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Editor's Word

Dear reader, we are delivering the second issue of 2022. I want to inform and congratulate the papers published in this edition and thank all the authors who submitted their papers but, unfortunately, were not approved. I would also like to thank the effort and service of the associate editors: Andson Braga, Iracema das Neves, José Elias, and Márcia De Luca. We very much appreciate the time you donate to REPeC. We look forward to many of your papers submitted in the future. Lastly, I welcome associate editor Renato Gurgel from UFRN to join our team on this journey. Thank you all.

In this issue, the call for papers/first paper is written by professors Rachel Schwartz and Angel Chatterton, from the University of Illinois at Urbana Champaign. The professors make a diagnosis of the Master's programs in Accounting Sciences available here in the United States and, simultaneously, answer potential questions from those considering taking the program in this country.

Returning our focus to the papers approved in blind review, the second paper is written by Weverton Eugenio Coelho, Eduardo Mendes do Nascimento, Jacqueline Veneroso, and Edgard Cornacchione Jr. As a result, self-efficacy perception was found to influence student performance. However, no distinction in the level of self-efficacy was found between genders, showing that one's perception and self-efficacy are independent of gender. The results also show that students' anxiety is negatively and significantly correlated with self-efficacy. Finally, female graduate students presented trait anxiety scores statistically higher than the male students.

The third paper was written by José Antonio França, Diana Lima, Clesia Camilo, Eduardo and Marilson Dantas. The objective was to introduce and test a theoretical, non-parametric model to assess a tax relief public policy, combining the tax waiver benefit (RFT) with non-state public service (SPnE) to identify a Supplementary Action of the State (ASE) with metrics that indicate that the public policy is sustainable. The results indicate the robustness and consistency of the model's metrics in assessing the sustainability of the tax relief public policy in Brazil.

The fourth paper, written by Yvelise Piccinin, Vinícius Costa da Silva, Larissa Degenhart, Jonas Grodt, and Márcia Bianchi, analyzes the effects of self-efficacy beliefs and managerial attitudes on the relationship between budgetary participation and managerial performance. As a result, budgetary participation was found to influence self-efficacy beliefs and commitment to budget goals. However, it did not directly influence the work involvement. The findings confirm the cognitive (self-efficacy) and affective (work involvement and commitment to goals) indirect effects on the relationship between budgetary participation and managerial performance.

The fifth paper was written by Raquel Wille Sarquis, Verônica de Fátima Santana, and Ariovaldo dos Santos. The objective was to evaluate how the financial information of joint ventures is being disclosed in the explanatory notes of financial statements and how this disclosed information is being processed by the market, exploring the mediating effect of the investors' level of sophistication. The authors show that adopting IFRS 11 and eliminating proportional consolidation resulted in information loss, considering that companies are not disclosing their joint ventures' financial information in the explanatory notes, as required by IFRS 12. Furthermore, when companies do disclose this information (57%), it is only absorbed by the more sophisticated investors.

The sixth paper, written by Maiara Silva, Alcindo Mendes, Ilse Beuren, Rogério Lunkes, and Silvana Kruger, analyzes the effect of reward systems on job performance and the intervenient role of affective commitment and procedural fairness in this relationship. The results confirm the direct effect of intrinsic rewards on job performance and extrinsic rewards on affective commitment. Affective commitment does not mediate the relationship between rewards and job performance. The complementary analysis indicates that intrinsic rewards influence the affective commitment of female employees under 30 years of age with a bachelor's degree working in healthcare cooperatives. The perception of women and healthcare cooperative workers strengthens the effect of intrinsic rewards on affective commitment. In credit unions, the employees' affective commitment influences job performance.

Finally, I would like to inform you that REPeC is not a journal linked to education only but to various fields as shown in its objectives: Financial, Managerial, Public, Audit, Taxes, and others.

Without further ado, I would like to thank all the researchers who submitted their papers to REPeC, as well as the always collaborative referees. Congratulations to those who had their papers approved because the demand is quite high, and the road to the final publication is quite arduous.

Thank you, readers. I hope you enjoy this new issue.

Academic greetings.

Gerlando Lima, Ph.D.
Editor in chief.

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Accounting Master's Programs in the United States

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Introduction

The U.S. accounting graduate education has evolved considerably over the last few years and offers a plethora of accounting master's programs. The Department of Accountancy at the Gies College of Business at the University of Illinois has a rich tradition of excellence in graduate accounting education, awarding its first master's degree in 1922, and remaining at the forefront of accounting education ever since. Gies is a top-three business school for graduate accounting, and the accounting faculty is #1 in the BYU accounting research ranking. It is one of the largest suppliers of leaders of the accounting profession and among its graduates are legions of CFOs, accounting firm partners, and entrepreneurs. Graduates of Gies accounting programs have tremendously successful careers, and the STEM designation provides international students an opportunity to work in the U.S. for 36 months after graduation, and a competitive advantage.

As the academic director of the MSA program at Gies, and faculty members with many years of experience in the graduate accounting field, we are in a unique position to share our knowledge and observations with you. Our goal is to guide you through the process of assessing U.S. accounting master's programs, explain the general admission requirements, and provide tips for a successful application. We conclude the editorial with an example of graduate accounting programs offered by the Gies College of Business at the University of Illinois.

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Evaluating Accounting Master's Programs

Earning an accounting master's is an incredible opportunity to expand your knowledge and skills, expand your network of peers, and enhance your career. But, not all master's programs are created equal, and therefore it is important to carefully assess programs by considering their accounting faculty, AACSB accreditation, program ranking, career enhancing opportunities, and whether the program is delivered on-campus or online. We will discuss each of those next.

The breadth and depth of the faculty are tremendously important when evaluating a graduate accounting program. Accounting departments with a large number of faculty members are better positioned to offer a greater selection of courses, and have the resources to design a rich curriculum that evolves in response to the changing world of accounting. A case in point is the growing demand for courses in data analytics precipitated by the changing processes at accounting firms, and the recent call to update accounting curricula in response to the CPA evolution, the new licensing model that culminates with a revised CPA exam scheduled to launch in January 2024.

When evaluating the richness of the curriculum and the breadth of course offering, you can start by searching the program's website, and expand the search by looking at the online course catalog that each university publishes. To assess the depth of the accounting faculty at the university you are considering, look at the accounting department website and navigate to the faculty page.

Another important metric of faculty quality is the annual Brigham Young University (BYU) ranking of accounting faculty. The ranking is based on peer-reviewed articles that faculty published in the 12 leading accounting journals. In the 2021 ranking, the top three were University of Illinois at Urbana-Champaign, University of Texas at Austin, and Arizona State University.[1]

Faculty qualifications are also evaluated thoroughly when accounting departments go through an AACSB accreditation. AACSB is the Association to Advance Collegiate Schools of Business, and its accreditation is a hallmark of excellence and high standards since 1916. AACSB accreditation is not limited to faculty qualification. Indeed, accreditation consists of nine standards, and four of these standards target learner success: Curriculum, Assurance of Learning, Learners Progression, and Teaching Effectiveness and Impact.[2] For an even higher quality assurance of accounting programs, accredited schools can add a separate AACSB accounting accreditation. In 2022 there were only 180 U.S. AACSB accounting-accredited schools, a testament to the rigor of the process that accounting departments must go through to earn that coveted accreditation.[3]

There are several indications that students from AACSB accredited schools obtain better outcomes. Employers are often focused on recruiting at AACSB accredited schools, and Bunker et al. (2014) found that graduates of schools with separately AACSB-accredited accounting programs obtain higher overall CPA pass rates and earn higher CPA exam scores.[4] Hence, when assessing accounting programs, you would want to ensure that the program is in an AACSB accredited business school that also earned the separate AACSB accounting accreditation.

1 BYU accounting faculty ranking: http://www.byuaccounting.net/rankings/univrank/rank_univ_cnt.php?qurank=All&sortorder=ranking6
2 2020 Interpretive Guidance of AACSB Business Accreditation: https://www.aacsb.edu/-/media/documents/accreditation/2020-interpretive-guidance-july-2021.pdf?rev=31d14777a46b4b449d4e8a3bb348306b&hash=58FE056BEC9D5910468D4876A733725B
3 Information accessed on June 12, 2022 at https://www.aacsb.edu/accredited?regions=americas&countries=united-states
4 Bunker, R.B., C.S. Cagle, and D. Harris. (2014). Comparison of AACSB Accredited Institutions Using the CPA Examination as a Post-Curriculum Assessment. Journal of Accounting and Finance 14 (6): 127 – 132.

Another aspect that you need to consider is the ranking of the accounting program. U.S. News & World Report generates ranking of accounting master's programs based on surveys of deans and directors. In 2022, the top three accounting programs were at the University of Texas at Austin, University of Pennsylvania, and University of Illinois at Urbana-Champaign.[5] Highly ranked programs enjoy superior reputation, attract better students, and are a preferred recruiting field for employers.

If your goal is to enhance your career, you would want to consider program ranking as an important input in your decision making process. Earning your accounting master's degree opens the door to new job opportunities, and the U.S. accounting job market is strong.

To gain a competitive edge in the U.S. accounting job market, choose a program with a dedicated office of career services, STEM designation, and a large alumni base. We will discuss each of those factors next.

The importance of a dedicated career service office cannot be overstated. Many international students are surprised to learn that U.S. interviews involve a fair amount of behavioral-type questions. Performing well in behavioral interviews is a skill that requires training and practice, and those would be a critical component of your successful job search. While training can be delivered in workshops, interview practice sessions would involve more individualized attention and therefore require significant staff resources. As you consider your options, be sure to inquire about the training you can expect to receive from the office of career services and the size of the staff. Workshops that help you understand the U.S. job market and interview practices, resume reviews, and mock interviews that refine your interviewing skills, all increase your competitive advantage.

The second factor that significantly affects the ability of international students to secure a U.S. job is the length of their Optional Practical Training (OPT) period. International students on an F-1 visa that are enrolled in a full-time on-campus academic program for at least two semesters are eligible to apply for OPT employment authorization. The OPT employment authorization allows international students to work in the U.S. for up to 12 months, and that would be the case for most U.S. master's of accounting programs. However, there are a few accounting master's that are STEM-designated, and students graduating from these programs are eligible to apply for a 24 months OPT extension.

When you select a STEM-designated accounting master's, you are eligible for 36-months of U.S. employment, three times the 12-months period that is available for graduates of non-STEM programs. STEM designation opens up many more opportunities for international students, and is one of the critical factors to consider when evaluating which accounting master's is right for you.

The third factor affecting your career enhancement opportunities is the global alumni network of the program, the college, and the university. Alumni could help connect you to your dream job, and the larger the alumni network, the more likely you are to find a contact who has traveled the career path you would like to pursue. Keep in mind that employers focus their recruiting in schools that provided them with quality talent. Hence, a larger alumni network means that you will be at a school that employers prioritize for recruiting, and will have more leads and greater networking opportunities.

A final program characteristic that you need to consider is whether the program is delivered on-campus or online.

5 For ranking of accounting master's programs see U.S. News and World Report, https://www.usnews.com/best-graduate-schools/top-business-schools/accounting-rankingshttps://www.byuaccounting.net/rankings/univrank/rank_univ_cnt.php?qurank=avgtopicandmethod&sortorder=ranking6.

On-campus programs provide face-to-face interaction with instructors and fellow students, allow you to have in-person group meetings for study and group projects, and offer many extra-curricular activities. International students that complete at least two semesters of on-campus study are eligible to apply for an OPT employment authorization, providing between 12 and 36 months of work eligibility in the U.S. If your goals include obtaining U.S. employment after graduation, you would want to consider an on-campus accounting master's program.

Online programs are flexible in nature and do not require full-time enrollment or a relocation to campus. The duration of online master's programs is longer than the duration of on-campus programs, but the built-in flexibility allows students to take courses from anywhere in the world while maintaining their jobs. For students that are working professionals, the flexibility of an online program is appealing, and the ability to earn a master's degree without having to relocate is an advantage.

Having discussed the various facets of accounting master's programs, we turn to discussing the application process, reviewing general admission requirements, and providing advice on creating a strong application.

The Application Process

Many of the admission requirements for accounting master's program are quite standard, but there is some variation across programs and you would want to double-check with the specific program to which you are applying. In general, candidates must have earned a bachelor's degree, and programs typically require a grade point average (GPA) of at least 3.0 on a 4.0 scale. Most programs have a set of courses that you are expected to have completed before starting the master's degree, but the specific requirements vary widely and can range from introductory business courses to more advanced accounting knowledge. We recommend that you check the program's website for more information to determine if you meet the pre-requisites or would need to complete additional courses.

When applying, you will submit a personal statement, a professional resume, transcripts, and names of two academic or professional references that will write letters of recommendation on your behalf.

The program will contact your references directly to ask for letters, but you will usually have the option to indicate whether or not you waive your right to see the letters after they are submitted, thus determining if the letter will be confidential or not. While you are certainly allowed to not waive your right, the recommender and the admissions committee are aware of your choice, and confidential letters typically carry more weight. Therefore, we recommend that you consider that choice carefully. We also recommend that you think carefully about your choice of references, and choose recommenders that know you and can speak to your ability to succeed in the master's program. Finally, before providing the names of your references, you would want to contact them to ensure that they are comfortable recommending you to the program and will be able to do so by the application deadline.

International students who are not native English speakers would also submit English proficiency scores of either the Test of English as a Foreign Language (TOEFL), or the International English Language Testing System (IELTS). Many programs have established minimum scores that are required for admission, and those would typically be a minimum of 79 for TOEFL and a minimum of 6.5 for IELTS.

We recommend that you visit the IELTS website at https://www.ielts.org/ and the TOEFL website at https://www.ets.org/toefl/ to familiarize yourself with each test and choose the one that works better for you. Once you decide which test you will take, be sure to set aside enough time for test preparation, and to take advantage of the many resources that are available on those websites to help you prepare and take practice tests in advance.

A final requirement that is common to many accounting master's programs is the Graduate Management Admission Test (GMAT) or Graduate Record Examination (GRE). Some programs waive that requirement for applicants with work experience, but if the program you are applying to requires GMAT or GRE, you want to plan ahead to have sufficient study time before taking the test as studying for those test could take several months of preparation.

Now that we have reviewed the important aspects of accounting master's program and the application process, we will provide an example from the Gies College of Business at the University of Illinois.

Accounting Master's Programs at the University of Illinois Gies College of Business

Gies is an AACSB accredited top-three business school for graduate accounting with over 70,000 alumni around the globe, and part of the University of Illinois with a global alumni network of 470,000. Gies has been at the forefront of business education, and continually offers innovative courses for students, working professionals, and lifelong learners. The Department of Accountancy has the #1 ranked accounting faculty and is one of the largest suppliers of leaders of the accounting profession. It is AACSB accounting-accredited, and one of the largest in the nation, enabling it to design innovative curricula and offer an extensive menu of courses, keeping up-to-date with the accounting industry.

Gies offers three master's of accounting programs: Master's of Accounting Science (MAS) is an on-campus STEM-designated graduate accounting program for students that completed a U.S. bachelor's degree in accounting. Master's of Science in Accounting (MSA) is an on-campus STEM-designated graduate accounting program for students with an undergraduate degree from any country and any discipline. The online MSA (iMSA) is an online graduate accounting program for students with a bachelor's degree in any discipline. We will focus our discussion on MSA and iMSA as they are most suitable for students from outside the U.S.

The MSA program is a STEM-designated full-time 12-months on-campus program that starts in June and concludes in May. The iMSA is a flexible online program that is typically completed in 18-36 months. Both programs accept students with a bachelor's degree in any discipline from any country.

Both MSA and iMSA provide strong foundational and advanced courses in financial accounting (U.S. GAAP), managerial accounting, auditing, and U.S. taxation, and require 32 semester credit hours to graduate. The curriculum provides a solid preparation for the CPA exam, and an extensive set of electives in data analytics, tax, financial statement analysis, financial statement fraud, business law, and more.

While MSA students come from many different backgrounds, a dedicated team prepares customized study plans that are specifically tailored to each student's unique background and chart their path to degree. Those individual paths to degree ensure that all MSA graduates are 100% CPA eligible. Most MSA students start preparing for the CPA exam during the program, and many pass one or more parts of the CPA exam before they graduate, paving the way for a smooth success in their job.

One of the unique features of MSA is that the program starts mid-June, while most master's of accounting programs start at the end of August. The earlier start provides Gies MSA students with extra time to prepare themselves for the U.S. job market, and understand the U.S. job search process, which is significantly different from the process they might be familiar with in their home country. Gies office of career and professional development has a dedicated staff of advisors that delivers workshops, works with students in small groups, and provides personal coaching, all dedicated to students' success. Prior to the September career fair, students work through a process of identifying their unique skills and competencies, understanding how to connect their competencies to what employers are seeking, and hone their interviewing skills. The MSA program also offers a summer professional development course that focuses on personal branding, job search strategies, and skills for lifelong career success.

Gies MSA is one of only a few accounting master's programs that earned a STEM designation, granting international students an OPT extension for an opportunity to work in the U.S. 36 months after graduation, and significantly increasing their opportunities to secure a work visa.

The combination of excellent academics, solid career preparation, and STEM designation, translates into outstanding career outcomes for MSA students with 100% of 2021 domestic MSA graduates and 97% of 2021 international MSA graduates obtaining jobs.

For students that prefer a flexible, online learning environment, Gies offers iMSA, a fully online MSA program that allows student to balance education with work and other obligations without having to relocate to campus. Each iMSA course includes a self-paced on-demand set of video lectures that provide core material, and weekly live classroom sessions. The iMSA class is global, interactive, and highly engaging, and students gain tremendous insights, learning with the #1 ranked faculty and working with accomplished peers on group projects. While the program is fully online, students have many opportunities to attend special meet-ups around the world, join alumni events in their area, and visit campus. The flexible design of the iMSA program is especially appealing to working professionals, and the average pay increase for iMSA graduates is 16%.

