

Influence of the alignment of operators' preferences on the use of managerial information^{*,**}

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ABSTRACT

This article aimed to evaluate the influence of the alignment of operators' preferences for aggregating or disaggregating on the use of managerial information. Although studies indicate that accounting information has the potential to support the decision-making process, they also point to its limited use. However, those studies have basically investigated aspects such as information received versus demanded, timeliness, and legal and corporate aspects. There remains the question of whether divergences in preferences regarding the way information is presented, between those who elaborate and those who use it, could also be an explanatory factor. Thus, this study sought to investigate, under the lens of Mental Accounting Theory (MAT), whether there are differences in operators' preferences that help to explain the low use of accounting information to support the decision-making process. The relevance of this article lies in better understanding the reasons for the low use of accounting information to support the decision-making process, despite its contributive potential, seeking organizational continuity and prosperity. As an impact on the area, this article helps preparers to understand and contemplate users' demands and preferences, resulting in greater use of information. The aim is for informed decisions to be taken without the influence of opportunisms, randomness, or the bias of whoever prepares the information. A quasi-experiment was operationalized with 1,074 students, 550 of accounting courses (preparers) and 524 of management courses (users) at four (public and private) universities in the south of Brazil. The study involves empirical, quantitative, descriptive, and applied research. For the data analysis, descriptive statistics, logistic regressions, and homogeneity analysis by means of alternating least squares (HOMALS) were used. In most of the scenarios, the operators (preparers and users) presented a preference for disaggregating the information, independently of whether they follow the assumptions of MAT or not. It was observed that the search for informational volume for more assertive decision making predominates over the psychological gains and the value function perceived by the individual. Those who prefer disaggregated information are willing to align/use accounting information for management.

Keywords: alignment of preferences, accounting information, preparers and users, mental accounting theory.

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1. INTRODUCTION

The perception of the contributive potential of management accounting information for supporting the decision-making process is consolidated in the literature from the area (Fernandes et al., 2011; Moreira et al., 2013). Nonetheless, the studies indicate that its use by managers is limited (Amoako, 2013; Armitage et al., 2016; Maseko & Manyani, 2011; Santos et al., 2009, 2016; Stroehler & Freitas, 2008). Among the reasons for the low use, there is the fact that the focus of the studies has been limited to specific viewpoints, such as received versus demanded information, timeliness, and tax, legal, and corporate aspects.

Another reason may be the misalignment of preferences of operators (preparers and managers) and even of the recommended technique (Amoako, 2013; Armitage et al., 2016; Maseko & Manyani, 2011; Santos et al., 2016). So, to obtain greater synergy of the parties involved in terms of efforts and opportunities, it is necessary to improve the process (Santos et al., 2009). For this, those who prepare the information should improve the forms of preparation, presentation, and communication to identify and incorporate the preferences and demands of users (Amoako, 2013; Maseko & Manyani, 2011). This implies understanding that the familiarity and awareness of managers regarding the utility of information will not always be in tune with what is idealized by those who prepare it (Santos et al., 2016). The challenge lies in identifying them, understanding them, and aligning them.

In light of that dilemma of high contributive potential but low use, and of the insufficiency of the traditional explanations, this study raises the hypothesis that investigating this phenomenon under the lens of Mental Accounting Theory (MAT), more specifically regarding operators' preferences for aggregating or disaggregating information, can contribute to understanding it.

Decisions are influenced by the information available, cognitive characteristics, and experiences lived (Faraci et al., 2013; Luft et al., 2016). Thus, important information for some is ignored by others, causing different decisions and results (Faraci, et al., 2013; Penolazzi et al., 2013).

MAT investigates such situations via a set of cognitive operations used to organize, evaluate, and monitor decisions (Kahneman & Tversky, 1984; Thaler, 1980, 1999, 2008). Among the elements of the theory are the preferences for aggregation (synthesized presentation) and disaggregation (analytical presentation) of information, which are divided into four perspectives: (i) disaggregating multiple gains; (ii) aggregating multiple losses;

(iii) aggregating mixed gains (bigger gains with smaller losses); and (iv) disaggregating mixed losses (bigger losses with smaller gains).

There are various studies about users' preferences (Bonner et al., 2014; Jackson et al., 2010; Suave, 2017), as well as about the influence of individuals' characteristics on decisions (Brooks et al., 2018; Geetha & Selvakumar, 2016). However, the focus of these studies has not been to identify possible reasons for the low use of accounting information for management with a simultaneous examination of preferences for aggregating or disaggregating (PADs) information, from the perspective of both those who prepare it and those who use or should use it (Fennema & Koonce, 2010; Sprinkle, 2003). Therefore, this constitutes a research gap, as well as a contribution to the literature on the topic.

Thus, the question that guides this research is: what is the influence of the alignment of operators' PADs on the use of managerial information? To answer this question, the objective set was to evaluate the influence of the alignment of operators' preferences for aggregating or disaggregating on the use of managerial information.

The justification lies in the insufficiency or incompleteness of the reasons indicated by the studies, which conduct a traditional examination regarding the low use of managerial information for supporting decision making, despite the literature indicating its contributive potential for efficient management (Amoako, 2013; Armitage et al., 2016; Maseko & Manyani, 2011; Mendes et al., 2019; Menegazzo et al., 2017; Santos et al., 2009, 2016; Stroehler & Freitas, 2008). It is also warranted by the search to understand the influence of the perceptual dimension of the decision-making process, implying potential help for smaller organizations, seeking their continuity and growth (Fernandes et al., 2011; Moreira et al., 2013).

However, merely producing information is not enough; it should be aligned with the preferences and demands of users (Santos et al., 2016). The contribution to the literature is characterized by the search to understand operators' preferences and their alignment, aiming to increase the use for supporting decisions. The simultaneous, parallel, and complementary examination of operators' preferences for aggregating or disaggregating management accounting information, and the impact on the desire for use (Fennema & Koonce, 2010; Siegel & Ramanauskas-Marconi, 1989; Sprinkle, 2003), also constitutes a novelty of the research and, consequently, an original contribution

to the studies in the area (Amoako, 2013; Armitage et al., 2016; Maseko & Manyani, 2011; Menegazzo et al., 2017; Santos et al., 2016).

