 3**, **Table 4** show the sustainability pillar and the cooperative organizations' number that disclosed each indicator. **Table 1** shows the economic indicators.

Among the stakeholders' interest indicators, many are in line with the revised literature. However, indicators such as compliant/defaulting members, cash flow, payroll, fines, and litigation, budget, job, and salary plan, supervisory board report, management, and directors' remuneration and member's turnover are stakeholders' specific interests and not previously identified [26][27][28][29][30][31][32][33][34].

When analyzing the cooperatives' disclosure about the economic pillar, it is observed that, coincidentally, the indicators not identified in the literature review are the least disclosed in the clear majority. The highlight is the "job and salary plan", disclosed by only two cooperatives. It is noteworthy that the economic and financial information disclosure has been considered relevant since the 1970s [35][36] and is included in the information disclosure analysis by organizations [34] (to cite an example). In addition, meeting the stakeholder's interests contributes to the cooperative organization's legitimacy [10][11][24][27].

The primary stakeholders consulted for this survey indicated the economic information they want to be informed about. Therefore, the asymmetry of economic information [4][2] arising from a weak disclosure policy points to the possibility of weakening trust in managers' decisions regarding the sustainability of the respective cooperative organization.

It can also raise doubts about the existence of conflicts of interest [4] between managers and primary stakeholders. This means that, in the absence of information, the cooperative member may think that the remuneration of directors is excessive or, even, that the turnover of members is very high, which, for example, would lead them to question the legitimacy [10][11] of their management **Table 2**.

Some social indicators are specific to cooperatives, such as actions and social campaigns of the cooperative; technical assistance provided to members; continuing education for members; members benefit plan, cooperative principles, and FATES social resources [37][38][39][40][41].

Although not previously identified [26][27][28][29][42][30][31][32][34], these indicators were more widely disclosed by cooperative organizations, which is what demonstrates the interest in disseminating their social commitment, one of its founding cooperative organizations' principles [37][38][39]. This disclosure meets the primary stakeholders' interests, reducing information asymmetry and facilitating its legitimization process [2][10][11].

Disseminating information representative of the cooperative's social responsibility refers to the possibility of showing its link with the environment in which it operates [11][23][24]. On the other hand, the asymmetry regarding this category of information may signal a detachment of the cooperative organization from the society in which it is inserted [2][10][11].

Table 3 shows the environmental indicators of interest of the cooperative organizations' primary stakeholders.

Most environmental indicators of primary stakeholders' interest are consistent with the reviewed literature [13][43][44][45][46][47][48]. However, the environmental fines and litigation indicator found in other surveys also considered the stakeholder's interests [11][24].

The indicator disclosure observes that the one found only in the literature that considers the stakeholders' interests is the least disclosed by the cooperative organizations surveyed. The second least disclosed indicator is environmental investment return, an essential indicator for stakeholders for assessing the cooperative organizations' environmental performance. It also notes that the indicators on legislation and environmental permits are poorly disclosed. Stakeholders show an interest in understanding the environmental issues cooperatives that are related more profoundly, which has not been addressed. This can lead to problems for the cooperatives legitimization since the disclosure lack can generate adverse interpretations [11][26][32][49], mainly for the cooperatives from the agribusiness sector that work with agricultural inputs that can be harmful to the environment [26][50].

Interest in environmental information is evidenced by the indicators proposed by the surveyed stakeholders. On the other hand, a policy on the disclosure of these indicators on the websites does not seem to be a concern for the managers of the cooperatives. This leads to the inference that the analyzed cooperatives would find their legitimacy vis-à-vis stakeholders weakened in terms of environmental information [11][24][49].

Table 4 shows the cultural indicators of interest of the cooperative organizations' primary stakeholders.

When analyzing the cultural pillar disclosure, it is possible to see differentiated and specific indicators for the cooperatives. Many consider other organization types within the social pillar [9][11][51][28][29][31][25]. Still, others are considered essential in the revised literature on the organizations' culture [22][52][53]. However, none of them have been specifically assessed within the cooperative organizations' sustainability cultural pillar.

It is noteworthy that despite this pillar being the most disclosed, on average, by cooperative organizations, some indicators are practically ignored, such as the policies for hiring children (relatives) of members and a library on cooperatives. The latter indicator is crucial, as it demonstrates the primary stakeholders' interest in getting to know the cooperative system from the cooperatives themselves. Significantly, cooperative education is fundamental for the dissemination of its basic principles and values, ensuring system continuity in future generations [22][35][52][54][55][56].

The culture of the cooperative organization establishes its own identity. Therefore, the decision of managers to invest in the maintenance of the cooperative culture becomes a necessary condition for its continuity [22][55][56]. Information asymmetry on these indicators refers to the possibility of the member's contract breaking with the cooperative. In other words, the lack of elements of social identification with the cooperative may lead the member to find no sense in maintaining the relationship with it.

Complementarily, also to validate the identified indicators, the results of Cronbach's Alpha and Kaiser's sample adequacy measure are presented in **Table 5**.