To apply to the MSA or iMSA programs you will need to submit a personal statement, a professional resume, transcripts of your academic credentials, two letters of reference, and English proficiency scores (TOEFL or IELTS) unless you are a native English speaker or meet one of the exemption criteria. The MSA program also requires a GMAT or GRE, but waives that requirement for applicants with two or more years of work experience. GMAT and GRE are not required for the iMSA program. Both programs evaluate applications holistically.

To excel, you will want to write a strong personal statement that tells your story and does not simply repeat your resume. This is your opportunity to convince the admission team that you are an ideal candidate and a great fit for the program.

When applying to the MSA program, your personal statement should discuss how your academic and professional experience prepared you for the MSA program, your professional goals, and your reasons for pursuing the MSA program. If your GPA is below a 3.0 on a 4.0 scale, you should also explain the circumstances leading to your GPA and your plan for exceling in the MSA program.

When applying to the iMSA program, your personal statement should explain how your background and experiences influenced your decision to pursue the iMSA program, and why you feel that you are an ideal fit for Gies online MSA.

Your letters of reference are very important as they provide the admissions team additional insight into your past performance and experiences that may have prepared you to be successful in the program. Therefore, you should select your references carefully, and choose those who are in the best position to write an insightful letter that would make you a desirable candidate. The MSA program requires two letters from your professors or professional supervisors, and the iMSA requires at least one of the two reference letters to come from a present or former supervisor.

Remember—MSA and iMSA admission teams review applications holistically. If your GPA or your English proficiency score are not as high as you would like them to be, a strong personal statement and positive references are important indicators of your future success in the program. Ensure that your personal statement is powerful, and choose your references wisely.

Conclusion

An accounting master's degree is an exceptional opportunity to acquire new knowledge and skills, expand your network, and enhance your career. In this editorial, we reviewed the various facets that you would evaluate when selecting an accounting master's program, provided recommendations for a successful application, and concluded with an example of the accounting master's programs at Gies. We hope the observations we shared will be helpful to guide you, and wish you all the best as you embark on this life-changing journey.

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A look at graduate studies: Anxiety and Self-Efficacy in Accounting Sciences Programs

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Abstract
Objective: This study's general objective was to seek evidence and analyze the relationship between anxiety and self-efficacy among students attending graduate programs in Accounting Sciences.
Method: An intersectional survey was performed using the General Self-Efficacy Scale and the State-Trait Anxiety Inventory (IDATE) in a sample comprising 322 students attending any degree-granting Accounting Sciences program in Brazil. A quantitative approach was used to analyze data using correlational statistical tests.
Results: Perceived self-efficacy influences the students' performance, though no distinction was found in self-efficacy levels between genders; hence, perceived self-efficacy is independent of gender. The results also show that the students' anxiety levels are negatively and significantly correlated with self-efficacy. Finally, female graduate students scored significantly higher in anxiety than male students.
Contributions: This study's contribution lies in presenting these variables and the role of self-efficacy as a tool for moderating anxiety. This information can collaborate to design intervention strategies to maximize the academic, scientific, and professional potential of Accounting Sciences graduate programs.
Keywords: Self-Efficacy, Anxiety, Degree-granting programs, Accounting Sciences, IDATE.

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1. Introduction

For Cornachione Junior (2004. p. 7). “effective and quality education is supported. in a way. on its faculty.” and we can also verify the importance of degree-granting programs to train professors to teach in higher education. Among the programs available. those addressing the accounting topic stand out because:

> Accounting. an essential field of knowledge for training decision-makers at the most varied levels. is the result of the relationship between the unfolding of economic-financial facts and the collection and processing of such facts according to the paradigms of a specific methodology and enhanced by scientific rationality (Iudícibus. Martins. & Carvalho. 2005. p. 8)

Another indicator that shows the importance of degree-granting programs in Accounting is that such programs qualify graduate students to deal with the repercussions of the economic progress in the Accounting field (Peleias. Segreti. Da Silva. & Chirotto. 2007). The reason is that graduate programs are a source of expectations for a better career. The results presented by Cunha. Cornachione Junior. and Martins (2010) corroborate this statement. The authors mentioned above analyzed doctoral alumni from the Accounting Sciences program of a Brazilian university based on the Human Capital Theory and concluded that the effect of having a doctoral degree on income was relevant. in addition to the improvement in professional career caused by one’s educational level. the authors also reported academic and professional acknowledgment (Cunha *et al.*. 2010).

Hence. the characteristics of graduate programs promote a different interaction between students and the teaching/learning process. Furthermore. at this educational level. students are required to provide an original contribution to scientific knowledge; hence. individual research to improve scientific knowledge regarding a given subject becomes relevant (Levecque. Anseel. De Beuckelaer. Van der Heyden. & Gisle. 2017).

Therefore. a graduate program is an environment that demands students to attend courses to complete academic trajectories and to provide scientific contributions. In addition. according to Levecque *et al.* (2017). some graduate programs require that knowledge contributions be provided through the publication of papers before a thesis or dissertation defense as a requirement to obtain a degree.

For this reason. the mental health of graduate students has become a significant concern in recent years (Evans. Bira. Gastelum. Weiss. & Vanderford. 2018). Evans *et al.* (2018) concluded that graduate students are six times more likely to experience anxiety and depression than the population in general. Levecque *et al.* (2017) report that 32% of doctoral students are susceptible to developing psychiatric disorders such as anxiety. depression. burnout. or emotional exhaustion. Reis. Miranda. and Freitas (2017) also found that anxiety is a condition that affects students attending Accounting Sciences programs.

These and other studies (Andrade. Gorenstein. Viera Filho. Tung. & Artes. 2001; Beiter *et al.*. 2015; Betz. 1978; Iqbal. Gupta. & Venkatarao. 2018) note that college students may experience anxiety and become pathological in some cases. Anxiety is consciously related to subjectivation. such as threatening situations. and results in apprehension and tension. requiring individuals to adapt to daily demands (Borine. 2011).

Anxiety may be a personality trait or a condition that results from temporary events. Hence. instruments were developed to capture the two aspects of this phenomenon (Borine. 2011). In this sense. one of the instruments most frequently used to measure anxiety is the State-Trait Anxiety Inventory (Keedwell & Snaith. 1996). This self-report instrument allows individuals to report how they feel (through statements measuring anxiety). It measures state anxiety (transitory emotional state) and trait anxiety (how an individual feels most of the time).

Therefore. an academic environment. more specifically that of a graduate program. is an environment that affects both faculty members (Nascimento. 2017) and students. For this reason. Levecque *et al.* (2017) emphasize the importance of studying the impact of the graduate academic environment on students because if students' performance is affected by their mental condition. cognitive instruments can be used to minimize harm (Evans *et al.*. 2018. Alves. Puppin. Nascimento & da Cunha. 2019. Antonelli. dos Santos. Vilhena. & Meurer. 2020). The Self-Efficacy Theory stands out among the instruments used to improve the teaching/learning process (Bandura. 1977).

The formal definition of self-efficacy states that it is the individuals' belief in their ability to control their actions. course of actions. or events affecting their lives. The learning process concerns a belief in one's ability to perform a given task. meet a deadline. or be approved in a given course. etc. (Bandura. 1989). Self-efficacy works on the cognitive processing of anxiety as follows: when an individual is confronted with a given task. s/he experiences some emotional activation. A high level of emotional activation may become anxiety and hinder performance (Nogueira & Mesquita. 1992). However. one's self-efficacy decreases a disproportional emotional activation. decreasing anxiety levels and harmful responses that may result from it (Nogueira & Mesquita. 1992).

The influence of self-efficacy on the cognitive process has been analyzed from different perspectives. such as in the sports context (Martin & Gill. 1991; Moritz. Feltz. Fahrbach. & Mach. 2000). at the workplace (Judge. Jackson. Shaw. Scott. & Rich. 2007; Stajkovic & Luthans. 1998). and within the psychological (Bandura. 2001). and educational spheres (Pajares. 1996). among others. Self-efficacy is a strategy that can decrease anxiety because it positively affects one's affective sense and decrease anxiety levels when an individual faces specific tasks (Medeiros. Loureiro. Linhares. & Marturano. 2000). Nonetheless. although anxiety has been investigated from various points of view. no studies address the relationship between anxiety and self-efficacy in the context of Accounting Sciences graduate programs.

According to the Self-Efficacy Theory. individuals tend to choose activities in which they have some experience. so they feel confident that they will be successful. For this reason. high levels of self-efficacy mitigate the distress caused by anxiety (Bandura. 1977. 1988. 1989. 1997. 2001. 2006). However. in a university environment. students are required to participate in activities they are unfamiliar with and sometimes have no knowledge of at all. Such challenges may be even more significant in the context of a graduate program. considering the level of knowledge disseminated at this educational level (Conselho de Educação Superior. 1965). Therefore. in the face of the challenge to which graduate students are exposed. self-efficacy appears as an essential modulator of anxiety (Serpa. 2012). The reason is that it also works on students' previous. internal or intrinsic motivation. producing a positive mindset. enabling students to alleviate suffering prior to the task. and decreasing anxiety levels (Bandura. 1977. 1988. 1989. 1997. 2001. 2006).

Considering the aspects mentioned earlier and the need to deepen knowledge on how anxiety is related to self-efficacy in Accounting Sciences graduate programs. we propose the following guiding question: **What is the relationship between anxiety and self-efficacy among students attending Accounting Sciences graduate programs?** Therefore. this study's general objective is to seek evidence to analyze the relationship between self-efficacy and anxiety among the students of Accounting Sciences graduate programs. Additionally. this study sought to identify whether gender correlates with anxiety levels and self-efficacy and how it impacts the students' performance.

Anxiety is mental distress that prevents individuals attending a graduate program from developing their full potential because it distracts. disorients. hinders concentration. and causes other problems that harm performance (Costa. 2001; Reis *et al.*. 2017). It needs to be investigated because. even though it does not always result in extreme outcomes such as school dropout. it prevents students from achieving their full potential. Additionally. students with high anxiety levels may acquire poor education. which will reverberate in society. as such a student may become an incomplete professional. who may even be responsible for training future accountants. Students may also experience frustration and sorrow for not obtaining a Master's or Doctoral degree in Accounting Sciences and not having his/her skills. competencies. and attitudes fully developed.

Additionally. an individual's social context. including parents. spouses. children. and friends. is also affected. considering these individuals share an individual's achievements and frustrations. A study reports that 70% of the 33 Brazilian Accounting Sciences programs provided by public institutions. that is. programs using public resources. must be adequately harnessed to train good Masters and doctors.

From this perspective. seeking new ways to modulate anxiety is essential to prevent students from dropping out. experiencing mental distress. or obtaining deficient training. This objective can be achieved by concomitantly addressing self-efficacy. as it influences the students' choices. effort. and resilience (Schunk. 1991).

2. Literature Review

2.1 Self-Efficacy

Bandura's (1977) seminal study provided the guidelines to measure self-efficacy in different domains by proposing a cognitive mechanism able to support an individual's behavior in several spheres: "This essential mechanism that functions as a cognitive and motivational mediator is called perception. belief or self-efficacy expectancy" (Nogueira & Mesquita. 1992. p.16).

Therefore. perceived self-efficacy is one's belief in his/her ability to organize and perform actions or courses of actions to attain specific objectives or perform tasks (Bandura. 1977. 1988. 1989. 1997. 2001. 2006). "Self-efficacy is a belief in one's potential cognitive. motivational and behavioral skills. necessary to perform a task in a given time and context" (Lopes. 2017. p. 39). In other words. it is an individual's belief in his/her ability to write a scientific paper. meet the minimum course load to graduate. or write a dissertation. Nogueira and Mesquita (1992) explain that self-efficacy expectations presuppose that an individual has the necessary skills and capabilities to attain his/her goals. Hence. self-efficacy expectation concerns the actions that must be implemented to carry out a specific behavior. which is graphically represented in Figure 1.

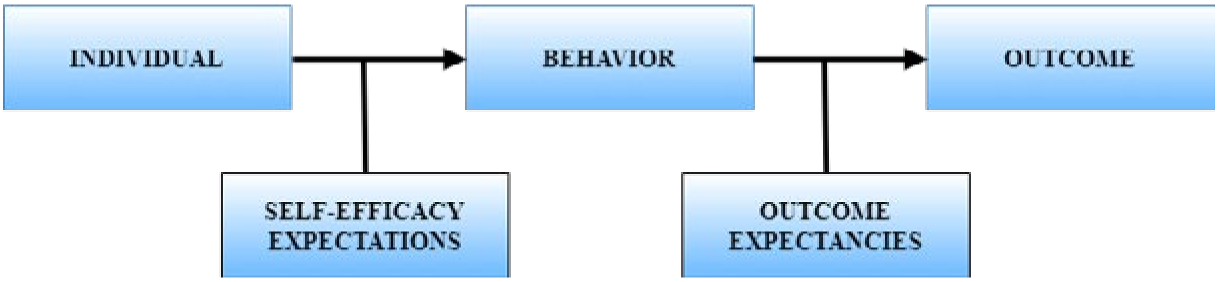

Figure 1. Graphical representation of Self-Efficacy Expectation and outcome expectancies.

Source: Bandura (1977).

(Translate: Individual; Behavior; Outcome; Self-Efficacy Expectations; Outcome Expectancies)

In addition to the self-efficacy expectations. Figure 1 presents outcome expectancies. According to Schunk (1991). there are constructs similar to self-efficacy. such as outcome expectancies and self-confidence. However. these concepts do not mix as each has unique characteristics. Note that self-efficacy expectations concern one's belief in his/her ability to carry out a specific behavior. while outcome expectancies concern the consequences of such behavior (Bandura. 1977. 1988. 1989. 1997. 2001. 2006).

For instance. imagine a student who believes that preparing hard for a difficult test will ensure that s/he will pass the test; that is. the student's outcome expectancy is that if s/he prepares. s/he will succeed. However. this student doubts s/he will be able to perform all the activities required to prepare. for instance. being able to understand the content. doing the homework. etc.; hence. this student has a low level of self-efficacy in his/her ability to execute this course of action. As a result. even though s/he believes that a particular course of action (studying) produces the desired outcome (pass the test). this information will not influence his/her behavior because of low self-efficacy. Although these are close concepts. this example shows that outcome expectancies differ from self-efficacy.

Among the self-concept dimensions. self-confidence is the most similar to self-efficacy (Schunk. 1991). Self-confidence is an individual's belief that s/he can produce results and achieve goals. However. self-confidence differs from self-efficacy because the latter predicts behavior in specific situations; that is. self-efficacy is considered at the domain's specific level (Schunk. 1991). For instance. a student may consider him/herself intelligent and capable of academic achievements (self-confidence) but consider him/herself incompetent to do a mathematical exercise (mathematical self-efficacy).

Various processes influence self-efficacy. To analyze self-efficacy. Bandura (1977) conducted a study with phobic individuals and established fundamental concepts of the Self-Efficacy Theory. which are divided into three: self-efficacy dimension. sources of self-efficacy. and cognitive processing of self-efficacy information (Nogueira & Mesquita. 1992). Bandura (1977) concluded that self-efficacy beliefs influence and ground various cognitive processes. such as motivational processes. individual performance. and emotional well-being (Bandura. 1977. 1988. 1989. 2001. 2006).

An additional conclusion is that self-efficacy is influenced by various processes. and may be generated. increased or decreased. developed. changed. regulated. or mobilized through four sources of information: performance achievement (personal). vicarious experiences. verbal persuasion. and emotional arousal (or activation). Other authors (e.g.. Dobarro. 2007; Nogueira & Mesquita. 1992; Schunk. 1991; Schunk & Pajares. 2001) tested and verified this proposition.

In recent decades. especially from the 1990s. self-efficacy was considered a predictor of students' motivation and learning. Additionally. most studies assessing self-concepts focused on self-efficacy (Weiner. 1990; Zimmerman. 2000).

Therefore. after Bandura (1977). other studies such as Lent. Brown. and Larkin (1984) tested the constructs of self-efficacy in education. verifying the relationship between self-efficacy and persistence and success of 42 students attending sciences and engineering programs (28 men and 14 women who took a 10-week course on career planning in the sciences and engineering fields). The authors constructed self-efficacy measures based on the procedures used by Betz and Hackett (1981) and classified individuals with scores in the scale's upper third as having 'high-level self-efficacy'. Individuals with scores in the scale's lower third were considered to have 'low levels of self-efficacy'. The results show that the students who reported higher levels of self-efficacy for educational demands persisted longer and obtained higher grades than the remaining.

Shell. Bruning. and Murphy (1989) addressed students attending a preparatory teaching program. The sample comprised 153 students: 115 women and 38 men. The authors investigated the relationship between self-efficacy and success in performing reading and writing tasks. Shell *et al.* (1989) concluded that 32% of the variability in reading tasks was predicted together by self-efficacy beliefs and outcome expectancies. However. regarding writing tasks. only perceived self-efficacy appeared as a significant predictor. Finally. the authors concluded that the results align with what Bandura (1986) theorized; hence. these results validate self-efficacy measures and show their role in motivation.

Another study that tested self-efficacy in education was Pajares and Miller (1994). The authors used path analysis to test self-efficacy's predictive and mediating roles in solving mathematical problems. The sample comprised 350 college students: 229 women and 121 men; 137 attended a program in education. and the remaining 213 attended other programs. The results confirmed that self-efficacy was a better predictor of problem-solving capacity than self-concept. perceived utility. prior experiences. and gender. Another result was that gender and prior experiences. mediated by self-efficacy. influenced problem-solving capacity. perceived utility. and self-concept. Finally. the authors concluded that the results reinforce the role of self-efficacy as hypothesized by Bandura (1986).