Regarding the practical aspects, the study provides support to preparers to align their preferences with those of users, inhibiting decisions influenced by random or opportunistic information. Standing out among the main results is the finding that the understanding and

alignment of operators' preferences can lead to better use of management accounting information and, thus, contribute to minimizing the comprehension problems and low use of the information indicated by previous studies (Santos et al., 2009, 2016; Stroehrer & Freitas, 2008). In addition, it is shown that, in management scenarios, the principles of MAT take second place to maximizing informational power for more assertive decision making.

2. THEORETICAL FRAMEWORK

2.1 MAT

The mental accounting process is a mechanism of mental organization of accounts and transactions proposed by Richard Thaler in the mid-1980s. These may contain psychological irregularities and so the perception of value of gains and losses has an impact on the options chosen to maximize perceived utility (Kahneman & Tversky, 1984). This mental accounting process can be framed in three stages (Thaler, 1980, 1999, 2008; Tversky & Kahneman, 1981).

The first (minimal account) examines the differences between the choice possibilities and their cost/benefit (Tversky & Kahneman, 1981). However, there is malleability under certain ambiguity conditions; that is, individuals may deliberately employ only certain costs and benefits in the analyzed account and ignore the rest, as well as classifying them in other mental accounts (Cheema & Soman, 2006). The so-called topical account (second stage) mentally frames costs and benefits attractively (higher perceived utility), by means of hedonic editing (Thaler, 1999). For Tversky and Kahneman (1981), this is a stage for analyzing the possible consequences that a chosen option can generate. The third stage (comprehensive account) covers all the factors that impact the decision-making process (Tversky & Kahneman, 1981). According to Thaler (1999), this is the stage of "closing the mental account," in which the individual computes all the data and closes the mental operation.

To form the stages, various aspects are analyzed in MAT. Basically, all focus on the mentalization of economic-financial transactions. They include: utility of the transaction versus acquisition (Thaler, 1999); payment decoupling (Prelec & Loewenstein, 1998); sunk costs (Arkes & Blumer, 1985); choice bracketing (Read et al., 1999); and hedonic editing (Bonner et al., 2014; Jackson et al., 2010; Suave, 2017). We chose to work with

hedonic editing, which refers to individuals' preference for aggregating and disaggregating information, with rules based on the value function from prospect theory (PT) (Thaler, 2008).

We sought to examine the impact of the preferences and behaviors of individuals aligned with management accounting by addressing hedonic editing in a comparative way between information preparers and users. As set out by MAT, the mental operation can be divided into four perspectives: (i) disaggregating multiple gains; (ii) aggregating multiple losses; (iii) aggregating mixed gains; and (iv) disaggregating mixed losses.

Multiple gains can be disaggregated so that the pleasure of gains is amplified and not unified in only one transaction. This way, greater psychological utility is perceived, showing them separately, given that the gain function is concave (Thaler, 1999, 2008). For example, Thaler (1999) suggests that 64% of people think that someone who wins two lotteries with values of \$50 and \$25, respectively, is happier than someone who wins \$75 in a single lottery, even though the total value is the same.

Multiple losses can be aggregated given that the loss function is convex. This way, the psychological utility perceived by presenting losses separately is lower than presenting them combined. For example, credit cards use this trick to group small losses as a bigger loss and, consequently, reduce the loss felt through the perceived utility, as MAT presents (Thaler, 2008).

By aggregating mixed gains, the aim is to compensate for loss aversion, as the psychological value is more accentuated in the domain of losses. As people do not like to accept that they have incurred losses, presenting results (gains and losses) separately can result in a lower perceived utility than presenting them only via the balance (gains minus losses), when this is positive. In these cases, aggregation equates to mental "cancelation" of the losses (Thaler, 2008).

In the field of losses, disaggregating mixed losses (greater losses than gains) can increase perceived utility. This is because the person prefers to show that they also obtained gains, even if they are smaller than the losses. This is what Thaler (2008) calls hoping for better days after the storm.

MAT differs from PT by presenting combinations of scenarios and not isolated visions, with single and one-dimensional results (Thaler, 2008). For the MAT analysis, it is necessary to expand individuals' decision-making perspectives, but all should be measured in the same dimension and unit of measure. Due to the position of each operator (preparer or user) in relation to the manifestation of preference to be expressed, differences in their preferences are assumed, as indicated by Siegel and Ramanauskas-Marconi (1989).

2.2 Management Accounting Information

By addressing accounting information aligned with management accounting, two functions arise in relation to the organization's objectives: providing information to support the decision-making process and motivating individuals (Sprinkle & Williamson, 2006). Managerial information can help in decision making, as well as influencing the decision-making process (Sprinkle, 2003). Experimental research shows a significant influence of accounting practices and procedures on the quality of judgements (Sprinkle & Williamson, 2006).

Nonetheless, studies highlight the low usage for managerial purposes. Stroehel and Freitas (2008) point out that, in smaller companies, accounting information is normally only used for legal purposes and is ignored for supporting decision making. Part of that behavior is due to the type of relationship organizations have with their accounting service providers. The study of Santos et al. (2016), in turn, indicates that managers are often unaware of the utility of accounting in the decision-making process. Armitage et al. (2016) concluded that business owners do not perceive advantages in the costs versus benefits analysis.

Therefore, accounting needs to be improved (Santos et al., 2009). Amoako (2013) and Maseko and Manyani (2011) recommend for accounting to be carried out in a personalized way, according to the specific characteristics of every organization, to make it less technical and more understandable for users. The user's comprehension is also influenced by the quantity of information. There are situations in which more information, especially when unorganized and inadequately treated, hinders judgement (Iselin, 1988; Shields, 1980, 1983). This relationship between the way of organizing and providing information

and its comprehension by the user affects decision-making and, consequently, organizational performance (Lipe & Salterio, 2000, 2002).