Table 5. Cronbach's Alpha and Kaiser's MSA.

Pillar	Cronbach's Alpha	Kaiser's MSA
Economic	0.902	0.810
Social	0.856	0.772
Environmental	0.859	0.783
Cultural	0.776	0.715
General Sustainability	0.938	0.745

Cronbach's Alpha is a measure of the internal consistency of indicators and a sample reliability estimator [57][58][59]. The measure of adequacy of the Kaiser sample, on the other hand, assesses whether the indicators that make up each sustainability pillar are adequate in that grouping [60][61]. For Cronbach's Alpha, the minimum acceptable level is 0.7, while for Kaiser's MSA, the minimum acceptable level is 0.6 [59][62]. Furthermore, the two measures result in indicating the same direction, as they must be directly related [58][60]. Therefore, considering the results presented, both measures confirm the validity and reliability of the indicators grouped in the economic, social, environmental and cultural pillars and for sustainability.

In summary, it was observed that in the economic pillar, the financial statements were disclosed by 61, representing 67.03% of the cooperative organizations. In the social pillar, the cooperative's social actions and campaigns and the members' number were disclosed by 70, representing 76.92% of the cooperative organizations. The most disclosed indicator was environmental education and awareness campaigns in the environmental pillar, for 57, representing 62.64% of cooperative organizations. The cooperative history indicator was the most disclosed among all the analyzed indicators in the cultural pillar, for 87, representing 95.60% of the cooperative organizations. Therefore, these were the most widely attended in the primary stakeholders' interests, presenting the lowest information asymmetry.

On the contrary, the economic pillar's job and salary plan indicators, environmental fines and litigation from the environmental pillar, and policies for hiring associates from the cultural pillar disclose by only two cooperatives. Only 2.20% of cooperative organizations show this information of interest to their primary stakeholders on their websites. Such a low percentage is so that disclosure can be considered a strategy to legitimize cooperatives with their primary stakeholders [5][24][63][27][32]. Cooperative organizations must consider that these two stakeholders—members and collaborators—are the most directly related to them, being able to affect them and be affected by them in a significant way by the roles they assume, as owners and workers.

The indicators representing information on sustainability constructed in this research show which information is valued and desired by primary stakeholders and, therefore, material for mitigating information asymmetry [4][7][64]. In addition, they show a significant gap between the expectations of the primary stakeholders and the disclosure policy established by the managers of the analyzed cooperatives. Thus, if cooperative organizations' information asymmetry weakens their managers' legitimacy, it is understood that new disclosure policies must be implemented. Disclosure policies are established based on stakeholders' expectations, not just the information recommended by external control bodies.

3. Final Considerations

The present study objective was to identify indicators of representative information on sustainability from the cooperative organizations' primary stakeholders' perspective to mitigate information asymmetry. The disclosure analysis of the 61 indicators constructed should note that the disclosure policies are more focused on mitigating the information asymmetry on the pillars: cultural and social, with the environmental and economic being neglected.

The research also shows a gap between the disclosure policy established by cooperatives and the demand for information representative of sustainability demanded and with materiality for the primary stakeholders. This is to say that managers of cooperative organizations that aim to legitimize themselves need to better know the information demands of their stakeholders.

When a member fails to deliver its product or use the cooperative's services, establishing a contract with another organization may reflect the knowledge lack about that cooperative organization in which it would be linked. If the members do not have enough information and deliver their products or use the cooperative organizations' services, they may be making an adverse selection to the cooperative organization's interests. The information asymmetry does not enable the cooperative member to identify the value in terms of the cooperative organization's sustainability and, therefore, does not legitimize it in the environment in which it operates.

Additionally, information asymmetry can affect the cooperative member's confidence in the managers of the respective cooperative organizations, as they do not have enough information to identify that the managers are acting according to their interests. If the primary stakeholders do not have enough information about the cooperative organization's performance, managers can exploit this information asymmetry to benefit, which gives rise to the moral risk problem. In this sense, by being more transparent, cooperative organizations reduce information asymmetry and, consequently, the possibility of adverse selection and moral risk, increasing the confidence of both members and collaborators, primary stakeholders, and legitimizing cooperative organizations. It is worth recalling that this research made it possible to infer that economic indicators are neglected.

The policy of disclosing information on cooperative organizations' sustainability presents weaknesses, which enables one to understand the need for managers qualification who aim to legitimize themselves with primary stakeholders and improve the reputation of these organizations. However, it is essential to emphasize that the research carried out has limitations in sample terms. The evidence obtained does not represent all cooperative's reality or all stakeholders' expectations about disclosure, which incites future research.

However, it is noteworthy that the research contributes to the cooperative organizations themselves by presenting them with a representative sustainability information indicators list to mitigate information asymmetry with their primary

stakeholders, establishing strategic disclosure policies. It also contributes to regulatory and supervisory bodies that would use the indicators list to establish disclosure standards and monitor sustainability. These indicators are of primary stakeholders' interest and are considered for the cooperative organizations' legitimization in the communities they operate.

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