There are also studies in the Accounting Sciences field. For example. Byrne. Flood. and Griffin (2014) investigated self-efficacy among undergraduate students attending the first year of an Accounting program. The sample comprised 183 first-year students (response level: 86%) enrolled in an Irish university's Accounting and Finances program (52.5% were male students and 47.5% were female students). The authors concluded that higher levels of self-efficacy regarding one's ability to meet deadlines and understand content are associated with higher grades in accounting courses.

Hence. extensive empirical evidence shows not only the predictive role of self-efficacy but also its relationship and interference with cognitive processes involved in learning.

2.2 Anxiety

Anxiety is an adaptation response that prepares an organism to deal with difficulties or life-threatening events (Neiva. 2010). Therefore. it is a natural and positive state that helps individuals to focus attention on the task at hand. However. it may be a negative state when it is too intense. may result in exaggerated fear and uneasiness. interfering in the natural development of daily tasks. or incapacitating an individual (Castillo. Recondo. Asbahr & Manfro. 2000; Weiner & Craighead. 2009).

There are various anxiety disorders. The American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders lists the 11 most common. In this sense. Clark and Beck (2012) propose that five cumulative criteria must be met to classify anxiety as abnormal: Dysfunctional Cognition. Impaired Functioning. Maintenance. False Alarms. and Hypersensitivity to Stimulus.

Dysfunctional Cognition concerns the activation of dysfunctional beliefs. falsely assuming or wrongly identifying a situation as dangerous. Impaired Functioning concerns interferences in an individual's routine (social or occupational) functioning. Maintenance refers to how long an anxious condition persists; high anxiety levels may persist for months or years. False alarms are characterized by intense fear or panic in the absence of threatening signs. Finally. Hypersensitivity to stimulus is characterized by increased activation of anxiety symptoms. even when a threat is mild or harmless.

Clark and Beck's (2012) anxiety processing model (Figure 2) shows the structures. processes. and products of the information system involved with anxiety. characterizing 'state anxiety' as a result of "an inappropriate and exaggerated assessment of personal vulnerability resulting from a faulty information processing system that misinterprets neutral situations or threatening signs" (Clark & Beck. 2012. p.45).

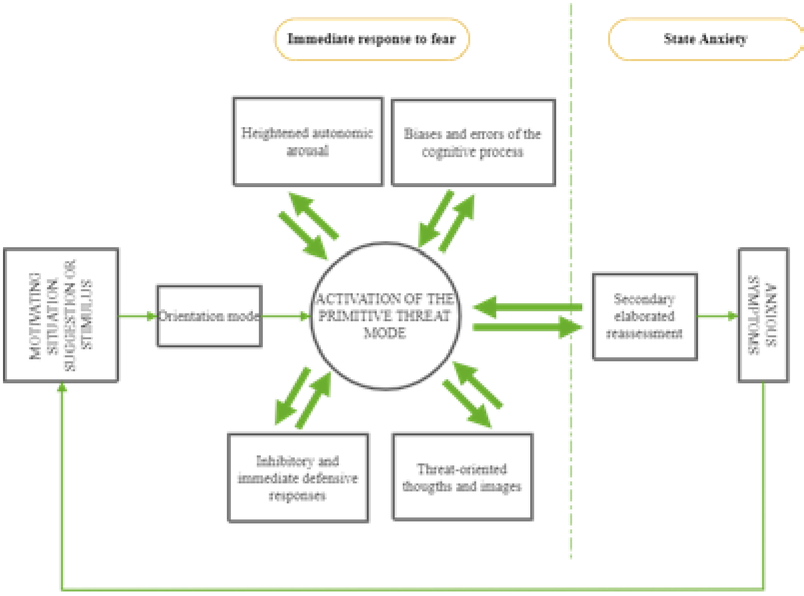

Figure 2. Anxiety Cognitive Model

Source: Clark and Beck (2012. p. 43)
(Translate: Immediate response to fear; Heightened autonomic arousal; Biases and errors of the cognitive process; MOTIVATING SITUATION. SUGGESTION OR STIMULUS; Orientation mode; ACTIVATION OF THE PRIMITIVE THREAT MODE; Inhibitory and immediate defensive responses; Threat-oriented thoughts and images; State anxiety; Secondary elaborated reassessment; ANXIOUS SYMPTOMS).

Neiva (2010) notes that one of the most important references to investigate anxiety is Spielberger (1972) because he developed the basis for understanding anxiety from a dualistic perspective. state anxiety. and trait anxiety. The approach used in this study is trait anxiety because it refers to more stable individual differences than state anxiety (Biaggio. Natalício & Spielberger. 1977); thus. we minimize the impact of ecosystemic and situational factors that mediate state anxiety.

Various studies addressing anxiety considered the difference between state anxiety and trait anxiety. assessing their different aspects. For example. Weiner (1990) emphasizes the importance of differentiating state anxiety and trait anxiety:

> State anxiety (A-state) is conceptualized as a transient emotional state or condition of the human organism that is characterized by unpleasant feelings of tension and apprehension consciously perceived and by an increase in the activity of the autonomic nervous system. A-state scores can vary in intensity and fluctuate over time. A-trait refers to relatively stable individual differences in anxiety proneness. that is. the difference in the propensity to react to situations perceived to be threatening. increasing the intensity of the state of anxiety. As a psychological concept. trait anxiety has the characteristics of a class of constructs that Atkinson (1) calls "motives" and Campbell (2) refers to as "acquired behavioral dispositions". Atkinson defines motives as dispositions that remain latent until a situation activates them. According to Campbell. acquired behavioral dispositions involve residues of past experiences. predisposing an individual to see the world in a certain way and manifest objective and realistic reactions (Biaggio. Natalício. & Spielberger. 1977. pp. 31-32).

In summary. state anxiety concerns how an individual feels at the time of the assessment. while trait anxiety concerns how this individual usually feels. Trait anxiety is related to 'being anxious all the time'. while state anxiety is related to 'being anxious at a given time' (Neiva. 2010). Thus. trait anxiety is structured to assess a personality's stable anxiety factors (Neiva. 2010). Additionally. some aspects addressed in the methodological section indicate that trait anxiety is more appropriate for this study than state anxiety.

Similar to self-efficacy. anxiety has also been investigated in the education field. For instance. Betz (1978) assessed the factors related to the prevalence and intensity of mathematical anxiety among 652 students attending mathematics and psychology courses in an American university. The author concluded that mathematic anxiety frequently occurs among college students. most frequently among women and students with a history of inefficiency in mathematics. Additionally. anxiety was inversely proportional to the scores obtained in mathematics performance tests; the more anxious an individual. the lower his/her score and vice-versa. This finding corroborates the notion that anxiety can interfere with academic performance.

Using the state-trait anxiety inventory. Simon and Thomas (1983) investigated anxiety among 1.274 British students from different universities. The results show that the type of institution and program influence one's anxiety levels. Additionally. regardless of the institution and program. women scored significantly higher in anxiety than men.

Reis *et al.* (2017) investigated whether anxiety was significantly associated with the academic performance of 205 students attending the Accounting Sciences program of a Brazilian institution. The authors concluded that trait anxiety was negatively and significantly associated with academic performance. Another aspect raised was that even though female students scored significantly higher in anxiety than their male counterparts. their academic performance was also significantly superior to that of men. Hence. female students could perform even better if they decreased their anxiety levels.

Therefore. the previous discussion indicates that anxiety is an emotional state that. in addition to its psychological and physiological components. may manifest as a pathology under certain environmental and genetic circumstances and harm an individual's learning and potential. In this sense. perceived self-efficacy is a way to regulate cognitive responses prior to the state of anxiety. favoring learning and performance. Thus. the relationship between these two variables will be analyzed from a quantitative perspective. as presented below.

The relationship between anxiety and self-efficacy was also analyzed. For instance. Smith (1989) performed an experiment with 42 college students recruited from the 452 students attending an introductory psychology course. The author verified whether reinforcement of perceived self-efficacy (by training cognitive-behavioral coping skills) would decrease anxiety among students presenting anxious conditions. The conclusion was that. compared to the control group. the trained individuals significantly decreased trait anxiety and state anxiety and also obtained higher academic performance. Therefore. in line with Bandura (1977. 1988. 2006. 2018). the results corroborate the notion that self-efficacy influences anxiety.

Therefore. according to Bandura (1988). perceived self-efficacy controls potential threats and plays a key role in arousal caused by anxiety. According to the author. a threat is a relational property that reflects the correspondence between perceived coping skills and potentially harmful aspects of the environment. For this reason. people who believe they can control potential threats do not become involved or are disturbed by anxious thoughts. However. individuals who believe they cannot manage potentially threatening events experience high levels of arousal caused by anxiety (Bandura. 1988).

3. Method

3.1 Study design. population. and data collection

Regarding the objectives. this study is classified as descriptive. and a survey was the strategy used to collect data. while a quantitative approach was adopted to address the problem. It was registered in the institutional review board under CAAE: 97431018.1.0000.5149. Data concerning the universities with degree-granting Accounting Sciences programs were obtained through metadata from the Sucupira system. retrieved in June 2018. After consulting the programs in the Sucupira platform. we searched the websites of the respective programs. where the emails and telephones of the programs' secretary or coordinator were provided. Next. a message was sent via email. and a telephone call was made to explain the study's objectives and ask for the students' emails. The population comprised 1.402 students regularly enrolled in Accounting Sciences graduate programs. The sample comprised 322 students who completed the online questionnaire (in the platform: *pesquisasonline.com*) available from September to November 2018. Data analysis revealed that 322 out of the 383 students who started filling in the questionnaire completed it. This number of respondents corresponds to a response rate of 23.93%.

3.2 Data collection instruments

The instruments used to collect data were exclusively available online. A form divided into three blocks addressed descriptive variables (age. gender. marital status. etc.). the General Self-Efficacy Scale. and Trait-Anxiety Inventory.

According to Teixeira. Dias. and Dell'Aglio (2012). general self-efficacy is usually assessed using the general self-efficacy scale. Schwarzer and Jerusalem developed the scale's German version in 1981. It contained 20 items and was later adjusted to 10 items (Schwarzer. Bäßler. Kwiatek. Schröder. & Zhang. 1997). It was adapted to different languages (Schwarzer & Jerusalem. 1995. cited by Scholz. Doña. Sud. & Schwarzer. 2002). and the versions kept the instrument's construct validity and reliability. while findings suggest that it is a multicultural scale (Luszczynska. Scholz & Schwarzer. 2005; Schwarzer *et al.*. 1997). The Brazilian version was translated and validated by Scholz *et al.* (2002) and is composed of 10 items rated on a four-point Likert scale: 1 = Not at all true; 2 = Hardly true; 3 = Moderately true; and 4 = Exactly true (Biaggio *et al.*. 1977; Spielberger. Gorsuch. & Lushene. 1970).

The subscale addressing trait anxiety of the Brazilian version of the state-trait anxiety inventory (IDATE) was used to measure Anxiety. The inventory was developed by Spielberger and associates (Spielberger & Gorsuch. 1966; Spielberger *et al.*. 1970) to characterize how individuals feel most of the time (regarding anxiety). According to Spielberger (1972). evidence of construct validity of the State-Trait Anxiety Inventory is found in Auerbach (1971). Hall (1969). Hodges (1967). Hodges and Felling (1970). and O'Neil. Spielberger. & Hansen (1969). Biaggio *et al.* (1977) also translated and validated this instrument in the Brazilian context. The Brazilian version is composed of 20 items rated on a four-point Likert scale: 1 = Almost never; 2 = Sometimes; 3 = Often; 4 = Almost always. Only the items addressing the diagnosis of trait anxiety were used. The reason is that state anxiety concerns how individuals feel when the questionnaire is applied or when performing a given task. and this study was intended to analyze anxiety as a characteristic of respondents.

3.3 Hypotheses and data analysis

Self-efficacy expectations concern an individual's belief that s/he can perform the actions necessary to meet situational demands (Bandura. 1977. 1988. 1989. 1997. 2001. 2006). Hence. by definition. self-efficacy concerns how capable individuals consider themselves in organizing resources and taking the actions required to perform as expected or desired (Nurttila. Ketonen & Lonka. 2015. Roick & Ringeisen. 2017). Bandura (1977. 1988. 1989. 1997. 2001. 2006) identifies four sources through which self-efficacy is acquired or changed: performance achievement (past experiences). indirect experience (vicarious learning). verbal persuasion (suggestions and messages of relevant people such as parents. teachers. friends). and emotional arousal (enthusiasm. anxiety. and others).

Hence. the higher an individual's level of perceived self-efficacy. the higher this individual's positive and optimistic view of his/her psychological resources to perform tasks. For this reason. individuals with high self-efficacy levels tend to tackle more challenging tasks; such a belief has the potential to motivate individuals to put more effort and persist longer when facing adverse stimuli (Bandalos. Yates & Thorndike-Christ. 1995).

Consequently. those with a self-image low in self-efficacy tend to judge themselves as ineffective and give up easily. Moreover. these individuals may insist on their perceived deficiencies. which prevent them from paying attention to the task at hand. experiencing anxiety. distress. and depression. and assigning their successes to external factors and failures to internal factors (Cassady & Johnson. 2002). On the other hand. when individuals with high self-efficacy levels face adverse stimuli. they tend to hold a positive self-image and consider themselves capable of managing threats. not fearing or avoiding them (Bandura. 1977. 1988. 1989. 2001. 2006).

Successfully performing a task or behavior tends to increase one's expectations toward his/her efficacy in performing tasks or behaviors in the future; a successful performance raises one's self-efficacy (Bandalos *et al.*. 1995). Therefore. perceived self-efficacy leads to a sense of competence. a feeling of optimism (an optimistic mindset) that an individual can perform tasks effectively.

Self-efficacy in the academic environment means that students feel able to master academic content. attain objectives. and perform well compared to others. From this perspective. self-efficacy can be considered a mediator between knowledge and studying habits; students with a strong sense of competence are capable of dealing with challenging situations. overcoming obstacles. and engaging in studies (Miller & Lavin. 2007. Nurttila *et al.*. 2015. Roick & Ringeisen. 2017).

When facing demands. students with higher levels of self-efficacy apply task-focused active strategies and believe in their success. while those with low self-efficacy intentionally avoid challenging situations (Nurttila *et al.*. 2015). Additionally. prior experiences with challenging situations (e.g.. admission test to enter college. tests taken during college) provide students with higher levels of self-efficacy with a cognitive strategy (optimism) and contribute to their persistence in challenging tasks. Optimist individuals seem to perform better in academic tasks (Miller & Lavin. 2007. Nurttila *et al.*. 2015. Roick & Ringeisen. 2017). either because of their positive mindset. active actions. or resilience. Even when dealing with setbacks. these individuals credit such events to the need to apply more effort and dedication (Martin. Marsh & Debus. 2003).

On the other hand. students with low levels of self-efficacy. and consequently. low optimism. attempt to apply strategies to avoid tasks and rarely experience positive feelings when facing a challenge; avoiding tasks is also a way to minimize fear of failure or anxiety due to incomplete tasks (Nurttila *et al.*. 2015). Based on this rationale. the first hypothesis is proposed:

H_1: Academic performance is positively influenced by the students' perceived self-efficacy.

Therefore. given its modulating role. self-efficacy is an important mechanism for controlling performance. Bandura (1988) argues that people who believe they can control potential threats do not become engaged in or are disturbed by anxious thoughts. However. individuals who believe they cannot manage potentially threatening events may experience high levels of emotional arousal. apprehension. and tension.

Consequently. a negative self-concept regarding one's resources and capabilities may lead to anxiety disorders (Nurttila *et al.*. 2015). In other words. an individual who considers him/herself capable is able to control arousal because this individual is confident s/he will achieve his/her goals. This empirical finding indicates that low self-efficacy and high anxiety levels are related to poorer academic performance or evaluations (Cassady & Johnson. 2002. Nurttila *et al.*. 2015. Roick & Ringeisen. 2017). Additionally. students experience preemptive mental distress (Hunsley. 1985).

According to current conceptualizations. when anxiety reaches unadvisable high levels. a cognitive interference model takes place in which thoughts that are irrelevant to the task at hand emerge in anxious students. such as a sense of inadequacy. helplessness. and concern with losing status. which may harm their performance (Nurttila *et al.*. 2015. Roick & Ringeisen. 2017). Thus. arousal caused by high anxiety levels undermines students' confidence. decreasing their performance in academic tasks and learning situations (Roick & Ringeisen. 2017). Accordingly. hypotheses 2 and 3 are presented:

H_2: Academic performance is negatively affected by students' trait anxiety.
H_3: Self-efficacy is negatively and significantly correlated with trait anxiety.

The last perspective from which anxiety and self-efficacy are investigated concerns gender. Studies addressing gender roles suggest that stereotypical male characteristics can be summarized as primarily instrumental qualities. e.g.. assertiveness. activity. competitiveness. and dominance (Hackett & Betz. 1981). These attributes should facilitate not only one's behavior but also increase the likelihood of success (Mohammadyari. 2012. Jung & Oh. 2016). On the other hand. the stereotypical female role reflects a combination of emotionally expressive characteristics. such as nurturing. sensitivity. caring. and passive. submissive attributes (Hackett & Betz. 1981. Jung & Oh. 2016. Fritz & Van Knippenberg. 2018). Even though the qualities related to the female role are positive by nature. they do not readily lead to a successful performance of tasks expected by organizations (Hackett & Betz. 1981. Erdwins. Buffardi. Casper. & O'Brien. 2001).

In this social context. women face barriers such as discrimination. sexual harassment. and a lack of (structural and psychological) support systems. which are obstacles demanding high levels of self-efficacy. For the same reason. women deal with a more significant emotional imposition. as they are expected to harmonically heed family and professional demands (Erdwins *et al.*. 2001). However. to meet domestic responsibilities. women. more often than men. restrict their attempts to attain less prominent positions (rather than leadership positions. for instance) in favor of family life; hence. many women. especially those with children. seek flexible jobs (Erdwins *et al.*. 2001. Fritz & Van Knippenberg. 2018). As the ideal employee is someone who prioritizes work over family and working long hours equates with commitment. family-oriented women usually consider it obvious not to be considered for leadership and better pay positions (Fritz. & Van Knippenberg. 2018).