Studies show that the use of managerial information is linked to internal accounting (Nunes & Serrasqueiro, 2004) and to managers' demographic characteristics (Mendes et al., 2019; Menegazzo et al., 2017); that is, merely producing information is not enough. It should be delivered at the right time and to the right person, and it should be aligned with the preferences demanded by users (Santos et al., 2016).

Among these preferences, this study addresses the aggregation and/or disaggregation of information as a possible divergence between preparers and users, which may explain, from a complementary viewpoint, such support not being used in the decision-making process. Based on this, we seek to investigate the relationships between accounting information and human behavior, as well as the effect of human behavior on accounting (Birnberg & Shields, 1989). For this research, we address the contexts the individual forms part of (preparers or users of managerial information).

Preparers' preferences lie in the layout of information and they may use them as a basis, ignoring those of users, thus generating a potential gap between the expectations for and the reality of information use. They tend to want to show the importance and utility of their work (Dimnik & Felton, 2006; Frémeaux et al., 2018). They thus focus on precision, neutrality, and technical abstraction (Frémeaux et al., 2018), as well as taking a conservative approach, focusing on stability, self-control, seriousness, reliability (DeCoster & Rhode, 1971; Michaels & Levas, 2003), and informational transparency (Roberts, 2009); however, they fear informational loss through aggregation (Gonçalves et al., 2010; Lev, 1968). For that reason, we assume that preparers prefer to present information in a detailed (disaggregated) way.

Regarding users, it is understood that they fit into the second aspect of behavioral accounting, which highlights the role of accounting in human behavior for decision-making (Siegel & Ramanauskas-Marconi, 1989). Thus, their preferences are shaped according to their characteristics and demands. Therefore, it can be understood that they follow the assumptions of MAT, as the decisions involved refer to them. With that, behavioral and professional characteristics can affect their preferences for presenting/receiving accounting information.

2.3 Alignment of Preferences

The differences between preparers and users go beyond their preferences. Particular characteristics, experiences

lived, technical knowledge, and other elements can influence their decisions. Based on these findings, Amoako (2013) and Maseko and Manyani (2011) highlight that an alignment is needed between the presentation of information by preparers and users, with the aim of making it closer to the reality of those who receive it. The literature on management information systems highlights the importance to be given to the user (Pierce & O'Dea, 2003). Studies recognize that the motivations of preparers and users are discrepant, which can cause different perceptions (Byrne & Pierce, 2018; Pierce & O'Dea, 2003).

These divergences include information systems [see McKeen et al. (1994)]. Preparers understand that technical validity is the result of the success of an information system. On the other hand, users believe that these systems are successful if they present organizational validity, that is, they adequately reflect the business reality (Pierce & O'Dea, 2003).

Previous studies have focused primarily on perceptions and usage intentions (Goodhue, 1998). In contrast, the antecedents to usage (preparers) have not often been the object of research (Pierce & O'Dea, 2003). For that reason, studies indicate that it is necessary to improve the information for users (Santos et al., 2009), as well as producing it in alignment with users and their preferences (Santos et al., 2016). So, their style and cognitive peculiarities should be considered (Huber, 1983).

For this, alignment is needed between technical and organizational validity (Pierce & O'Dea, 2003). This alignment seeks the effective use of managerial information in the decision-making process (Powers & Dickson, 1973) and to reduce conflicts of interests (Byrne & Pierce, 2018), because accounting should be focused on providing a basis for and helping in the decision-making process (Fernandes et al., 2011; Moreira et al., 2013). The aim, based on this alignment, is to reduce noise in the communication between the operators of managerial information.

Just as any other decision maker, the preparers of accounting information are also influenced by their own preferences for the development of their products (Enslin, 2019). However, it should be noted that they must provide that information to third parties, who in turn make decisions based on their preferences and set of beliefs and values. So, what is important for one may not be important for the other (Faraci et al., 2013; Penolazzi et al., 2013).

Based on this, Hoozée and Mitchell (2018) investigated aspects that influence the design of management

accounting systems. Their findings show that managers have a strong impact on the development of these as they are the final users. They also highlight the presence of an alignment of information with their preferences. In sum, users desire more reliable, comprehensible, timely, and appropriate information in the best presentation format (Pierce & O'Dea, 2003).

From this perspective, we can perceive the relationship of some motivators/antecedents of use, such as the alignment of preferences (with preparers) and the perceived utility (Robey, 1979); that is, information aligned with the users' preferences tends to be more used. In light of these aspects, the accounting should focus on the users' preferences, with the aim of making it more useful and utilized. For that, knowledge is needed to contemplate the needs of managers without compromising its validity (Pierce & O'Dea, 2003).

There is a variety of variables that can impact decision making by involving situations of gains and losses, and that go beyond the demographic characteristics of the decision makers. Blavatsky (2013), Schultz et al. (2018), Silva et al. (2008), and Tan and Yates (1995) indicate that the decision-making context is a significant variable. Aldrighi and Milanez (2005) point out that individuals carry out mental operations that alter their preferences according to how the problem is presented and the context it is part of.

Preparers of managerial information know and want to show their usefulness and importance (Fernandes et al., 2011; Moreira et al., 2013). Thus, the assumption is that they always prefer to disaggregate information to show their contributive capacity in the decision-making process. Users, in turn, follow their preferences and risk tolerances, as stipulated in the value function from PT (Kahneman & Tversky, 1979), besides deciding according to the precepts of MAT (Bonner et al., 2014; Thaler, 1980).

As a result of these findings, alignment is needed between technical and organizational validity (Pierce & O'Dea, 2003) on the part of preparers with users and by means of information in desired formats, so that the information is actually used in the decision-making process (Powers & Dickson, 1973; Robey, 1979). Based on the above and in light of MAT, it is understood that behavioral aspects and the value function implied in the preference for aggregating or disaggregating information result in the use of managerial information, as the following hypothesis postulates:

H₁: the alignment of operators' preferences influences the greater use of managerial information.