This social pressure has repercussions on women's health and mental disposition. Essentially. as a result of the social context. women lack high self-efficacy expectancies for their careers and. for this reason. do not fully develop their professional capabilities and talents (Hackett & Betz. 1981. Lewinsohn. Gotlib. Lewinsohn. Seeley & Allen. 1998). Furthermore. for the same reason. women would be more susceptible to higher anxiety levels (Jung & Oh. 2016). while men would benefit from higher levels of self-efficacy. Consequently. men would perform better in evaluations within the academic context. and women's performance would be harmed because they are more susceptible to anxiety (Hackett & Betz. 1981. Mohammadyari. 2012. Jung & Oh. 2016. Fritz & Van Knippenberg. 2018).

According to the previous discussion. the following hypotheses are proposed:

H_4: Female students present lower self-efficacy scores than male students.
H_5: Female students obtain higher trait anxiety scores than male students.

The scales' analyses were based on the guidelines proposed by the authors of the original versions. based on empirical distributions of the population in which each scale was applied (or a given reference population). The Shapiro-Francia test. t-test or Mann-Whitney. or Kruskal-Wallis test was performed for the difference of means. while Pearson's test or Spearman's test was performed to verify the correlation between the variables. We considered that data could be treated using these methods because we assumed that the constructs were determined by a composite score (Joshi. Kale. Chandel. & Pal. 2015) and also because some authors indicate that data resulting from a Likert scale can be considered interval (Carifio & Perla. 2008. Brown. 2011).

The statistical significance was set at 10%. We choose this significance level because studies focusing on personalistic factors are believed not to present a deterministic relationship between the variables and their constructs. considering that the aspects that compose them are multifaceted (Nuzzo. 2014. Wasserstein & Lazar. 2016).

A linear regression analysis was also conducted to verify the effect of anxiety and self-efficacy on the students' performance and check *H1* and *H3*. The descriptive variables were used as control variables. Therefore. model 1 is illustrated as follows:

$$MGD = \alpha_1 + \beta_1\,(Anxiety) - \beta_2\,(Self\text{-}efficacy) + \beta_3\,(Age) + \beta_4\,(Mariatal\ Status_{Dummy}) + \beta_5\,(Doctorate_{Dummy}) + \beta_6\,(No\ Support_{Dummy}) + \beta_7\,(Scholarship_{Dummy}) \quad (1)$$

Where:

- *MGD* is the General Mean of the Courses reported by the participants;
- *Anxiety* is the score the participants obtained on the IDATE;
- *Self-efficacy* is the score the participants obtained on the general self-efficacy scale;
- *Age* is the age the respondents reported;
- *Marital Status* is a *dummy* in which 1 refers to married participants or in a stable relationship and 0 otherwise;
- *Doctorate* is a *dummy* in which 1 refers to participants enrolled in a doctoral program at the time of the survey and 0 refers to Master's students;
- *No Support* is a *dummy* in which 1 refers to students who reported psychological. psychiatric or financial support;
- *Scholarship* is a *dummy* in which 1 refers to respondents who reported a scholarship and 0 otherwise.

After estimating the model. the validations required by the method employed were performed: multicollinearity. normality of residuals. correlation of error with the variables. mean of error. functional form. and heteroscedasticity.

4. Presentation and discussion of results

4.1 Descriptive analysis

Regarding gender. the sample comprised 52.48% (169) female and 47.52% (153) male students. These results are in line with Simil (2016). in which 51.81% (115) of the students were women and 48.19% (107) were men; however. they differ from the population data retrieved from the Sucupira report of the Coordination for the Improvement of Higher Education Personnel (Capes). According to the report. 55.63% (780) of the students were male. and 44.37% (622) were women. However. the Sucupira report presents data from 2017 (the last year available); hence. it disregards Master's and doctoral students enrolled in 2018. the year the sample was recruited. For this reason. this analysis suggests that there were more women among the graduate students in the Accounting Sciences program at the time of data collection (General: 44.37% to 52.48%; Master's: 43.37% to 50.41%; Doctorate: 47.40% to 59.21%).

As for the respondents' mean grade. on average. the students reported a grade equal to 85% of the possible grade up to the time they answered the instrument. Women reported a grade 0.7% higher than that reported by men. As the normality test indicated that the mean grades did not follow a normal distribution (p-value=0.01811). a non-parametric test was performed to verify the association between the grades and gender. The test revealed that. even though the women reported a slightly higher mean grade. it did not indicate that grade was associated with gender (p-value=0.4345).

The sample was 33.7 years old on average; 75% were aged over 27. The median was 31 years old; the standard deviation was 9.2. In this sense. the minimum and maximum values concerning age are noteworthy. The minimum age was 18 years old; that is. there was a female Master's student who was approximately 15 years younger than the sample's mean. This information is of note because. in Brazil. individuals must complete an undergraduate program before entering a graduate program (Brasil. 1996). This information shows that this student entered the undergraduate program when she was even younger. In turn. the maximum age was 68; there was a male Master's student 35 years older than the sample's mean. This finding illustrates Freire's (1983) proposition that education is sought throughout life. The results previously mentioned are presented in Table 1.

Table 1
Students' profile

Group	Description	General N	General %	Female N	Female %	Male N	Male %
General mean obtained in the courses	Mean	85.0	-	85.4	-	84.7	-
	Median	85.0	-	85.0	-	85.0	-
	Standard deviation	8.0	-	7.8	-	8.1	-
	Minimum	65.0	-	65.0	-	65.0	-
	Maximum	100.0	-	100.0	-	100.0	-
	1st Quartile	80.0	-	80.0	-	80.0	-
	3rd Quartile	90.0	-	90.0	-	90.0	-
Age	Mean	33.7	-	31.6	-	36.0	-
	Median	31.0	-	30.0	-	35.0	-
	Standard deviation	9.2	-	8.0	-	9.9	-
	Minimum	18.0	-	18.0	-	20.0	-
	Maximum	68.0	-	62.0	-	68.0	-
	1st Quartile	27.0	-	26.0	-	28.0	-
	3rd Quartile	39.0	-	36.0	-	42.0	-
Marital Status	Married/ Fixed Partner	156	48.45%	72	42.60%	84	54.90%
	Single	150	46.58%	85	50.30%	65	42.48%
	Divorced/ Separated	15	4.66%	11	6.51%	4	2.62%
	Widowed	1	0.31%	1	0.59%	0	0.00%
Graduate program	Master's degree	246	76.40%	124	73.37%	122	79.74%
	Doctorate degree	76	23.60%	45	26.63%	31	20.26%
Residence	At the graduate program's location	190	59.00%	104	61.54%	86	56.21%
	Did not live at the graduate program's location and did not move	83	25.78%	41	24.26%	42	27.45%
		49	15.22%	24	14.20%	25	16.34%

Source: study's data (2018)

Still. regarding age. the men's average age (36.0) is higher than that of women (31.6). Furthermore. the Man-Whitney test (normality test. p-value=0.000) showed that the average age is statistically different between the genders (p-value = 0.00). Hence. men are older than women in the Master's and doctoral programs. suggesting that men take longer to enter a graduate program.

Regarding the type of graduate program. most of the sample and the population are Master's students. For this reason. Master's students represent 76.40% of the sample. while doctoral students represent 23.60%. similar to data found in the Sucupira Report (CAPES. 2016). Another descriptive variable analyzed was the students' marital status; 48.45% of the students were married or were in a stable relationship; 46.56% were single; 4.66% were separated or divorced. and 0.31% were widowed.

The responses for the descriptive variables also revealed information regarding the students' place of residence. The students generally lived near the graduate program (59.00%). Those who did not (25.78%) live near the program. did not move. Regarding academic support. most students (56.21%) reported no support was provided when they were completing the program's credits; 33.54% received a scholarship; 4.66% received psychiatric or psychological support. and 5.59% received a scholarship and psychological or psychiatric support. The relationship between these variables is presented in Figure 3.

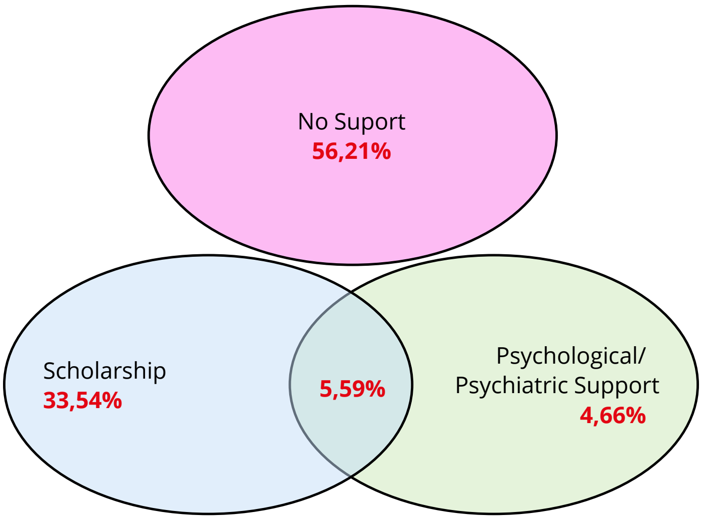

Figure 3. Support provided to students

Source: study's data (2018)

As for scholarships. Simil (2016) verified that 46.85% of the students received financial support in the form of scholarships. This figure is higher than that found in this study. in which 43% reported a scholarship. This difference possibly indicates that the cut in higher education funding decreased the financial support provided by the universities to students.

4.2 Quantitative analysis

Of the 383 students who started filling out the questionnaire. 322 completed all the questionnaire's stages. Hence. 322 responses were considered in the quantitative analysis (return rate of 23.93%).

4.2.1 Results of the General Self-Efficacy Scale

The general self-efficacy scale comprises 10 items rated on a Likert scale ranging from '10' to '40' points. Most students scored in the scale's upper third. considering the sum of items "moderately true" e "exactly true". The statistics in general and according to gender are presented in Table 2.

Table 2
Distribution of General Self-Efficacy and by Gender

Description	General (N = 322)	Female (N = 169)	Male (N = 153)
Mean	32.1	31.8	32.4
Median	32.0	32.0	32.0
Standard deviation	4.5	4.7	4.3
Coefficient of variation	14.1%	14.8%	13.3%
Minimum	19.0	19.0	22.0
Maximum	40.0	40.0	40.0
1st Quartile	29.0	29.0	30.0
3rd Quartile	35.0	35.0	36.0

Source: study's data (2018)

Considering data were normally distributed (Shapiro-Wilk p-value=0.11960). a t-test was performed to verify whether the male students' self-efficacy mean was higher than that of the female students (Table 2). Hence. the hypothesis of equal self-efficacy means failed to be rejected. indicating that the male students obtained the same mean as female students (p-value=0.2667). Thus. hypothesis four **Female students obtain lower self-efficacy scores compared to male students** was rejected in this study.

4.2.2 Results of the Anxiety Scale

The trait-anxiety scale comprises 20 items rated on a four-point Likert scale. with a total score ranging from 20 to 80. The mean score obtained by the female students in the anxiety inventory was 44.9. followed by the general mean (entire sample) of 42.3 and the male students' mean of 39.4. Therefore. the three scores are in the scale's upper third and close to the sample's median. This finding shows that most students who did not score in the sample's upper third presented low to moderate anxiety. These results are presented in Table 3.

The Mann-Whitney test (Shapiro Wilk p-value < 0.00) was performed to verify whether the means were statistically different. As shown in the table. the female students' anxiety scores were statistically higher than the male students' scores. We also verified whether this difference in the mean would remain in the gender analysis. considering the type of graduate program.

Table 3
Distribution of general anxiety and according to gender

Descrição	General (N = 322)	Female (N = 169)	Male (N = 153)
Mean	42.3	44.9	39.4
Median	41.0	44.0	38.0
Standard deviation	11.4	11.6	10.4
Coefficient of variation	26.9%	25.9%	26.4%
Minimum	20.0	20.0	22.0
Maximum	75.0	72.0	75.0
1st Quartile	33.0	37.0	32.0
3rd Quartile	50.0	54.0	45.0

Source: study's data (2018)

Regarding the mean anxiety score according to the type of graduate program and gender. the score obtained by male Master's students was 39.5. which is statistically lower than the score obtained by female Master's students. 44.4 (Mann-Whitney p-value=0.006). The same occurred with male doctoral students. 39.0. compared to female doctoral students. 46.2 (Mann-Whitney p-value=0.0068). Therefore. female Master's students are statistically more anxious than male Master's students. and female doctoral students are also more anxious than male doctoral students (Table 4). These results are similar to those reported by Simon & Thomas (1983). who concluded that female students presented higher anxiety scores regardless of the institution or program.

Table 4
Distribution of students' anxiety according to type of graduate program and gender

Description	Master's		Doctorate	
Gender	Femele (N = 124)	Male (N = 122)	Femele (N = 45)	Male (N = 31)
Mean	44.4	39.5	46.2	39.0
Median	42.0	38.0	46.0	39.0
Standard Deviation	11.6	10.3	11.8	11.1
Coefficient of variation	26.1%	26.0%	25.4%	28.4%
Minimum	20.0	22.0	22.0	22.0
Maximum	72.0	75.0	70.0	69.0
1st Quartile	35.5	32.0	37.0	30.0
3rd Quartile	53.5	45.0	54.0	45.0

Source: study's data (2018)

Based on these results. the Hypothesis:

H_5: Female students obtain higher trait anxiety scores than male students failed to be rejected.

These results indicate that graduate programs have not overcome gender stigmas from social constructs (Hackett & Betz. 1981. Lewinsohn *et al.*. 1998. Mohammadyari. 2012. Jung & Oh. 2016. Fritz & Van Knippenberg. 2018).

4.2.3 Self-Efficacy and Anxiety

The relationship between self-efficacy and anxiety was also addressed in this study. Hence. a Spearman's correlation test was performed. and the results indicate that hypothesis **H_3: Self-efficacy is negatively and significantly correlated with trait anxiety** failed to be rejected; that is. the correlation between self-efficacy and anxiety is negative and statistically significant. with a value equal to -0.63 (Figure 3).

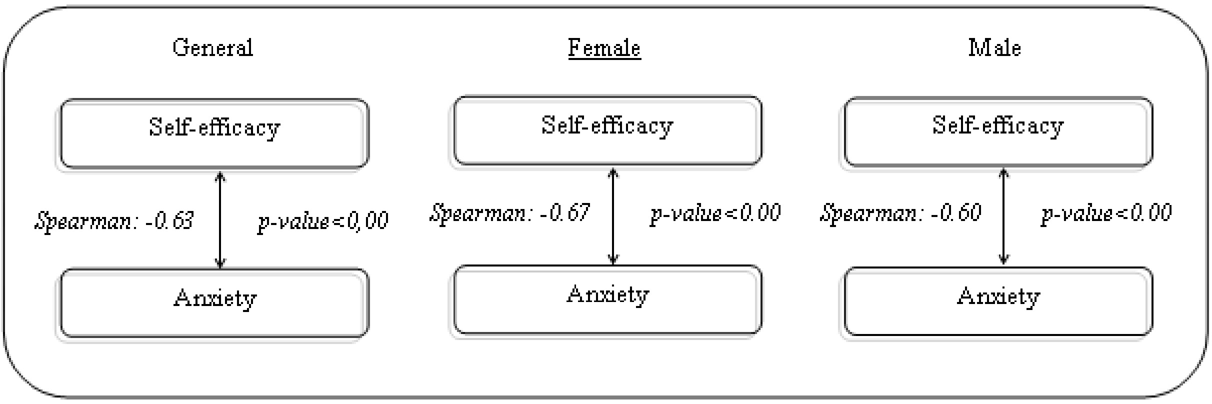

Figure 3. Correlation between self-efficacy and anxiety

Source: study's data (2018)

The correlation according to gender was also verified. The relationship between anxiety and self-efficacy is stronger among women (-0.67. p-value <0.00) than among men (-0.60. p-value <0.00). This result differs from that of Scholz (2002). who found a correlation of -0.43 for men and -0.42 for women. This difference may be related to the increase in mental disorders among graduate students reported by Levecque *et al.* (2017). Additionally. this result reinforces the role of self-efficacy as a tool to moderate anxiety. In this sense. "previous investigations suggest that the self-efficacy theory can be used to improve understanding of the experience of anxiety" (Nogueira & Mesquita. 1992. p. 18).

4.2.3 Performance x Self-Efficacy and Anxiety

The final analysis is related to this study's secondary objective. which was to verify how trait anxiety and self-efficacy impacted students' performance in the courses they attended in the graduate program. Initially. the model was estimated with all the variables; however. when non-significant variables were found. considering a minimum p-value of 10%. we opted for a model without these variables (Table 5). Based on this model (stepwise). the estimation validation tests indicated no problems regarding multicollinearity. normality of residuals. correlation of error with variables. mean error. functional form. and heteroscedasticity. However. the model was significant (p-value=0.0144). with an adjusted R2 of 0.0201.

The estimation results showed two variables significant for the students' performance: receiving a scholarship during the program and perceived self-efficacy. A scholarship positively and significantly influences a student's performance. possibly because it enables students to dedicate more intensively to the program; hence. these students are expected to perform better than those not receiving a scholarship.

Regarding perceive self-efficacy. this variable is expected to be important for the students' performance because it is related to the students' confidence in themselves and their skills and capabilities. Self-efficacy favors a positive mindset and facilitates focusing on the task at hand. so that students are more persistent when facing challenges (Miller & Lavin. 2007. Nurttila *et al.*. 2015. Roick & Ringeisen. 2017). This result indicates that Hypothesis 1 failed to be rejected.