3. METHODOLOGICAL PROCEDURES

This research is characterized as empirical, quantitative, descriptive, and applied. It is also classified, in relation to the procedures, as a quasi-experiment. We chose this research model as there are distinct groups that fit the perspectives analyzed (preparers and users), making their randomization impossible. For Hales (2015), this type of research in a controlled environment can be enlightening for verifying the effects of aggregating or disaggregating, as it is hard to verify them in the natural environment.

As a research instrument, we used mirrored questionnaires, in order to enable manipulations solely regarding the context of the respondent (preparer or

user). Thus, scenarios were presented involving decisions to aggregate or disaggregate management accounting information, whether for elaborating it (preparer) or using it in the decision-making process (user).

The instrument was adapted from Bonner et al. (2014), Fennema and Koonce (2010), Suave (2017), and Thaler (1999) to the context of the study. A pre-test was conducted with 27 people (14 preparers and 13 users) who did not participate in the sample. Adjustments to improve the research instrument and increase its reliability and validity were made based on that pre-test. The research variables are presented in Table 1.

Table 1

Basis for the research variables

Variable	Purpose	Operationalization	Theoretical basis
Alignment of preferences	To verify alignment of preferences regarding accounting information	Likert scale of alignment between none (1) and all (5)	Byrne and Pierce (2018), Pierce and O'Dea (2003), Powers and Dickson (1973), Robey (1979)
PAD	To verify preferences for aggregation or disaggregation	Dummy with two categories: disaggregate (0) aggregate (1)	Bonner et al. (2014), Fennema and Koonce (2010), Suave (2017), Thaler (1999)
CON	To verify the context in which the decision was taken	Dummy with two categories: preparer (0) user (1)	Aldrighi and Milanez (2005), Blavatskyy (2013), Rengel et al. (2019), Schultz et al. (2018), Silva et al. (2008), Tan and Yates (1995)
GEN	To verify gender	Dummy with two categories: male (0) female (1)	Brooks et al. (2018), Geetha and Selvakumar (2016), Yao et al. (2011)
AGE	To verify age	Continuous variable measured in years	Brooks et al. (2018), Geetha and Selvakumar (2016), Yao et al. (2011)
MAR	To verify marital status	Dummy with two categories: single (0) not single (1)	Geetha and Selvakumar (2016), Yao et al. (2011)
DEP	To verify the number of dependents	Number of dependents of the individual	Yao et al. (2011)
EXP	To verify time of experience	Continuous variable measured in years	Shepherd et al. (2015)
EL	To verify educational level	Dummy with two categories: partial graduate (0) full graduate (1)	Geetha and Selvakumar (2016)
SEM	To verify the semester they are in	Number of semesters completed	Tan and Yates (1995)
MIL	To verify income level	Dummy with six categories: up to 1 MW (0); 1-2 MW (1); 2-3 MW (2); 3-4 MW (3); 4-5 MW (4); more than 5 MW (5)	Brooks et al. (2018), Geetha and Selvakumar (2016), Yao et al. (2011)
PFS	To verify the perception of their financial situation	Dummy with five categories: VI (0); SI (1); FB (2); WS (3); FS (4)	Camerer (2005)

AGE = age; CON = decision-making context; DEP = dependents; EL = educational level; EXP = experience; FB = financially balanced; FS = financially successful; GEN = gender; MAR = marital status; MIL = monthly income level; MW = minimum wage; PAD = preference for aggregating or disaggregating; PFS = perception of own financial situation; SEM = semester; SI = scarcely indebted; VI = very indebted; WS = with some surpluses or investments.

Source: *Elaborated by the authors.*

The participants were informed about the purpose of the study and that the data would not be used, analyzed, or disclosed individually, thus ensuring the privacy required by research of this nature. It was also explained that there were no right or wrong answers. In the control group, we sought to identify the preferences regarding the way of preparing the information. In the experimental group, in turn, we sought to identify the users' preferences regarding the way of receiving that information. Both groups analyzed individual organizational situations and collective or personal decisions were not evaluated.

Resolution n. 196 of October 10th of 1996 was adhered to, in that there was no remuneration or expenses for the participants. As this was a quasi-experiment, randomization was not used among the respondents (Shadish et al., 2002). To obtain greater external validity, the respondents were grouped according to academic alignment.

The research population was composed of 855 accounting students (preparers) and 1,014 management students (users) from public and private universities in the south of Brazil. Mortensen et al. (2012) provide evidence that supports the use of students as adequate substitutes

for experimental studies. The data collection was carried out in August and September of 2019. Returns from 1,256 students were obtained, of which 38 were excluded as they were from students from other courses. Another 18 students did not authorize the use of their answers for academic purposes and 126 answers were incomplete. The final sample was made up of 550 valid answers for preparers and 524 for users of information.

Considering the population and the sample, a 99% level of research confidence was obtained, which represents the probability of obtaining the same results if applied with other individuals from the same population. The margin of error is 3% (Wooldridge, 2006). The Cronbach's alpha was also verified for both samples and the values were higher than 0.7, which indicates the reliability of the instrument (Hair et al., 2019).

The data analysis was carried out in three parts. First, the descriptive analysis of the data was carried out to identify the PADs in each one of the 12 scenarios for each group investigated. Based on the observation of preferences, second, logistic regressions of these scenarios were carried out to identify which of the contexts (preparers or users) presents the highest PAD, according to equation 1.

$$P(PAD) = \frac{1}{1 + e^{-(\beta_0 + \beta_1 CON_i + \beta_2 GEN_i + \beta_3 AGE_i + \beta_4 MAR_i + \beta_5 DEP_i + \beta_6 EXP_i + \beta_7 EL + \beta_8 SEM_i + \beta_9 MIL + \beta_{10} PFS + \mu)}} \quad \boxed{1}$$

in which PAD is the dependent variable (preference for aggregating or disaggregating), β_0 is the intercept, $\beta_{1,2,3}$ are the angular coefficients, CON is the independent variable, GEN, AGE, MAR, DEP, EXP, EL, SEM, MIL, and PFS are the control variables, and μ are the residuals of the regression.

As a last stage of the data analysis, the homogeneity analysis by means of alternating least squares (HOMALS) was operationalized. According to Fávero et al. (2009), this technique enables the accommodation of qualitative variable and reveals, in a visual and two-dimensional

way, the associations between the related variables. PAD was used as an independent variable and dependent variable and the alignment of preferences was used. The optimal scaling function, from the Statistical Package for the Social Sciences (SPSS) from IBM, version 20, was operationalized. In this analysis, we sought to identify whether the preferences for aggregation or disaggregation are associated with the search for informational alignment of preparers and users, which would result in greater use of the information for the decision-making process.

4. PRESENTATION AND ANALYSIS OF THE RESULTS

4.1 PADs

In general, both groups follow a similar pattern of characteristics. Most of the participants were young, male, single, and had no dependents. As they were undergraduate students, most did not yet have a higher education degree, and there was a similar division between the semesters completed. They also lacked time

of professional experience in the area of their course, and so their income was predominantly up to two minimum wages. In addition, they were not indebted. Thus, they had the perception of being financial balanced. The Spearman's correlation was carried out regarding the demographic characteristics of both groups and no correlation was found between the variables. The preferences of each group are jointly and comparatively analyzed in Table 2.

Table 2
Preferences for aggregating and disaggregating

Perspective	Scenario	Preparers		Users	
		Aggregating (%)	Disaggregating (%)	Aggregating (%)	Disaggregating (%)
Multiple gains	S3	7.45	92.55	11.26	88.74
	S6	52.73	47.27	30.92	69.08
	S8	30.91	69.09	15.84	84.16
Multiple losses	S1	4.73	95.27	16.79	83.21
	S5	51.09	48.91	27.48	72.52
	S10	53.45	46.55	30.73	69.27
Mixed gains	S4	10.73	89.27	8.02	91.98
	S9	17.64	82.36	15.84	84.16
	S11	24.36	75.64	9.92	90.08
Mixed losses	S2	5.82	94.18	9.92	90.08
	S7	11.09	88.91	12.02	87.98
	S12	21.09	78.91	20.04	79.96

Note: Values in bold show the predominant preferences of the decision makers.

Source: Elaborated by the authors.

It is perceived that the trend for preparers' and users' preferences is similar, but not the same. While in three of the scenarios presented preparers preferred to aggregate the information, users of accounting information showed a greater tendency to disaggregate the informational volume, as, in all cases, most chose to disaggregate the information. Although the results lean more towards disaggregation, a variance is observed in the number of answers for each alternative, which ensures variability in the answers. For that reason, the Harman test was carried out and the absence of common method bias was verified.

The first scenario with preferences for aggregation was inconsistent with MAT and relates to multiple gains (S6). This divergence from the precepts of the theory may be due to the amount of information involved in the decision-making situation. Disaggregating only two pieces of information may not present such relevant gains in the value function in terms of lean information. As it

is a scenario of obtained discounts, the informational absence of what product gave rise to the discounts may explain the irrelevance perceived by preparers for its disaggregation.

The other two scenarios focusing on aggregation of information were for multiple losses (S5 and S10), and one possible explanation for this may be similar to S6. S5 involved non-payments and S10 concerned losses of stock. In these cases, there were no in-depth details about which customers caused the non-payment, as well as which products were lost in the stocks. Thus, the lack of informational details may have given rise to this preference for aggregating, in order to streamline the decision-making process.

In addition, the logistic regression was estimated based on robust standard errors for each scenario. Table 3 presents the odds ratio results and level of significance for each scenario analyzed.

Table 3
Logistic regression

Variable	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12
CONT	4.291***	1.796**	1.546*	0.696*	0.364***	0.398***	1.051	0.415***	0.910	0.408***	0.343***	0.946
AGE	1.010	1.025	1.037	1.025	0.975	1.002	1.046	1.002	1.004	0.960**	1.012	1.017
GEN	1.491*	1.285	1.124	1.161	1.349**	1.379**	1.061	1.336*	1.045	1.612***	1.577	1.149
MAR	0.915	1.019	1.038	0.939	0.874	0.995	0.366**	1.232	1.057	1.464	0.950	0.840
DEP	1.168	0.971	0.694	0.543	0.945	0.970	0.400**	0.885	0.715	0.869	0.849	0.926
EL	2.132*	0.768	0.708	0.546	0.968	0.708	1.653	0.370**	0.706	0.882	1.017	1.308
SEM	0.947	0.885**	0.934	0.964	0.982	1.015	0.909**	0.925**	0.955	0.981	0.973	0.860***

Table 3

Cont.