Table 5
Estimation of the Impact Model on Student Performance

Variable	Coefficient (Standard Error)	p-value
Constant	79.15 (2.88)	0.000
Scholarship	1.65 (0.81)	0.044
Self-efficacy	0.21 (0.90)	0.000

Source: study's data (2018)

On the other hand. Hypothesis 2. which stated that trait anxiety would negatively affect the students' performance. was rejected (p-value=0.380). This is because the students' mean anxiety score was approximately 53% of the scale (none of the students obtained a maximum anxiety score; the highest score was 75 – Table 3). For this reason. even though students presented a moderate level of anxiety. it did not cause them distress. It is an interesting piece of information because. according to Neiva. 2010. Borine (2011). and Clark and Beck (2012). anxiety promotes adaptation by causing psychological discomfort. By causing discomfort. it motivates students to put more effort into or anticipate a task. for instance.

Conclusion

This study's general objective was to seek evidence to analyze the relationship between self-efficacy and anxiety among students attending an Accounting Sciences graduate program. From this perspective. this study's importance lies in the need to identify the situation of graduate students attending an Accounting Sciences program. This information is expected to contribute to intervention strategies to solve problems or maximize the academic. scientific. and professional potential of academic training at this level (Evans *et al.*. 2018).

After outlining how self-efficacy and anxiety interfere in the cognitive process involving learning. we analyzed the answers provided by the 322 students who completed the general self-efficacy scale and trait anxiety inventory by performing statistical tests. There were more female students in the graduate program and also in comparison to the 2017 Sucurpira report. both for the Master's and doctoral programs. This information may indicate an increase in the number of female students in graduate programs. though further studies are needed to confirm this finding.

Additionally. the female students' average age was statistically lower than that of male students. while the number of male students Married/Fixed Partner was markedly higher than that of female students. Therefore. it may indicate that because the male students married earlier. they postponed their entry into graduate school.

Another descriptive finding concerns the fact that most students did not move their residences to attend the graduate program. suggesting that the students sought a graduate program near to their residences. This finding suggests that the expansion of degree-granting Accounting Sciences programs should consider an egalitarian geographic distribution. Finally. together with this information. we found that only a portion of the sample received a scholarship during the period they were attending classes. partially explaining the percentage of students who had a paid job while attending their graduate studies.

In turn. the quantitative analysis revealed no distinction between the genders' levels of self-efficacy. However. the mean obtained and perceived self-efficacy were positively and significantly associated. It partially confirms the theoretical proposition that self-efficacy expectancies influence outcomes. considering that by judging oneself to be self-effective. individuals adopt broader cognitive strategies to perform tasks (Bandura. 1977).

Regarding this study's primary objective. which was to analyze the relationship between self-efficacy and trait anxiety. we found a statistically significant ($p<0.00$) moderate and negative relationship (-0.63); i.e.. these two factors are inversely proportional. Hence. Hypothesis 3 failed to be rejected and is slightly stronger among women (correlation of -0.67) than among men (correlation of -0.60). This result indicates a need for the programs and students themselves to seek mechanisms to improve the students' mental wellbeing through measures that facilitate the students' self-efficacy. such as verbal encouragement. cognitive strategies. promoting mental self-care. self-assessment of emotional and physiological responses. encouragement. development of decision-making techniques and problem-solving capacity (Bandura. 1997. Ramos et al.. 2017). These seem interesting strategies because improving the students' perceived self-efficacy may indirectly decrease their perception of anxiety (Cassady & Johnson. 2002. Nurttila et al.. 2015. Roick & Ringeisen. 2017).

Additionally. the students' gender does not appear to be related to perceived self-efficacy; hence. Hypothesis 4 (p-value=0.2667) was rejected. Social roles (Hackett & Betz. 1981) were believed to trigger a self-image among women that they would not be as capable as men; however. the results reveal that women consider themselves as self-efficacious as men. This is a significant result and suggests that modern discussions regarding gender equality have led women to perceive their competencies and skills more positively (Hackett & Betz. 1981. Erdwins et al.. 2001. Jung & Oh. 2016. Fritz & Van Knippenberg. 2018).

However. regarding trait anxiety. female respondents presented anxiety levels higher than men (p-value=0.006); hence. Hypothesis 5 failed to be rejected. Therefore. social impositions resulting from women's social roles. especially that women will administer their homes. take care of their children. spouses. and even their parents if needed while performing well at work or academically (Hackett & Betz. 1981. Erdwins et al.. 2001. Jung & Oh. 2016. Fritz & Van Knippenberg. 2018) take a significant emotional toll. Consequently. women may find themselves immersed in a very demanding context. Such a context results in great mental distress (Jung & Oh. 2016). hurting one's quality of life and preventing a whole and pleasant academic experience.

The last conclusion concerning the students' performance. resulting from a linear regression analysis. is that self-efficacy positively moderates outcomes (p-value=0.000). Thus. in line with other studies (Miller & Lavin. 2007. Nurttila *et al.*. 2015. Roick & Ringeisen. 2017). Hypothesis 1 failed to be rejected. However. trait anxiety is not statistically significant (p-value=0.380) in this study. contradicting empirical evidence (Cassady & Johnson. 2002. Nurttila *et al.*. 2015. Roick & Ringeisen. 2017). This result reinforces that investments in developing the students' perceived self-efficacy contribute to a proper and rich education.

Future studies are suggested to address programs in other related fields. such as business administration. economy. etc.. to compare results and understand how these variables work in the academic context of other graduate programs. Additionally. future research can adopt a qualitative strategy to collect and analyze data by crossing information and investigating these constructs in a more individualized context.

References

Alves. R. S.. Puppin. L.. Nascimento. E. M.. & Da Cunha. J. V. A. (2019). Maquiavelismo e sua relação com atividades contraproducentes nos estudantes de Ciências Contábeis. *Revista de Educação e Pesquisa em Contabilidade (REPeC). 13*(1). Doi: https://doi.org/10.17524/repec.v13i1.2135

Antonelli. R. A.. dos Santos. M. J. D. C.. Vilhena. E. M. D. S. R.. & Meurer. A. M. (2020). Desempenho Acadêmico e Características Sociodemográficas. Comportamentais. Psicológicas e de Formação Docente: análise de alunos portugueses da área de negócios. *Contabilidade Vista & Revista*. *31*(2). Doi: https://doi.org/10.22561/cvr.v31i2.5286

Andrade. L.. Gorenstein. C.. Viera Filho. A. H.. Tung. T. C.. & Artes. R. (2001). Psychometric properties of the Portuguese version of the State-Trait Anxiety Inventory applied to college students : factor analysis and relation to the Beck Depression Inventory. *Brazilian Journal of Medical and Biological Research*. *34*(3). 367–374. Doi:https://doi.org/10.1590/S0100-879X2001000300011

Auerbach. S. M. (1971). *An investigation of the Effects of Surgery-Induced Stress on State and Trait Anxiety*. Florida State Universit.

Bandalos. D. L.. Yates. K.. & Thorndike-Christ. T. (1995). Effects of math self-concept. perceived self-efficacy. and attributions for failure and success on test anxiety. *Journal of educational psychology*. *87*(4). 611. Doi: https://psycnet.apa.org/doi/10.1037/0022-0663.87.4.611

Bandura. A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*. *84*(2). 191-215 ST-Self-efficacy: Toward a unifying the. Doi: https://doi.org/10.1037/0033-295x.84.2.191

Bandura. A. (1988). Self-efficacy conception of anxiety. *Anxiety research*. *1*(2). 77-98. Doi: https://doi.org/10.1080/10615808808248222

Bandura. A. (1989). Human agency in social cognitive theory. *The American Psychologist*. *44*(9). 1175–1184. Doi: https://doi.org/10.1037/0003-066x.44.9.1175

Bandura. A. (1997). Self-self efficacy: The exercise of control.

Bandura. A. (2001). Social Cognitive Theory: An Angentic Perspective. *Annual Review of Psychology*. *52*(1). 1–26. Doi: https://doi.org/10.1146/annurev.psych.52.1.1

Bandura. A. (2006). Toward a psychology of human agency. *Perspectives on Psychological Science. Washington*. *1*(2). 164–180. Doi: https://doi.org/10.1111/j.1745-6916.2006.00011.x

Beiter. R.. Nash. R.. McCrady. M.. Rhoades. D.. Linscomb. M.. Clarahan. M.. & Sammut. S. (2015). The prevalence and correlates of depression. anxiety. and stress in a sample of college students. *Journal of Affective Disorders*. *173*. 90–96. Doi: https://doi.org/10.1016/j.jad.2014.10.054

Betz. N. E. (1978). Prevalence. distribution. and correlates of math anxiety in college students. *Journal of Counseling Psychology*. *25*(5). 441–448. Doi: https://doi.org/10.1037/0022-0167.25.5.441

Betz. N. E.. & Hackett. G. (1981). The relationship of career-related self-efficacy expectations to perceived career options in college women and men. *Journal of Counseling Psychology*. *28*. 399–410. Doi: https://psycnet.apa.org/doi/10.1037/0022-0167.28.5.399

Biaggio. A. M. B.. Natalício. L.. & Spielberger. C. D. (1977). Desenvolvimento da forma experimental em português do Inventário de Ansiedade Traço-Estado (IDATE) de Spielberger. *Arquivos Brasileiros de Psicologia Aplicada*. *29*(3). 31–44.

Borine. M. S. (2011). *Ansiedade. neuroticismo e suporte familiar: Evidência de validade do Inventário De Ansiedade Traço-Estado (IDATE)*. Universidade São Francisco. Retrieved from http://medcontent.metapress.com/index/A65RM03P4874243N.pdf%5Cnhttp://dsv.usf.edu.br/galeria/getImage/427/606054467274901.pdf

Brasil. (1996). Lei 9.394 Estabelece as diretrizes e bases da educação nacional. Brasilia.

Brown. J. D. (2011). Likert items and scales of measurement. *Statistics*. *15*(1). 10-14.

Byrne. M.. Flood. B.. & Griffin. J. (2014). Measuring the Academic Self-Efficacy of First-year Accounting Students. *Accounting Education*. *23*(5). 407–423. Doi: https://doi.org/10.1080/09639284.2014.931240

Carifio. J.. & Perla. R. (2008). Resolving the 50-year debate around using and misusing Likert scales. *Medical education*. *42*(12). 1150-1152. https://psycnet.apa.org/doi/10.1111/j.1365-2923.2008.03172.x

Cassady. J. C.. & Johnson. R. E. (2002). Cognitive test anxiety and academic performance. *Contemporary educational psychology*. *27*(2). 270-295. Doi: https://doi.org/10.1006/ceps.2001.1094

Clark. D. A.. & Beck. A. T. (2012). *Terapia Cognitiva para os Transtornos de Ansiedade*. Porto Alegre: Artmed.

Castillo. A.. Recondo. R.. Asbahr. F. R.. & Manfro. G. (2000). Transtornos de ansiedade. *Revista Brasileira de Psiquiatria (Supl II)*. *22*(m). 20–25. Doi: https://doi.org/10.1590/S1516-44462000000600006

Conselho de Educação Superior. (1965). Parecer nº 977/65. Definição Dos Cursos De Pós-Graduação Necessidade Da Pós-Graduação.

Coordenação de Aperfeiçoamento de Pessoal de Nível Superior - CAPES. (2016). Relatório Sucupira dos cursos de pós-graduação stricto sensu no Brasil 2013-2016. Retrieved from https://dadosabertos.capes.gov.br/dataset/cursos-da-pos-graduacao-stricto-sensu-do-brasil-de-2013-a-2015

Cornachione Júnior. E. B. (2004). *Tecnologia da Educação e Cursos de Ciências Contábeis : Modelos Colaborativos Virtuais*. Universidade de São Paulo.

Costa. E. R. da. (2001). *As estratégias de aprendizagem e a ansiedade de alunos do ensino fundamental: implicações para a prática educacional*. Universidade Estadual de Campinas.

Alves da Cunha. J. V.. Cornachione Junior. E. B.. & Martins. G. D. A. (2010). Doutores em Ciências Contábeis: Análise sob a Óptica da Teoria do Capital Humano. *RAC-Revista de Administração Contemporânea*. *14*(3).

Dobarro. V. R. (2007). *Solução de problemas e tipos de mente matemática:Relações com as atitudes e crenças de auto-eficácia*. Universidade Estadual de Campinas.

Erdwins. C. J.. Buffardi. L. C.. Casper. W. J.. & O'Brien. A. S. (2001). The relationship of women's role strain to social support. role satisfaction. and self-efficacy. *Family relations*. *50*(3). 230-238. Doi: https://doi.org/10.1111/j.1741-3729.2001.00230.x

Evans. T. M.. Bira. L.. Gastelum. J. B.. Weiss. L. T.. & Vanderford. N. L. (2018). Evidence for a mental health crisis in graduate education. *Nature Biotechnology*. *36*(3). 282–284. Doi: https://doi.org/10.1038/nbt.4089

Freire. P. (1983). *Educação e mudança* (12th ed.). Rio de Janeiro: Editora Paz e terra.

Fritz. C.. & Van Knippenberg. D. (2018). Gender and leadership aspiration: The impact of work–life initiatives. *Human Resource Management*. *57*(4). 855-868. Doi: https://doi.org/10.1002/hrm.21875

Hackett. G.. & Betz. N. E. (1981). A self-efficacy approach to the career development of women. *Journal of vocational behavior*. *18*(3). 326-339. Doi: https://doi.org/10.1016/0001-8791(81)90019-1

Hall. B. (1969). *Anxiety. stress. task difficulty and achievement via programmed instruction*. Florida State UniversitY.

Hodges. W. F. (1967). *The effects of success. threat of shock. and failure on anxiety. Doctoral dissertation*. Vanderbilt UniversitY.

Hodges. W. F.. & Felling. J. P. (1970). Types of stressful situations and their relation to trait anxiety and sex. *Journal of Consulting and Clinical Psychology*. *34*. 333–337. https://psycnet.apa.org/doi/10.1037/h0029270

Hunsley. J. (1985). Test anxiety. academic performance. and cognitive appraisals. *Journal of Educational Psychology*. *77*(6). 678–682. Doi: https://doi.org/10.1037/0022-0663.77.6.678

Iqbal. S.. Gupta. S.. & Venkatarao. E. (2018). Stress . anxiety & depression among medical undergraduate students & their socio-demographic correlates. *Indian Journal of Medical Research*. *141*(3). 354–357.

Iudícibus. S. de. Martins. E.. & Carvalho. L. N. (2005). Contabilidade: Aspectos relevantes da epopéia de sua evolução. *Revista Contabilidade & Finanças*. *38*. 7–19. Doi: https://doi.org/10.1590/S1519-70772005000200002

Joshi. A.. Kale. S.. Chandel. S.. & Pal. D. K. (2015). Likert scale: Explored and explained. *Current Journal of Applied Science and Technology*. 396-403. Doi: https://doi.org/10.9734/BJAST/2015/14975

Judge. T. A.. Jackson. C. L.. Shaw. J. C.. Scott. B. A.. & Rich. B. L. (2007). Self-efficacy and work-related performance: The integral role of individual differences. *Journal of Applied Psychology*. *92*(1). 107–127. Doi: https://psycnet.apa.org/doi/10.1037/0021-9010.92.1.107

Jung. Y. O.. & Oh. H. S. (2016). The effects of social support. self-efficacy and perceived health status on aging anxiety of the middle-aged women. *Journal of Korean Public Health Nursing*. *30*(1). 30-41. Doi: https://doi.org/10.5932/JKPHN.2016.30.1.30

Keedwell. P.. & Snaith. R. P. (1996). What do anxiety scales measure? *Acta Psychiatrica Scandinavica. 93*. 177–180. Doi: https://doi.org/10.1111/j.1600-0447.1996.tb10627.x

Lent. R. W.. Brown. S. D.. & Larkin. K. C. (1984). Relation of Self-Efficacy Expectations To Academic-Achievement and Persistence. *Journal of Counseling Psychology*. *31*(3). 356–362. Doi: https://doi.org/10.1037/0022-0167.31.3.356

Levecque. K.. Anseel. F.. De Beuckelaer. A.. Van der Heyden. J.. & Gisle. L. (2017). Work organization and mental health problems in PhD students. *Research Policy*. *46*(4). 868–879. Doi: https://doi.org/10.1016/j.respol.2017.02.008

Lewinsohn. P. M.. Gotlib. I. H.. Lewinsohn. M.. Seeley. J. R.. & Allen. N. B. (1998). Gender Differences in Anxiety Disorders and Anxiety Symptoms in Adolescents. *Journal of Abnormal Psychology*. *107*(I). 109–117. Doi: https://doi.org/10.1037//0021-843X.107.1.109

Lopes. H. L. (2017). *Suporte social no trabalho e Autoeficácia como preditores da qualidade de vida profissional em bombeiros militares*. Universidade Estadual da Paraíba.

Luszczynska. A.. Scholz. U.. & Schwarzer. R. (2005). The general self-efficacy scale: Multicultural validation studies. *Journal of Psychology: Interdisciplinary and Applied*. *139*(5). 439–457. Doi: https://doi.org/10.3200/JRLP.139.5.439-457

Martin. J. J.. & Gill. D. L. (1991). The relationships among competitive orientation. sport-confidence. self-efficacy. anxiety. and performance. *Journal of Sport and Exercise Psychology*. *13*(2). 149–159. Doi: https://doi.org/10.1123/jsep.13.2.149

Martin. A. J.. Marsh. H. W.. Williamson. A.. & Debus. R. L. (2003). Self-handicapping. defensive pessimism. and goal orientation: A qualitative study of university students. *Journal of Educational Psychology*. *95*(3). 617. https://psycnet.apa.org/doi/10.1037/0022-0663.95.3.617

Medeiros. P. C.. Loureiro. S. R.. Linhares. M. B. M.. & Marturano. E. M. (2000). A auto-eficácia e os aspectos comportamentais de crianças com dificuldade de aprendizagem. *Psicologia: Reflexão e Crítica*. *13*(3). 327–336. Doi: https://doi.org/10.1590/S0102-79722000000300002

Miller. D.. & Lavin. F. (2007). 'But now I feel I want to give it a try': formative assessment. self-esteem and a sense of competence. *The Curriculum Journal*. *18*(1). 3-25. Doi: https://doi.org/10.1080/09585170701292109

Mohammadyari. G. (2012). Comparative study of relationship between general perceived self-efficacy and test anxiety with academic achievement of male and female students. *Procedia-Social and Behavioral Sciences*. *69*. 2119-2123. Doi: https://doi.org/10.1016/j.sbspro.2012.12.175

Moritz. S. E.. Feltz. D. L.. Fahrbach. K. R.. & Mach. D. E. (2000). The relation of self-efficacy measures to sport performance: A meta-analytic review. *Research Quarterly for Exercise and Sport*. *71*(3). 280–294. Doi: https://doi.org/10.1080/02701367.2000.10608908

Nascimento. E. M. *Estresse e docentes na área de ciências contábeis: consequências e estratégias* (Doctoral dissertation. Universidade de São Paulo).

Neiva. J. F. de O. (2010). *Estabelecimento de metas e ansiedade traço na aquisição de habilidades motoras*. Universidade de São Paulo.

Nogueira. C.. & Mesquita. A. P. (1992). Auto eficacia e ansiedade: aplicações na consulta psicológica. *Jornal de Psicologia*. *10*(3). 16–22.

Nurttila. S.. Ketonen. E.. & Lonka. K. (2015). Sense of competence and optimism as resources to promote academic engagement. *Procedia-Social and Behavioral Sciences*. *171*. 1017-1026. Doi: https://doi.org/10.1016/j.sbspro.2015.01.225

Nuzzo. R. (2014). Scientific method: statistical errors. *Nature News*. *506*(7487). 150. Doi: https://doi.org/10.1038/506150a

O'Neil. H. F.. Spielberger. C. D.. & Hansen. D. N. (1969). The effects of state-anxiety and task difficulty on computer-assisted learning. *Journal of Educational Psychology*. *60*. 343–350. https://psycnet.apa.org/doi/10.1037/h0028323

Pajares. F. (1996). Self-Efficacy Beliefs in Academic Settings. *Review of Educational Research*. *66*(4). 543–578. Doi: https://doi.org/10.3102/00346543066004543

Pajares. F.. & Miller. M. D. (1994). Role of self-efficacy and self-concept beliefs in mathematical problem solving: A path analysis. *Journal of Educational Psychology*. *86*(2). 193–203. Doi: https://doi.org/10.1037/0022-0663.86.2.193

Peleias. I. R.. Segreti. J. B.. Da Silva. G. P.. & Chirotto. A. R. (2007). Evolução do Ensino da Contabilidade no Brasil: Uma análise histórica. *Resvista Contabilidade e Finanças*. *18*(spe). 19–32. Doi: https://doi.org/10.1590/S1519-70772007000300003

Ramos. V.. et al. (2017). Fontes de Autoeficácia Docente de Universitários de Educação Física. Journal of Physical Education. 28. e2829. Epub August 24. 2017. Doi: https://doi.org/10.4025/jphyseduc.v28i1.2829

Reis. C. F.. Miranda. G. J.. & Freitas. S. C. (2017). Ansiedade e desempenho acadêmico : Um estudo com alunos de Ciências Contábeis. *Advances in Scientic and Applied Accouting*. *10*(3). 319–333. http://asaa.anpcont.org.br/index.php/asaa/article/view/356/194

Roick. J.. & Ringeisen. T. (2017). Self-efficacy. test anxiety. and academic success: A longitudinal validation. *International Journal of Educational Research*. *83*. 84-93. Doi: https://doi.org/10.1016/j.ijer.2016.12.006

Scholz. U. G.. Doña. B.. Sud. S.. & Schwarzer. R. (2002). Is General Self-Efficacy a Universal Construct? *European Journal of Psychological Assessment*. *18*(3). 242–251. Doi: https://doi.org/10.1027//1015-5759.18.3.242

Schunk. D. H. (1991). Self-efficacy and Academic Achievement. *Sociological Perspectives*. *26*(3 & 4). 207–231. Doi: https://doi.org/10.1177/0731121416629993

Schunk. D. H.. & Pajares. F. (2001). The development of academic Self-Efficacy. In A. Wigfield & J. S. Eccles (Eds.). *Development of achievement motivation* (7th ed.). San Diego: Academic Press. Doi: https://doi.org/10.1016/B978-012750053-9/50003-6

Schwarzer. R.. Bäßler. J.. Kwiatek. P.. Schröder. K.. & Zhang. J. X. (1997). The assessment of optimistic self-beliefs: Comparison of the German. Spanish. and Chinese versions of the general self-efficacy scale. *Applied Psychology*. *46*(1). 69–88. Doi: https://doi.org/10.1111/j.1464-0597.1997.tb01096.x

Schwarzer. R.. & Jerusalem. M. (1995). Generalized Self-Efficacy scale. In *Measures in health psychology: A user's portfolio. Causal and control beliefs*. Windsor. UK: NFER-NELSON.

Serpa. A. L. de O. (2012). *Autoeficácia . autoconceito e ansiedade em uma avaliação em larga escala e sua relação com o desempenho escolar*. Universidade Federal de Juiz de Fora.

Simil. A. de S. (2016). *A confiança como fator de influência da percepção de justiça no ambiente de aprendizagem*. Universidade Federal de Minas Gerais.

Simon. A.. & Thomas. A. (1983). Test data for the State-Trait Anxiety Inventory for British Further Education. Certificate of Education and B.Ed. students. *Personality and Individual Differences*. *4*(2). 199–200. Doi: https://doi.org/10.1016/0191-8869(83)90020-X

Shell. D. F.. Bruning. R. H.. & Murphy. C. C. (1989). Self-efficacy and outcome expectancy mechanisms in reading and writing achievement. *Jornal of Educational Psychology*. *81*(1). 91–100. https://psycnet.apa.org/doi/10.1037/0022-0663.81.1.91

Smith. R. E. (1989). Effects of coping skills training on generalized self-efficacy and locus of control. *Journal of Personality and Social Psychology*. *56*(2). 228–233. Doi: https://doi.org/10.1037/0022-3514.56.2.228

Spielberger. C. D. (1972). Anxiety: Current Trends in Theory and Research. *Anxiety as an Emotional State*. 250. Doi: https://doi.org/10.1017/CBO9781107415324.004

Spielberger. C. D.. & Gorsuch. R. L. (1966). Mediating processes in verbal conditioning. *Report to National Institute of Mental Health*.

Spielberger. C. D.. Gorsuch. R. L.. & Lushene. R. E. (1970). Manual for the state-trait anxiety inventory.

Stajkovic. A. D.. & Luthans. F. (1998). Self-efficacy and work-related performance: A meta-analysis. *Psychological Bulletin*. *124*(2). 240–261. Doi: https://psycnet.apa.org/doi/10.1037/0033-2909.124.2.240

Teixeira. J.. Dias. A.. & Dell'Aglio. D. (2012). Propriedades Psicométricas da Escala de Autoeficácia Geral Percebida (EAGP). *Psico*. *43*(7). 139–146. Doi: https://doi.org/10.1111/j.1746-1561.2005.00034.x

Wasserstein. R. L.. & Lazar. N. A. (2016). The ASA statement on p-values: context. process. and purpose. Doi: https://doi.org/10.1080/00031305.2016.1154108

Weiner. B. (1990). History of Motivational Research in Education. *Journal of Educational Psychology*. *82*(4). 616–622. Doi: https://doi.org/10.1037 / 0022-0663.82.4.616

Weiner. I. B.. & Craighead. W. E. (Eds.). (2009). *The Corsini Encyclopedia of Psychology* (3rd ed.). John Wiley & Sons Inc.

Zimmerman. B. J. (2000). Self-Efficacy : An Essential Motive to Learn. 82–91. Doi: https://doi.org/10.1006/ceps.1999.1016

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Sustainability of tax relief policies in Brazil: Tax waiver *versus* Non-state public services

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Abstract

Objective: to present and test a theoretical, positivist, deterministic, non-parametric model to assess a tax relief public policy based on its performance, effectiveness, and efficiency, combining the tax waiver (RFT) benefit with a non-state public service (SPnE), to identify a State Supplementary Action (ASE) with metrics that indicate that the public policy is sustainable.
Method: non-parametric positivist, supported by an analytical model of equations that quantify each model indicator to identify and bring consistency to the metrics, as defined by algebraic combinations.
Results: the results obtained with academic configuration data, retrieved from the rendering of accounts of civil society organizations (CSOs), treated by the Third Sector Research and Extension Laboratory (LPETS) at the University of Brasília (UnB), indicate the model's robustness and consistency in assessing the sustainability of the tax relief public policy in Brazil.
Contributions: the results are relevant for the literature and regulators, managers, and researchers, as they show the model's adequate specification in indicating whether a public policy is sustainable. The model is expected to be applied using market data to enable identifying the model's restrictions and limitations.
Keywords: Non-State Public Service. State Supplementary Action. Tax Exemption

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1. Introduction

This paper presents the results of a non-parametric, positivist, and deterministic theoretical model to investigate the sustainability of a tax relief public policy, combining resources from Tax Waiver (RFT) with Non-State Public Service (SPnE) in the scope of Civil Society Organizations (CSOs), and members of the third sector in Brazil.

The efficacy of the measures and effectiveness of the results achieved by tax relief has been discussed over time in the academic milieu (Surrey, 1967; Botelho; Abrantes; Fialho, 2019). In the case of CSOs, this matter can be considered from two perspectives: organizations that enjoy tax immunity and work in social assistance and education areas (articles 150, VI, "c" and 195, § 7 from 1988 CF); and entities that cannot benefit from tax immunity and, consequently, are only benefited by tax exemption (Gomes, 2020). Whether a CSO benefits from tax immunity and/or tax exemption, it must disclose the benefit amount as directed by the Federal Accounting Council (CFC), following ITG 2002 (R1 – 27(c)).

Civil Society Organization is the taxonomy institutionalized by Law No. 13.019 from 2014, which imposed standards for voluntary partnerships and support provided by the state for these organizations and improved the regulation of Law No. 91, from August, 28th 1935, which public utility titles, and Decree-Law No. 525 from July, 1st 1938, which created the Social Service National Council.

Other taxonomies are found in the voluntary sector, third sector, non-profit sector, social interest entities, non-governmental organizations, and philanthropy, as in Salamon and Anheier (1992), Paes (2003), Wagner (2012), Barman (2013), differing from countries in Europe, Asia, and North America, where identification is based on business groups and subgroups. In Brazil, this identification is made by the National Classification of Economic Activities (CNAE), composed of 5 digits, with the first two, on the left, "94" referring to the CSO, and the last three, on the right, associated with the organization's activity. For example, a CSO whose activity is the defense of social rights would have the CNAE referenced by 94,308.

The non-parametric model identifies whether a CSO transfers to society the resources withheld as tax relief, being an SPnE, as a State Supplementary Action (ASE), to fulfill a public assistance policy.

RFT, as tax relief, is an indirect transfer of resources from the State to a private entity and constitutes an exemption from paying direct tax (TD) and indirect tax (IT), on income, property, production, circulation, consumption, and service, to any of the three levels of government (federal, State and municipal).

SPnE is a benefit provided to society, as an ASE, by a private entity benefiting from RFT in exchange for the tax relief benefit. Hence, RFT is the financial tax resource withheld by a private entity whose disbursement would occur if there were no exemption. Therefore, a tax exemption is equivalent to an exemption and/or immunity and is an effective way of leveraging a private entity to offer SPnE.

ASE is an interaction between an OSC and civil society for the delivery of an SPnE as a supplement to an obligation of the State to assist its citizens, indirectly, with or without the tax waiver.

Just like an ASE, an SPnE can occur independently of an RFT counterpart; hence, evaluating it broadly within the scope of CSOs involves some complexity, as Cordery and Rowena (2013). The reason is that indirect transfer can be added to a direct transfer, such as donations and even the CSOs' spontaneous deliberation, which compete for the provision of an SPnE.

This paper discusses SPnE only as a counterpart to the benefit received by indirect transfer of tax relief; therefore, the focus is on RFT. Thus, RFT and SPnE are complementary. For the regulator to be reasonably sure that a CSO is complying with the ASE, it is important to encourage accountability and compliance among CSOs, to ensure the quality and reliability of the information produced, as noted by Whitaker, Altman-Sauer, and Henderson (2004) and Dubnick (2003). In this context, the study is divided into two phases: in the first phase, the theoretical model assessing CSOs' compliance with the State Supplementary Action is presented as a consequence of the benefit received from tax exemption; in the second phase, the model's consistency is tested with academic configuration data retrieved from the Third Sector Research and Extension Laboratory (LPETS) at the University of Brasília (UnB).

Academic configuration data concern information from CSOs' rendering of accounts used for testing at LPTES, with authorization from the Public Ministry of the Federal District and Territories (MPDFT), through a cooperation agreement governed by Law No. 13.019/2014.

In the Brazilian tax system, TD is levied on assets and income, while TI is associated with a levy on production, circulation, consumption, import, export, economic domain, and service, and both TD and IT are levied in the form of tax or contribution. This tax burden is also added to the employer's contribution to finance social security, levied on the worker's income. In this regulation, for a CSO to enjoy tax exemption, it must be incorporated in the legal form of a foundation or association, included in the specific CNAE tree of an associative or foundational entity, and the regular fulfillment of ancillary tax obligations. Fulfilling these requirements, a CSO is a candidate for tax exemption and/or immunity, the collection of which is waived by the State.

This Brazilian requirement to enjoy RFT is similar in some aspects to the European Union's requirement. However, as Gjems-Onstad (1993) discussed, the benefit of exemption in the European Union depends on the taxpayer's action, a part of the formal system, and a deposit of VAT returns.

Tax waiver does not apply only to associations and foundations. It also applies to other organizations such as cooperatives, organizations in the social economy, and the union system. For example, cooperative organizations can be called hybrid organizations because they have social and business characteristics. The part that characterizes a social organization assumes the non-profit activity and enjoys a specific exemption benefit, while the part with business characteristics is equivalent to a company that produces and earns profits, taxed as usual.

Due to this characteristic of the Brazilian tax system, each government level administers one or more taxes and contributions of each tax type (TD and IT) with management autonomy, even though they are all bound to the National Tax Code (Law No. 5.172, from October, 25th 1966) with express authorization from the Federal Constitution (Magna Carta) from 1988. Due to this link, the main requirements for enjoying RFT are unified, such as not distributing profits in any way to managers or founders, as well as how to apply the leftovers in the organization's activity. This characteristic distinguishes the nature of the legal act of granting a tax relief benefit because it ties such exemption to a discretionary act of specific public authority, and immunity to the exclusive competence of the Federal Constitution, under terms of Art. 150-VI-c (CF/1988), for education, social assistance, and healthcare activities.

In essence, a CSO has to provide an SPnE to society and it has to be seen as one of the facts that justifies tax relief, as a characteristic of organizations in the third sector or the non-profit sector, which aims to mitigate the State or market failures.

Objectively, tax relief, as an indirect transfer, reduces the spending capacity of the government's budget at the three levels (federal, state, and municipal) and, therefore, must be compensated with the provision of SPnE.

Given this context, this study's objective and purpose is to present and test a theoretical, non-parametric model to assess a tax relief public policy, combining tax waiver (RFT) benefit with the provision of non-state public service (SPnE), that identifies a State Supplementary Action (ASE) with metrics that indicate the public policy's sustainability.

The model's consistency is tested using academic configuration data to assess the responses of the ASE metrics provided by a CSO. The expectation is to fill a literature gap and contribute to researchers, regulators, and managers in implementing a public tax exemption policy. Consistency also requires adopting an accountability and compliance process in the production and provision of SPnE to allow a safe assessment of a CSO's performance in the delivery of non-state public service, as noted by Dubnick (2003).

In addition to this introductory section, **section 2** discusses the taxonomy and regulation of Civil Society Organizations; in **section 3**, the fundamentals of tax waiver and non-state public service are presented and discussed; **section 4** presents and discusses the roles of accountability and compliance in Civil Society Organizations; **section 5** contains the evaluation model's proposition and foundations - first phase; **section 6** assesses the model's consistency with academic configuration data - second phase; and **section 7** presents this study's main conclusions and limitations; and finally, the references.

2 Taxonomy and regulation of Civil Society Organizations

The taxonomy of non-profit Civil Society Organizations operating in the third sector may differ among countries depending on the regulator's systemic view. Long discussions, such as the one by Wagner (2012) and Barman (2013), show the struggle to construct these organizations' identities.

To show the magnitude of this divergence, Salamon and Anheier (1992) discussed the taxonomy of the third sector, considering European, Asian and American views. In this discussion, they introduced a system called the International Classification of Nonprofit Organizations (ICNPO), which classifies non-profit organizations into 12 main groups based on their primary economic activity, and further assigns them into 24 subgroups. They compared the ICNPO with existing systems, such as the United Nations' International Standard Industrial Classification (ISIC), the European Union's General Industrial Classification of Economic Activities (NACE), the US National Taxonomy of Exempt Entities (NTEE), and others. They argue that two fundamental issues need to be resolved in the design of any classification system. The first is the unit of analysis, and the second concerns the classification basis and the variables concerning which entities should be distinguished from one another. In their arguments, they defend that the classification base of third sector organizations offers different possibilities depending on the size, legal basis, and the users of the services offered, among others.