Variable	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12
EXP	0.974	1.001	0.679***	0.862*	0.992	0.974	0.989	0.929	0.990	1.004	0.961	0.968
INC2	1.095	1.963*	1.348	1.362	1.108	1.070	1.438	1.195	1.292	1.041	0.962	1.627**
INC3	1.327	1.200*	1.077	1.267	1.266	1.325	1.245	1.524*	1.389	1.054	1.131	1.885***
INC4	0.823	1.627	0.404	1.197	1.349	0.955	1.755	1.358	0.921	0.784	0.877	1.033
INC5	0.541	1.394	1.051	1.958	0.941	0.889	1.734	1.052	0.911	0.761	1.705	1.318
INC6	1.423	2.195	1.096	1.683	1.281	1.361	2.398**	1.567	0.818	0.877	0.924	1.663
SI	0.926	0.823	1.317	2.574	1.084	1.495	1.172	1.384	1.119	0.844	0.731	2.156
FB	0.760	0.521	0.987	1.969	1.010	1.716	1.246	1.951	1.257	1.055	0.825	2.928
WS	0.627	0.516	1.100	1.520	0.936	1.531	0.617	1.682	0.906	1.035	0.759	2.619
FS	0.860	0.220	0.817	1.455	0.645	1.177	0.870	1.633	0.753	0.399	0.345	3.480
Const.	0.045***	0.054***	0.049***	0.038**	1.573	0.502	0.053***	0.263*	0.185**	2.358	0.289	0.084***
Obs.	1,074	1,074	1,074	1,074	1,074	1,074	1,074	1,074	1,074	1,074	1,074	1,074
LR chi ²	53.16	25.41	30.35	20.91	75.17	65.10	27.45	51.36	13.13	84.14	54.69	35.54
Prob. > chi ²	0.000	0.086	0.024	0.230	0.000	0.000	0.052	0.000	0.728	0.000	0.000	0.005
Pseudo R ²	0.0828	0.0427	0.0469	0.0239	0.0532	0.0465	0.0436	0.0498	0.0126	0.0626	0.0538	0.0330

Note: Values in bold indicate that there is significance.

AGE = age; CONT = decision-making context; DEP = number of dependents; EL = educational level (0 incomplete, 1 complete); EXP = professional experience; FB = financially balanced; FS = financially successful; GEN = gender (0 male, 1 female); INC2 = from 1 to 2 minimum wages; INC3 = from 2 to 3 minimum wages; INC4 = from 3 to 4 minimum wages; INC5 = from 4 to 5 minimum wages; INC6 = from 5 to 6 minimum wages; MAR = marital status (0 singles, 1 non-singles); SEM = semesters completed; SI = scarcely indebted; WS = with surpluses.

***, **, * = significance at the 1, 5, and 10% level, respectively.

Source: Elaborated by the authors.

Of the 12 scenarios analyzed, on only two occasions was there no statistical confirmation that the model explains the operators' preference for aggregating or disaggregating information (S4 and S9), as presented by the significance level of the Prob. > chi², which indicates that other non-investigated aspects may explain the preference for the presentation of managerial information. The Hosmer-Lemeshow test indicates that the model fits all the scenarios investigated. Moreover, scenarios S7, S9, and S12 do not present a significant relationship between the decision-making context and the preference for aggregating or disaggregating the information. In addition, only in S9 did no variable present a significant relationship with the preference expressed by the individuals.

Among the nine scenarios that have a significant relationship between the decision-making context and PAD, in three the users have a higher odds ratio than the preparers for aggregating (S1, S2, and S3). In S1, the findings follow MAT by aggregating multiple losses and minimizing the pain of the loss. In S2 and S3, the results are inconsistent with the premises of MAT, since

they did not seek value maximization, as the scenarios indicated (mixed losses and multiple gains, respectively) (Thaler, 1999).

In the other six scenarios that presented significance, the users presented a significantly higher odds ratio for disaggregation than the preparers. In S4, MAT is contradicted, as the losses reduce the perceived utility of the information. This finding draws attention, as the scenario presented involves a current change in the accounting standards for presenting financial statements (for obligatory and non-managerial information) regarding the presentation of gross or net revenues, which may have influenced the preparers of accounting information by aggregating information.

The findings also confirm this preference for managerial use versus perceived value maximization in the results of S5, S10, and S11, which are also inconsistent with MAT. The choice with a higher odds ratio of the users disaggregating information would reduce the value function as it refers to situations of multiple losses and mixed gains. Thus, it is confirmed in nine of the 12 scenarios that the context influenced

the preference for aggregating or disaggregating information. Only in S6 and S8 (multiple gains) does the users' greater preference for disaggregation follow MAT and maximize value, at the same time as increasing the informational power.

Regarding the demographic characteristics, gender stood out as the most influential variable in the model (there were five scenarios where the female gender had a significant interest in aggregating information). The literature indicates that women are more averse to losses than men and this attitude was observed in scenarios of multiple losses (S1, S5, and S10), in which they showed a preference for aggregating the losses in one single piece of information, as suggested by Brooks et al. (2018) and Geetha and Selvakumar (2016). However, this preference for aggregating information is also noted in scenarios of multiple gains (S6 and S8), thus contradicting MAT (Thaler, 1980). The semester taken indicates how far along the course the participant is, plus how much the knowledge imparted in the disciplines forms part of their decisions, in that they want to disaggregate information for greater management of the accounting information

(Dimnik & Felton, 2006). This was revealed in four scenarios (S2, S7, S8, and S12).

We thus expand the discussions presented by MAT, which covers gains and losses without contextualizing the information. Based on the research findings, it is observed that, when handling management accounting information, in most cases information users choose to disaggregate information and increase the informational power for management, even if this negatively impacts perceived value, as proposed by MAT.

4.2 Analysis of the Alignment of Preferences

This section seeks to understand the pretention to align preferences between operators. Table 4 presents the manifestation of a change of preferences (for aggregating or disaggregating) of the preparers and users of the information (S13). The former answered whether they would adapt their preferences to those of users if it resulted in greater use of the information. In contrast, the users answered if receiving the information according to their preferences would make them use it more.

Table 4

Alignment of preferences among the accounting information operators.

Alignment of preferences (preparers) (mean = 3.88)											
In no situation		In few situations		In 50% of the situations		In most situations		In all situations		Total	
n	%	n	%	n	%	n	%	n	%	n	%
8	1.45	34	6.18	85	15.45	324	58.91	99	18.00	550	100.00
Usage intention (users) (mean = 4.09)											
2	0.38	11	2.10	55	10.50	324	61.83	132	25.19	524	100.00

Source: *Elaborated by the authors.*

As Table 4 reveals, 76.91% of the preparers were willing to modify their preferences to align with the needs and/or preferences of users in most or in all of the situations. In contrast, 87.02% of the users expressed the intention to use the information if it was prepared in the way they wish or need, in most or in all of the situations. These findings corroborate Santos et al. (2016) by indicating the need for information aligned with individuals' preferences. On another point, only 7.63% of the preparers would practically ignore users' preferences, rarely or never changing their way of preparing the information. Among the users, only 2.48% would alter their use in no or a few of the situations presented.