In Brazil, the third sector regulation emerged with the enactment of Law No. 91/1935 and Decree-Law No. 525/1938, which instituted the title of public utility for civil societies, associations, and non-profit foundations, and the National Council of Social Service, in that order. The dominant taxonomy is Civil Society Organizations as of Law No. 13.019/2014. This taxonomy also includes the cooperative societies provided for in Law 9,867 from 1999 and other similar ones, as well as faith-based organizations that engage in public interest activities and do not carry out activities intended exclusively for religious purposes.

Also, in Brazil, for the tax and economic identification of a non-profit organization, a five-digit code called "National Registry of Economic Activity (CNAE)" is used. The two leading digits on the left, "94", identify the activities of membership organizations. The other three digits on the right identify the CSO activity or sector. Thus, the CNAE 94.30-8 code identifies a CSO whose activity is the defense of social rights.

Another taxonomy attributed by Paes (2003) is Social Interest Entities. The context of this denomination includes legal entities regularly constituted, without the purpose of profit, such as associations, foundations, unions, cooperatives, and adding consortiums without legal personality, as a form of economic activity.

3. Tax Waver (RFT) and Non-State Public Service (SPnE)

The taxation of non-profit civil society organizations is related to the service provided to society as an SPnE, in exchange for the tax relief granted by RFT, as an indirect transfer from the government to a CSO. The service provided to society, as a counterpart to the RFT, in the form of an SPnE, allows assessing the performance of the State Supplementary Action, carried out by a CSO, as a form of the tax relief public policy's sustainability.

Broadly addressing the issue of non-profit organization performance, Cordery and Rowena (2013) analyzed the literature to identify performance evaluation measures of non-profit organizations that make up the third sector. Initially, they provided a list of denominations used as non-governmental organizations, social enterprises, charity institutions, public benefit entities, voluntary organizations, grantee organizations, non-profit organizations, associative organizations, and professional associations, among others. They state that conceptual papers and quantitative studies dominate the academic literature and that this dominance shows the need for empirical studies on measurement models and performance reports, as mentioned by Cairns et al. (2005) and Ebrahim & Rangan, 2010).

Tax waiver aimed at the third sector is understood as a choice of the State not to exercise the power of, directly or indirectly, taxing agents' transactions regarding assets, income, production, consumption, or service. This position of the State is intended to strengthen the social role of non-profit entities in order to reduce social inequalities, as argued by Martins (2012) and Oliveira (2015). Tax waiver occurs, on the one hand, concerning immunity because the Constitution of the Federative Republic of Brazil (CF/1988) excludes the power to tax and, on the other hand, concerning exemption, as the ordinary lawmaker grants the legal favor of not allowing the occurrence of taxable events, as discussed by Amaro (2006, p. 280).

Third-sector taxation was also studied by Gjems-Onstad (1993) in the context of European Union countries, Australia, and Canada. The study considers the incidence, exemption, and zero rates of VAT. First, the author argues about the difficulty in applying tax waivers to third sector entities in these countries, given the VAT characteristics of focusing on the product and not on the taxpayer. Next, the author discusses an apparent paradox of VAT: the statute of a fully tax-exempt organization can only be obtained through a taxable person and part of the formal system and filing of VAT returns. Starting from this point, the author notes that the "zero rates" regime may be a reasonable alternative because a non-profit organization would pay entry tax and reimburse itself on exit, like any other taxable person. Although the previous study is similar to this one, the tax systems are different, considering that Brazil does not adopt VAT and that that study's contributions do not include a model.

Clotfelter (1989) discusses the tax distortions of the voluntary sector in the United States, arguing that one of the reasons for the existence of non-profit organizations is the inability of a government to provide an adequate amount of goods and services to all its citizens. One citizen may need one public service more than another, and the government provides a limited amount of these services, leaving some citizens unattended. The previously mentioned author considers that two main basic types of non-profit organizations emerged in response to market and government failures, in the form of public service organizations and mutual benefit organizations. For these reasons, tax benefits are granted, but there are concerns about abuses on the part of taxpayers and institutions; the benefits do not meet the needs of all income classes and may not be worth the cost of foregone revenues, as well as the distortions they may cause to the economy's price structure.

In Brazil, the tax immunity and exemption institute regulates tax exemption. Tax immunity is a constitutional provision for educational and social assistance institutions that provide services without the purpose of profit and that do not distribute, under any title, gross or net revenue, surpluses, operating surpluses, dividends, exemptions of any nature, and immediately apply them in full to achieving the respective social purpose (CF/1988 and Law No. 5,172/1966). The measurement of tax relief requires determining the calculation basis of each tax, even in the case of immune activities, because the objective measurement is to quantify the economic tax effect and not to constitute an obligation to pay.

4. Accountability and Compliance in Civil Society Organizations

Accountability and compliance are relevant to ensure the fulfillment of an agent's direct or indirect obligation towards the principal; hence, this study focuses on the fulfillment of a State Supplementary Action on the part of a CSO benefiting from tax exemption to mitigate State and market failures. Through these practices, the regulator retrieves information on the values of tax waiver enjoyed and non-state public services provided by a CSO, which allows assessing the sustainability of a tax relief policy. Studying these practices in the public service, Romzek and Ingraham (2000) investigated the causes of an air accident in the US armed forces, highlighting that the role of a person's responsibility is based on the performance expected of him/her. They conclude that legal and professional responsibility, among other factors, involves external and careful performance supervision to fulfill mandates and reflect work arrangements that provide autonomy to individuals who ground their decision-making on internalized norms concerning appropriate practice.

How accountability is perceived has been conceptually discussed over the years from democratic, institutional, and sociological points of view. From a democratic perspective, Held (1996) and Pitkin (1969, pp. 57-78) note that accountability, as the responsibility to give account, has to indicate the relationship between regulator and executor in a mechanism that informs the actions performed. This serves to allow judging and imposing measures to ensure the object fulfillment and to distinguish the accurate or factual representation of something that has only the external features of formal presentation. From an institutional perspective, the approach is to formalize response and controls, as established by the state governance structures and corporate entities, as stated by Schedler (1999), which include obligations such as financial reports that make up the bureaucratic responsibility studied by Gruber (1987) and Rosen (1989). In this context, Dubnick (2003) discusses the concept from a sociological perspective to emphasize responsibility as a process that impacts the behavior of social agents in the rendering of accounts. The author focuses on the mechanisms of responsibility, culpability, obligation, and imputability. This view characterizes responsibility as a social act of a higher class of social processes that deal with the need to repair and overcome relationships damaged by inappropriate behavior, as discussed by Scott and Lyman (1968).

Complying with accountability in the context of a CSO demands an adequate definition of an accounting policy related to compliance practices to provide reliable data and information. To meet this purpose, the accounting policy must produce detailed information regarding observed and non-observed amounts in the standardized financial statements, complying with compliance rules, so that the regulator can assess the State Supplementary Action. In this context, compliance concerns rules that a CSO must apply throughout the information production process.

In addition to the data disclosed in the standardized financial statements, CSOs must disclose physical-financial data concerning the "Non-State Public Service" provided and financial data of the "Tax Waiver" received, regardless of legal obligations. Furthermore, both cases must compose a work plan. Thus, for the regulator to be sure that a CSO complied with the ASE, CSOs must adopt accountability and compliance practices and establish a mutual relationship between the principal, in this case, the State, and the agent represented by the CSO.

In this sense, Whitaker, Altman-Sauer, and Henderson (2004) highlight that many public services could be improved if governments and non-profit organizations worked together to understand what needs to be done to meet public needs effectively. Additionally, they note that mutual accountability involves key stakeholders in the dialogue to determine limitations, authorize discretion, define reporting, and create partnership review processes. They further argue that the conscious development of mutual responsibility requires recognizing the context and legitimate reciprocal expectations regarding the responsibility to identify who should do what and for whom it should be done. The authors do not discuss compliance with rules as a compliance role in depth though.

As Sean J. Griffith (2016) notes, compliance with RFT and SPnE represents a government intervention through the regulator, i.e., the government agent engaged in establishing rules, as discussed by Sean J. Griffith (2016).

5. Assessing model's proposition and fundamentals – first phase

The research model is based on a set of equations that identify the tax subject to tax waiver (RFT), the non-state public service (SPnE), the State Supplementary Action (ASE), and respective evaluation metrics. The RFT model comprises a set of equations (1, 3, 4, and 5) that specify total tax exemption, direct tax (TD), indirect tax (TI), and the employer contribution to social security (SS). The SPnE model is specified by equation (2), which includes revenue waiver (RR) and community assistance (AC). The model metrics given by the ASE are specified in equation (6), composed of the difference between SPnE and RFT. TI is the sum of taxes and contributions such as IPI, ICMS, ISSQN, II, IE, PIS, and Cofins. The TD incorporates IRPJ, CSSL, IPTU, and IPVA. The variables are described in the appendix.

a. Tax waiver (RFT)

The equation accumulates resources from society, identified by the type of tax, allocated by the regulator to a CSO as tax relief.

$$RFT = TD + TI + SS \tag{1}$$

b. Non-State Public Service (SPnE)

The equation sums up the benefits the CSO provides to society through goods and services through revenue waiver (RR) and assistance to the community (AC).

$$SPnE = RR + AC \tag{2}$$

c. Indirect Tax (TI)

The equation shows the value of the TI waived, the object of the tax exemption, added to the gross revenue (RB) from the sale of goods and services due to the rate application (δ).

$$TI = RB * \delta, \delta \in [0, 1] \tag{3}$$

d. Social Security (SS)

The value represented by the equation corresponds to the employer's contribution to SS on the remuneration of salaried employees (RT) that the State exempts the CSO from paying as a result of the application of the rate (φ).

$$SS = RT * \varphi, \varphi \in [0, 1] \tag{4}$$

e. Direct Tax (TD)

The cumulative amount of the equation corresponds to the total of the tax and contribution that make up the direct tax burden, in each fiscal year, on the CSO's surplus for the year (SE), real estate equity (PI), and automotive equity (PA), as a product of the aliquots (θ), (β) and (τ).

$$TD = SE * \theta + PI * \beta + PA * \tau; \qquad \theta, \beta, \tau\ [0, 1] \tag{5}$$

f. Metrics of State Supplementary Action (ASE)

The equation displays the ASE metrics a CSO performed, which correspond to the difference between the SPnE and the RFT and indicates whether the tax relief policy is sustainable.

$$ASE = SPnE - RFT \quad \geq \tag{6}$$

ASE Metrics

$$ASE = \begin{cases} \geq 0, sustainable\ tax\ relief\ public\ policy \\ < 0, non - sustainable\ tax\ relief\ public\ policy \end{cases}$$

Statement 1: for any ASE equal to or greater than zero, the indication is that the social cost of tax relief was fully recovered by the SPnE benefit offered to society by the CSO. In this case, it is said that the tax relief public policy is sustainable.
Statement 2: if ASE is less than zero, society has not benefited from the transfer of resources from the State to the CSO. This situation suggests that the CSO is enriching its assets and that the tax relief public policy is unsustainable.

6. Consistency of the assessment model with academic configuration data – second phase

Academic configuration data were obtained from two CSOs-test, CSO1 and CSO2, to test the model's consistency (Table 1). CSO1 provides education services covered by tax immunity and, therefore, receives the benefit of exemption from social security (SS). In addition to this benefit, OSC1 fulfills the requirements to obtain the benefit of the tax exemption for IT and TD. On the other hand, the activity of CSO2 is assistance and does not meet the requirements to obtain tax exemption from immunity; hence it only has tax exemption.

For both CSOs, the framework is associated with "CNAE 94" in the first two digits on the left, and all ancillary tax obligations have to be fully met to maintain this framework.

Table 1

Academic configuration data to test the model

OSC1 Data	R$ 1,000	OSC2 Data	R$ 1,000
Gross revenue (RB)	150,500	Gross revenue (RB)	95,600
ISSQN (TI) 2%	0	ISSQN (TI) 2%	4,780
COFINS (TI) 3%	0	COFINS (TI) 3%	2,868
Scholarships granted (RR)	34,100	Scholarships granted (RR)	0,00
Community assistance (AC)	18,700	Community assistance (AC)	5,300
Worker's income (RT)	50,100	Worker's income (RT)	30,100
Employer's social security (SS) 20%		Employer's social security (SS) 20%	6,020
Other expenses	10,200	Other expenses	3,100
Surplus of the year (SE)	37,400	Surplus of the year (SE)	43,432
IRPJ and CSLL (TD)	0	IRPJ and CSLL (TD)	0
Social security rate 20%		TD rate (IRPJ+CSLL) 34%	
Real State (PI)	25,300		
Wealth tax rate 4%			

Source: developed by the authors.

6.1 Calculating tax exemption for CSO1:

CSO1 is exempted from paying direct tax, indirect tax, and employer contribution to social security because it performs a non-profit educational activity. This condition allows accumulating the benefits of immunity and tax exemption. It is also assumed that CSO1 obtained tax relief from TD and IT at the three levels of the Federation (federal, state, and municipal).

a. Exemption from TI (Equation 3).

$$TI = 150.500 * 0{,}02 + 150.500 * 0{,}03 = 3.010 + 4.515 = 7.525$$

The sum of the amounts of this tax exemption, ISSQN R$3,010 and Cofins R$4,515.00, would be paid to the State Treasury if there was no benefit from the tax exemption.

b. Exemption from employer's contribution to social security (Equation 4).

$$SS = 50.100 * 0{,}20 = 10.020$$

The amount of R$10,020 would be due to social security if there was no immunity.

c. Exemption from the direct tax on income and assets (Equation 5).

$$TD = 37.400 * 0{,}34 + 25.300 * 0{,}04 = 12.716 + 1.012 = 13.728$$

The amounts of direct tax on income (IRPJ and CSLL) R$12,716 and on real estate R$1,012.00 would be required by the State if CSO1 did not enjoy the benefit of tax relief.

d. Totaling the tax waiver (Equation 1).

$$RFT = 7.525 + 10.020 + 13.728 = 31.273$$

The value of the RFT reduces the total State budget with tax relief. It constitutes society resources retained by the CSO though. Therefore, OSC1 must convert RFT into SPnE.

e. Totaling the value of the non-state public service (Equation 2).

$$SPnE = 34.100 + 18.700 = 52.800$$

The value of the SPnE is the sum of the service CSO1 offered to society in return for the RFT received (Table 1).

f. Assessing the sustainability of public tax relief policy (Equation 6).

$$ASE = 52.800 - 31.273 = 21.527$$

The ASE shows that CSO1's compliance with the tax relief public policy is sustainable because the difference between SPnE and RFT ("e" minus "d") is greater than zero, and this situation confirms **Statement 1**.

6.2 Calculating tax exemption for CSO2:

Because CSO2 does not meet the conditions for enjoying the tax immunity benefit, it only receives exemption from the direct tax on the surplus for the year.

a. Exemption from direct tax on income (Equation 5).

$$TD = 43.432 * 0{,}34 = 14.766$$

The amount of direct income tax corresponds to IRPJ and the CSLL. This amount would be collected from the State Treasury if CSO2 did not enjoy the benefit of the TD exemption on rent.

b. Totaling tax waiver (Equation 1).

As CSO2 does not enjoy further tax relief, RFT is limited to the TD over income.

$$RFT = 14.766$$

RFT corresponds to the tax withheld by OCS2 that the State Treasury would demand if it did not enjoy the tax exemption benefit. Therefore, the RFT must be provided to society as an SPnE, to offset the cost of the tax exemption granted.

c. Totaling the value of the non-state public service (Equation 2).

$$SPnE = 5.300 = 5.300$$

SPnE corresponds only to the value of assistance provided to the community (AC) (Table 1) because the CSO2's financial statements do not show any revenue waiver as a counterpart to the tax exemption benefit received.

d. Assessing the sustainability of tax relief public policy (Equation 6).

$$ASE = 5.300 - 11.016 = -5.716$$

The ASE metric is less than zero. This situation reveals that CSO2 did not deliver SPnE to society value that is sufficient to replace the RFT benefit. This result indicates that CSO2 is enriched with resources from society and, therefore, the tax relief public policy is unsustainable, confirming **Statement 2**.

6.3 Analysis of the result of the State Supplementary Action (ASE)

Academic data reveal that CSO1 complied with the tax relief public policy by presenting an ASE greater than zero. OSC2 obtained equity enrichment by presenting an ASE lower than zero though. These two results are relevant to assist regulators and the manager of the tax relief public policy regarding its sustainability. Note that no adjustments were made for any of the CSOs in the TD calculation basis for surplus that would occur if the organizations were from the second sector. Additionally, we assumed that both CSOs adopt compliance rules to produce reliable accountability.

The two results provide robust evidence that the assessment model proposed here is consistent and appropriate to assess the sustainability of the tax relief public policy.

7. Main conclusions and limitations

This study was divided into two phases. The first phase concerned a theoretical model to assess the State Supplementary Action (ASE) complied by Civil Society Organizations (CSO) in Brazil, comparing the social cost of the Tax Waiver (RFT) granted by the State with the benefit of Non-State Public Service (SPnE) a CSO provides to society. The second phase tested the consistency and propriety of the model's metrics using academic configuration data retrieved from the Research and Extension Laboratory of the Third Sector (LPTES) at the University of Brasília (UnB).

The model's metrics indicate that one CSO transferred the benefit received as an RFT to society as an SPnE, i.e., when ASE is equal to or greater than zero; otherwise, there is evidence that society's resources contribute to the CSO's enrichment. The first metric ensures that the tax relief public policy is sustainable. The second metric indicates that the public policy is not sustainable.

The model was tested in two CSOs, using academic configuration data: one benefited from immunity and tax exemption, and the other benefited only from the exemption of direct income tax.

The results suggest that the theoretical model is robust, consistent, and appropriate for assessing a tax relief public policy because it indicates that this policy is sustainable when the ASE quantum is at least equal to zero and not sustainable otherwise.

The model's contributions consistently mitigate the literature gap regarding the provision of metrics to evaluate a tax relief public policy and assist researchers, regulators, and managers in evaluating the fulfillment of public policy goals. If public policy is successful, it mitigates State and market failures. It is supported by good accountability and compliance practices, necessary for producing reliable information by a CSO, with physical and financial detailing of the object, as required by regulators.