It is noteworthy that the information preparers behave conservatively in terms of preference changes. Technical understanding of the importance of the information

and its value for the decision-making process may be reasons for this resistance. The information users are proponents of information aligned with their preferences and needs. These findings are consistent with the literature, which highlights the importance not only of conveying information, but also of presentation in the forms demanded by users (Amoako, 2013; Maseko & Manyani, 2011; Santos et al., 2009).

Based on the above, the HOMALS was applied using the optimal scaling procedure, primarily considering the aggregation or disaggregation variables and the search for informational alignment. The HOMALS shows patterns of associations between the variables by means of two-dimensional planes. Regarding the discrimination measures, the findings for the operators are described in Table 5.

Table 5
Discrimination measures, accounting information operators

		Variable												
	Dimension	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	S13
PREP	1	0.024	0.123	0.173	0.24	0.366	0.402	0.262	0.423	0.319	0.529	0.355	0.28	0.112
	2	0.064	0.344	0.242	0.165	0.215	0.183	0.016	0.000	0.016	0.126	0.002	0.012	0.188
USER	1	0.062	0.201	0.313	0.325	0.226	0.329	0.275	0.339	0.317	0.351	0.349	0.379	0.116
	2	0.062	0.303	0.173	0.179	0.109	0.192	0.013	0.062	0.029	0.127	0.004	0.000	0.185

Note: FIT preparer outputs = 0.398393; FIT user outputs = 0.385848. Values in bold show the dimension with the highest level of association.

PREP = preparers; USER = users.

Source: Elaborated by the authors.

By means of the two-dimensional perceptual map, Figure 1 shows the associations identified in each quadrant. This does not mean that the associations in all the quadrants are important. The further the measure is from the central axis, the stronger its importance is in relation to the discrimination measures. It is worth remembering that,

to find these associations, it was necessary to use ranges of values for each variable. In scenarios S1 to S12, we have aggregate (A) and (D) disaggregate. For the alignment of preferences (S13), five categories of possible information adjustments (for preparers) and usage intention (users) were used: none, few, half, many, and all.

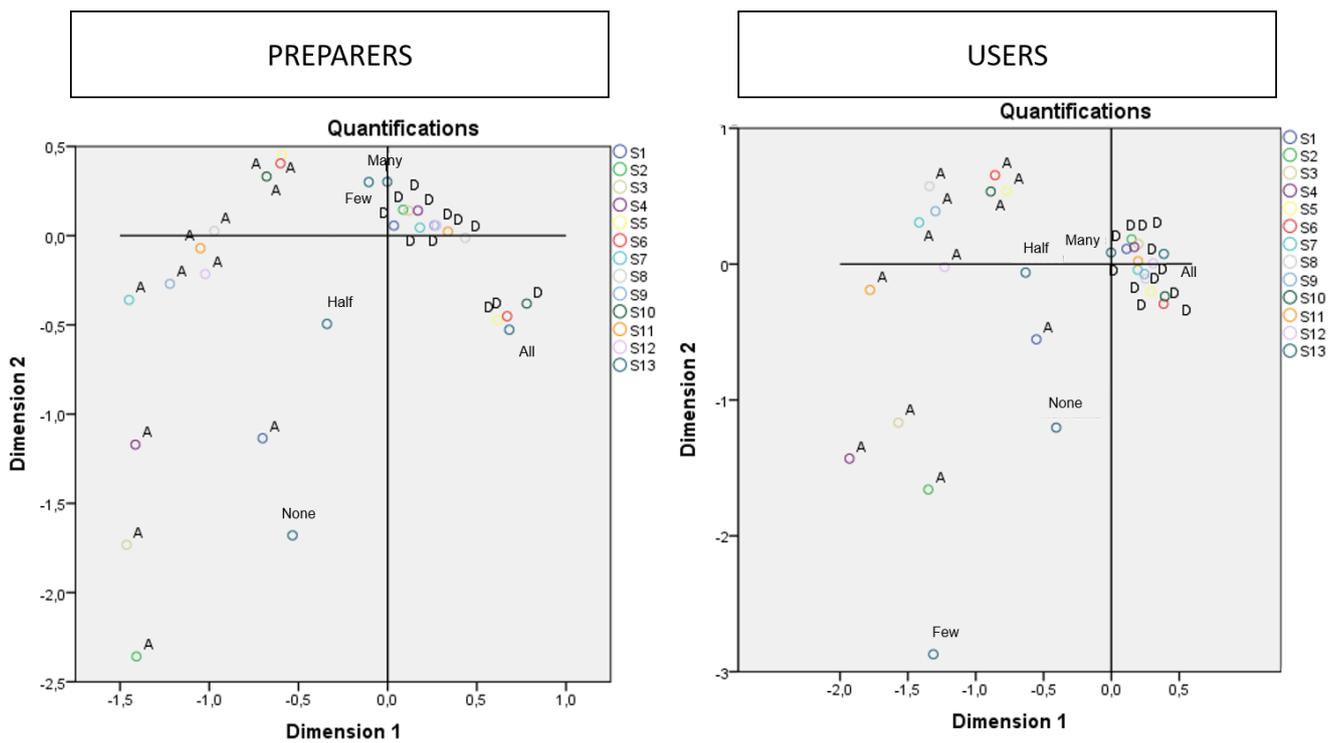


Figure 1 Two-dimensional map of (dis)aggregation in the alignment of information

Source: Elaborated by the authors.

In the perceptual map, similar associations are observed for information preparers and users. It shows the intention of the preparers, who prefer to disaggregate information that modifies or adapts their particular preferences to align it with those of the users, if necessary. For the users, in turn, those who prefer disaggregated information show a greater usage intention if they receive it according to that preference.

These findings indicate that the preparers with preferences for disaggregating information are more likely to alter their preferences to meet the needs of users. It is also observed that most come close to alignment in “many” situations, but not in all. This may be an indication that technical validity can influence the decision to meet users’ demands or not (Pierce & O’Dea, 2003). There is a notable tendency for the alignment of preferences

with users, which shows the preparers' interest in the managerial information actually being used and providing support in the decision-making process (Fernandes et al., 2011; Moreira et al., 2013; Powers & Dickson, 1973).

The users who chose disaggregated information indicated that they used it for decision making and organizational management, if it was consistent with their preferences. On the other hand, preparers who chose to aggregate information were not willing to modify the form of presentation to meet users' preferences. This corroborates Enslin (2019), who addresses the influence of preferences on the development of their products. It is shown that the users' crave appropriate, comprehensive, flexible information in the best form (Pierce & O'Dea, 2003).

Therefore, we sought to understand whether the preferences would result in greater use of the information (user) and/or adaptation in its preparation, seeking its use (preparers). As shown, individuals who prefer the disaggregation of information are more likely to present an association with the use of the information (users) and would adapt their preferences to meet the needs and preferences of users (preparers). Thus, there may be divergences between preparers and users, which could mean management accounting is less used. Therefore, H_1 is confirmed, by demonstrating that the alignment of operators' preferences influences the use of accounting information.

4.3 Discussion of the Results

The results of the study indicate that the alignment of preferences of preparers and users of accounting information would result in greater use for the purposes of supporting decision making. This denotes that both perceive the utility and importance of that information

for the organizational good (Dimnik & Felton, 2006; Fernandes et al., 2011; Frémeaux et al., 2018; Moreira et al., 2013; Pierce & O'Dea, 2003; Powers & Dickson, 1973).

However, from a more specific viewpoint, it is perceived that the initial characteristics and preferences of the sample groups are similar, denoting an important aspect of an experimental study. It is also perceived that most of the operators prefer to disaggregate information, in some cases contradicting what Thaler (1980) proposes in MAT. Moreover, unlike the precepts of MAT, in two of the three multiple gains scenarios the women chose to aggregate the information. This behavior was also perceived for multiple losses, which connotes aversion to losses, as indicated in the studies of Brooks et al. (2018) and Geetha Selvakumar (2016).

There is a notable predisposition of both groups to favor greater use of the information: preparers, by incorporating users' preferences in the way the information is presented, and users, by using it more often if it is aligned with their needs. These results find support in the studies of Amoako (2013), Maseko & Manyani (2011), Pierce & O'Dea (2003), and Santos et al. (2009).

Important advances, both in the literary and in the organizational field, can emerge from these findings. For the literature, it is revealed that, although the value function shown by MAT can influence decisions to aggregate or disaggregate, when managerial information is concerned, the search for support for the decision-making process was shown to be more relevant, so disaggregation was chosen in most cases, independently of the psychological value perceived through the decision. In addition, as a practical implication, there is the importance of the alignment of preferences between information preparers and users regarding its form of presentation to support organizational decisions.

5. CONCLUSIONS

One of the roles of accounting is to support the decision-making process. In this, both users' preferences and any biases of preparers should be considered. Thus, the aim of this research was to evaluate the influence of the alignment of operators' preferences for aggregating or disaggregating on the use of managerial information.

For this, we used the psychological approach of the behavioral line to understand the decision-making process of preparers and users of information to identify their preferences regarding the preparation and presentation of this managerial support.

MAT is added to by demonstrating that individuals do not always follow the precepts of the theory, as in the cases

highlighted of managerial information to maximize the informational volume for the decision-making process. In these cases, disaggregation was chosen, even if it damaged the perceived utility.

Regarding the alignment of preferences between preparers and users, it is primarily noteworthy that the preparers who chose to disaggregate information are more likely to alter it to serve users, as well as users being more likely to use it if it is presented according to their preferences and needs. Another noteworthy point is that the individuals who prefer aggregation are more resistant to changes and using the information, which limits the use of accounting for managerial purposes.

Along general lines, the findings of the research show that the use of information may be a reflection of the form of presentation and of the alignment of preferences among the operators. They also show that behavioral aspects and cognitive biases are inherent to being human and, consequently, to the decision-making process. It was also observed that managerial information is understood by both (preparers and users) as important for supporting decision making, up to the point of them relegating their preferences to second place, in order to provide better support for decision making. With this, the preparers of information may incorporate users' preferences and thus obtain greater perceived value and importance for their work.

Thus, by demonstrating the propensity for greater use of accounting information, providing it is aligned with their preferences and demands, this study contributes to the behavioral literature, based on MAT, regarding operators' preferences for aggregation and disaggregation of information. Regarding practice, it contributes by showing the importance of the alignment of preferences, for the transfer of accounting information between preparers and users, minimizing bias in the information due to third-party preferences. Along these lines, the research participants showed a greater propensity to use managerial information aligned with their preferences for

aggregation or disaggregation, resulting in more frequent use, thus contributing to a better basis for their decisions.

It is worth mentioning that this study has limitations regarding the use of scenarios that do not involve real gains or losses for the participant. Thus, future studies could examine whether the preferences are confirmed in real situations. It is also limited regarding the specificity of working solely with characteristics of hedonic editing, since MAT covers other aspects that could be investigated and applied to management accounting. Moreover, the sampling process was carried out in an intentional and probabilistic way.

As this is a study focusing on aggregation/disaggregation of information, the volume of information can also be considered a limiter. All the scenarios had two options, that is, joint gains or losses were not analyzed, nor were sequential decisions. For that reason, future research could develop a system of aggregated information that the information user would disaggregate according to their needs, in order to identify up to what point the disaggregation of information is perceived as useful. Analyses of individual and not collective decisions also feature as a limitation, as well as the absence of temporal factors. In addition, the qualitative characteristics of the accounting information were not covered in the questionnaire and present a path for future research.

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