To determine the basis for calculating the TD on the revenue, no adjustments a second sector organization would make to calculate this tax were considered. Therefore, the measurement of tax from immune activities has a purely economic effect and does not constitute an obligation to pay.

The results found with academic configuration data are robust and consistent because they ensure that the metrics of the evaluation model can show whether a tax exemption public policy is sustainable.

Therefore, the model proposed here is expected to encourage future studies addressing market data to assess the sustainability of the tax relief public policy so that society can learn how tax waiver resources are applied in the delivery of non-state public services. In addition, using market data enables identifying potential limitations of the model, which were not observed when using academic configuration data.

References

Amaro, L. (2006). Direito tributário brasileiro – 12ª. Ed. – São Paulo: Saraiva.

Brasil. Lei nº 13.019 de 2014. Disponível em: http://www.planalto.gov.br/CCIVIL_03/_Ato2011-2014/2014/Lei/L13019.htm.

Brasil. Constituição Federal de 1988. Disponível em <http://www.planalto.gov.br/ccivil_03/constituicao/constituição.htm>.

Barman, E. (2013). Classificatory Struggles in the Nonprofit Sector: The Formation of the Nacional Taxonomy of Exempt Entites, 1969 – 1987. Social Sciente History, v. 37 n. 1, pp. 103-141.

Botelho, L. H. F., Abrantes, L. A., & Fialho, N. S. (2019). Reflexões sobre as aplicações de políticas de desonerações tributárias no desenvolvimento regional brasileiro. Cadernos Gestão Pública e Cidadania, 24(79).

Cairns, B., Harris, M., HUTCHISON, R., & TRICKER, M. (2005), "Improving performance? The adoption and implementation of quality systems in U.K. nonprofits", Nonprofit Management and Leadership", V. 16, nr. 2, pp. 135-151.

CFC. Conselho Federal de Contabilidade. (2015). ITG 2002 (R1): Entidades sem Finalidade de Lucros. Disponível em: http://www2.cfc.org.br/sisweb/sre/detalhes_sre.aspx?Codigo=2015/ITG2002%28R1%29> Acesso em: 01 Agosto 2019.

Clotfelter, C. T. (1989). Tax-induced distortions in the voluntary sector. Cas. W. Res. L. Rev. V.39, nr. 3, pp. 663-694.

Cordery, C., & Sinclair, R. (2013). Measuring performance in the Third Sector. Qualitative Research in Accounting & Management. V. 10, n. 3/4, pp. 196-212. http://dx.doi.org/10.1108/QRAM-03-2013-0014.

Dubnick, M. J. (2003). Accountability and Ethics: Reconsidering the relationships. International Journal of Organization Theory and Behavior, v. 6, n.3, pp. 405-441.

Ebrahim, A., & Rangan, V. K. (2010), The Limits of Nonprofit Impact: A Contency Framework for Measuring Social Performance, Harvard Business School, USA, available at: https://www.hbs.edu/faculty/Publication%20Files/10-099_0b80d379-8e88-4992-9e8f-4b79596b1ff9.pdf (access 01 Agosto 2019).

Gjems-Onstad, O. (1993). Value added taxation on the third sector. Voluntas. V. 4, nr. 3, pp. 372-394.

Gomes, D. D. P. (2020). Os impactos das Propostas de Emenda Constitucional 45/2019, 110/2019 e 128/2019 sobre as organizações da sociedade civil. FGV Coordenadoria de Pesquisa Jurídica Aplicada.

Gruber, J. E. (1987). Controlling bureaucracies: Dilemmas in democratic governance. Berkeley, CA: University of California

Held, D. (2007). Models of democracy 3.ed. Polity Press. https://books.google.com.br/books?hl=pt-BR&lr=&id=QYVZ3TjL0-UC&oi=fnd&pg=PP14&dq=Held,+David.+Models+of+democracy&ots=rmmmEiVhCx&sig=wKPECW_TxxHjAWgT6CDnQwBirBY#v=onepage&q=Held%2C%20David.%20Models%20of%20democracy&f=false.

Martins, O. S. (2012). Terceiro Setor – aspectos tributários e incentivos fiscais. Revista Brasileira de Contabilidade. V.1, n. 160, p. 26-37. Disponível em: <http://rbc.cfc.org.br/index.php/rbc/article/view/685>. Acesso em: 01 Agosto 2019.

Oliveira, M. R. (2015). As imunidades tributárias das entidades de assistência social como instrumentos de concretização de direitos fundamentais e o caso das APAES. 2015. Dissertação (Programa Strictu Sensu em Direito) - Universidade Católica de Brasília, Brasília, 2015.

Paes, J. E. S. (2003). Fundações e Entidades de Interesse Social. 4.ed. Brasília. Brasília Jurídica.

Pitkin, H. F. (1967). The Concept of Representation. University of California Press. Berkeley

Romzek, B. S., & Ingraham, P. W. (2000). Cross Pessures of Accountability: Initiative, Command, and Failure in the Ron Brown Plane Crash. Public Administration Review, v. 60, n.3.

Rosen, B. (1989). Holding government bureaucracies accountable (2^{nd} ed.). New York: Praeger Publishers https://books.google.com.br/books?hl=pt-BR&lr=&id=WiajjZwflO8C&oi=fnd&pg=PR9&dq=Rosen,+B.+(1989).+Holding+government+bureaucracies+accountable+(2nd+ed.).+New+York:+Praeger+Publishers&ots=0iA47q4fop&sig=byajfavPuhWmdKl9ags7ODN7hhg#v=onepage&q&f=false

Salamon, L. M., & ANHEIER, H. K. (1992). In Search of the Nonprofit Sector II: The Problem of Classification. Voluntas. V. 3, nr. 3, pp-267-309.

Schedler, A. (1999). Conceptualizing accountability The self-restraining state: Power and accountability in new democracies (pp. 13-28)..https://books.google.com.br/books?hl=pt-BR&lr=&id=MD8Vx1HLOZgC&oi=fnd&pg=PA13&dq=Schedler,+A.+(1999).+Conceptualizing+accountability&ots=-lS7tpyPN0&sig=s4i4FXb0w7K48SrPNtuyqEDkCTE#v=onepage&q=Schedler%2C%20A.%20(1999).%20Conceptualizing%20accountability&f=false.

Scott, M. B., & Lyman, S. M. (1968). Accounts. American Sociological Review, v. 33, n. 1, pp. 46-62.

Sean, J. G. (2016). Corporate Governance in an Era of Compliance. v 57, nr. 6. Wm. & Mary L. Rev.

Surrey, S. S. (1967). The US Income Tax System–the Need for a Full Accounting. Speech before the Money Marketers, November, 15(1967), 322-26.

Wagner, A. (2012). Third sector and/or 'civil society': a critical discourse about scholarship relating to intermediate organizations. Voluntary Sector Review, v. 3, n. 3, pp. 299-328. http://dx.doi.org/10.1332/204080512X658036.

Whitaker, G. P.; Altman-Sauer, L., & Henderson, M. (2004). Mutual accountability between governments and nonprofits: Moving beyond "Surveillance" to "Service". The American Review Administration. V. 34, n. 2, pp. 115-133. Doi: 10.1177/0275074004264091.

Appendix

Acronym	Denomination	Application
AC	Community assistance	Food, medicines, material, and services.
ASE	Supplementary state assistance	Metrics of compliance with public policy on tax relief.
COFINS	Contribution to Social Security Financing	Federal tax that makes up the sale price, on the inside, is one of the sources of social security financing.
CSLL	Social contribution on net income	Federal tax that is levied on the income of legal entities and is one of the sources of social security revenue.
ICMS	Tax on the circulation of goods and provision of services state tax	State tax inside, which makes up the sale price paid by consumers.
IE	Export tax	Federal tax on the export of goods.
II	Import tax	Federal tax on the import of goods that compose the product's cost.
IPI	Tax on industrialized goods	Federal tax on the production of goods added to the price.
IRPJ	Corporate income tax	Federal tax on the tax profit (positive or negative) of legal entities.
IPTU	Urban property and land tax	Municipal tax on real estate levied annually
IPVA	Motor vehicle ownership tax	State tax on motor vehicle ownership levied annually
ISSQN	Tax on services of any kind	Municipal tax on services of any kind
RFT	Tax waiver	Tax exemption, consisting of tax immunity and exemption
SPnE	Non-state public service	Service provided by a CSP to society in return for the tax relief benefit provided by the State
SS	Contribution to social security	Federal tax on workers' monthly income
TD	Direct tax	Tax levied on income and property
TI	Indirect tax	Tax levied on the production, circulation of goods, consumption, and service

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The Effects of Self-Efficacy Beliefs and Managerial Attitudes on the Relationship between Budgetary Participation and Performance

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Abstract

Objective: To analyze the effects of self-efficacy beliefs and managerial attitudes on the relationship between budgetary participation and managerial performance.

Method: This is a descriptive study with a survey and quantitative approach in which data were analyzed using structural equation modeling. The sample included the voluntary participation of 225 controllers from the largest companies in southern Brazil.

Results: Budgetary Participation influenced self-efficacy beliefs and budget goal commitment. However, it did not directly influence work engagement. The results confirm the indirect effect of cognitive (self-efficacy) and affective (work engagement and commitment) factors in the relationship between budgetary participation and managerial performance.

Contribution: In the theoretical sphere, this study provides evidence of the application of Social Cognitive Theory and Affective Events Theory to explain the effects of budget planning configurations. It also indicates the conditions in which budgetary participation results in improved managerial performance. Finally, from a practical perspective, this study reveals the cognitive and affective effects of budget planning configurations on controllers' managerial attitudes and performance and individual activities that reflect organizational activities.

Keywords: Budgetary Participation; Self-Efficacy; Work engagement; Budget Goal Commitment; Managerial performance.

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1. Introduction

Budgeting is essential in an organization's planning, controlling, allocating, and coordinating resources (Hannan et al., 2010). Individuals involved with budgeting processes perform these functions, and one's level of participation tends to influence managerial performance (Hariyanti et al., 2015). Both positive (Santos et al., 2021; Zonatto et al., 2020a; Guidini et al., 2020; Degenhart et al., 2019; Hariyanti et al., 2015), negative (Etemadi et al., 2009), and also insignificant effects (Macinati et al., 2016; Jermias & Yigit, 2013; Venkatesh & Blaskovich, 2012) are reported by studies addressing the relationship between budgetary participation and managerial performance.

Given these conflicting results, the literature in management accounting seeks to find consensus that Budgetary Participation (BP) may not directly affect managerial performance (MP); rather, it indirectly affects it through the analysis of intervenient variables that possibly explain this relationship and also enhance the BP effects on MP (Derfuss, 2016; Macinati et al., 2016). The few studies conducted in Brazil to analyze attitudinal and behavioral factors on the relationship between budgetary participation and managerial performance are inconclusive (Santos et al., 2021; Dani et al., 2017). Hence, this theoretical gap is explored in this study and is also a motivation encouraging further research.

Based on the previous discussion, we propose an analysis of intervenient variables' cognitive and affective effects on the relationship between budgetary participation and managerial performance in budget activities. According to Derfuss (2016), budgetary participation's cognitive and affective effects have seldom been explored in the literature. The cognitive effects are related to the managers' psychological capacities (Ni et al., 2009; Venkatesh & Blaskovich, 2012), while affective effects are related to the individuals' behavior and actions in the workplace (Ni et al., 2009). In this study, psychological capacity, called self-efficacy beliefs, measures cognitive effects while work engagement (WE) and budget goal Commitment (BGC) assess the affective effects on the relationship between budgetary participation and managerial performance.

Self-efficacy is an important psychological capacity that tends to affect an individual's perception of goals and resources, attitudes, behaviors, ability to work, and managerial performance in a budgetary process (Nascimento, 2017). Thus, we may assume that self-efficacy positively affects this relationship based on self-efficacy beliefs developed in the workplace (Ni et al., 2009). Considering the assessment of cognitive effects, an individual's self-efficacy beliefs are defined as pillars of the Social Cognitive Theory (SCT) developed by Bandura (1977). For individuals to put effort into performing tasks, they need to believe in their ability to attain results (Bandura, 1977). Hence, self-efficacy beliefs indicate that such a perception is present and, for this reason, can influence the behavior of individuals at work.

In addition to self-efficacy, the influence of managerial attitudes in a budgetary context consists of the belief that an appropriate managerial attitude towards the company will result in effective managerial performance (Lunardi et al., 2019a). Therefore, there is a need to assess the affective effects (managerial attitudes) on this relationship, considering that individual actions materialize the managers' effort towards achieving objectives. Additionally, the Affective Events Theory (AET) considers the characteristics of the work environment with a cognitive connotation and the affective responses that result from daily events, which can produce emotions that influence an individual's satisfaction-related attitudes, commitment, and work engagement, which are based on affective aspects (Weiss & Cropanzano, 1996).

Likewise, an individual's level of work engagement enables relevant cognitive aspects that may cause the emergence of proprietorship feelings and clarity when working towards his/her responsibilities, influencing performance (Lunardi et al., 2019b); hence, presenting positive effects on the relationship between budgetary participation and managerial performance in budget activities. One's level of budget goal commitment is greater when s/he participates in the budgeting process; participation influences an individual's level of budget goals and motivation to accept and make an effort to attain such goals, consequently improving their managerial performance (Guidini et al., 2020; Chong & Johnson, 2007).

For this reason, self-efficacy beliefs and managerial attitudes are believed to enhance the relationship between BP and MP, considering the indirect effects of self-efficacy and managerial attitudes on this relationship. In this sense, self-efficacy helps managers to overcome adversities and enables individuals to believe in a promising future. Thus, budgetary participation encourages a positive psychological context for employees to establish challenging but feasible goals so that professionals have self-efficacy to achieve such goals and contribute with actions toward improved managerial performance (Venkatesh & Blaskovich, 2012).

Evidence reported in the literature confirms the beneficial effects of budgetary participation on self-efficacy (Degenhart et al., 2022; Yuliansyah & Khan, 2017; Macinatti et al., 2016; Ni et al., 2009; Venkatesh & Blaskovich, 2012; Heath & Brown, 2007), work engagement (Lunardi et al., 2019a; Lunardi et al., 2019b), and budget goal commitment (Degenhart et al., 2022; Zonatto et al., 2019; Macinati & Rizzo, 2014; Jermias & Yigit, 2013; Sandalgaard et al., 2011; Breaux et al., 2011; Chong & Johnson, 2007). Therefore, when cognitive and affective effects are enhanced by budgetary participation, they tend to boost the managers' performance in these activities (Ni et al., 2009). However, interactions between variables are established, which need to be analyzed to better understand the predictors of managerial performance in budget activities and the interactions between these variables.

Additionally, the theoretical assumptions of the social-interaction approach of Bandura's Social Cognitive Theory (1977) need to be considered. From this perspective, it is not a single factor that influences an individual's work performance but a set of factors that interact and determine performance (Zonatto et al., 2020a). Thus, analyzing the interactions between the variables selected for this study enables understanding how managerial performance is influenced in a budgetary context, considering the budget planning configuration and cognitive and affective aspects.

This study was based on evidence, and it differs from other studies addressing the subject (Degenhart et al., 2022; Macinati et al., 2016; Ni et al., 2009) as it includes an analysis of affective effects on the relationship between budgetary participation and managerial performance, by investigating budget goal commitment and work engagement. Given the previous discussion, this study addresses the following guiding question: **What are the effects of self-efficacy beliefs and managerial attitudes on the relationship between budgetary participation and managerial performance?** Therefore, the objective is to analyze the effects of self-efficacy beliefs and managerial attitudes on the relationship between budgetary participation and managerial performance among the controllers of the largest companies in southern Brazil.

The importance of this study is based on the contradictory results presented by accounting literature regarding the relationship between BP and MP (Derfuss, 2016), which motivated this study. Various studies (Degenhart et al., 2022; Lunardi et al., 2020; Zonatto et al., 2020a; Degenhart et al., 2019; Macinati et al., 2016; Nascimento, 2017) show that this relationship occurs indirectly, through intervenient variables that enhance this relationship. Another reason is that this study contributes to knowledge in the field, providing new evidence of the effects of budgetary participation on self-efficacy, work engagement, and budget goal commitment. Therefore, the objective is to identify evidence of the effects of cognitive and affective variables on managerial performance, showing the indirect effects of the relationship between budgetary participation and managerial performance (Zonatto et al., 2020a; Degenhart et al., 2019; Lunardi et al., 2019a; Macinati et al., 2016; Nascimento, 2017).

This study contributes to the accounting literature by adopting an empirical approach to the relationship between budgetary participation, self-efficacy, work engagement, budget goal commitment, and managerial performance, aspects that have not yet been discussed together in the field of accounting management. Additionally, the literature provides recommendations on how budgetary participation can result in improved budget forecasts, greater work engagement, and better managerial performance (Lunardi et al., 2019a). There are also implications of using SCT and AET to explain the effects of budget planning configurations (Ni et al., 2009).

This study is expected to contribute to practice by presenting the budget management practices adopted in Brazil and some of its constraints. For organizations, the results will enable them to assess their management practices to plan training interventions for workers to achieve improved performance, considering that employees with enhanced behavioral and cognitive attitudes are more likely to present better performance. This study's findings are also helpful because they enable identifying the factors interfering in budget planning configurations and managerial performance; employees with self-efficacy beliefs, engaged and committed to the budgeting process perform better (Degenhart et al., 2022; Lunardi et al., 2020). Additionally, these study's results reveal the cognitive and affective effects of the budget planning configurations capable of influencing the performance of controllers in their daily tasks (Zonatto et al., 2020b).

2. Theoretical Framework and Hypotheses

Given the gap identified and the social-interaction approach, we sought to understand the interactions between budgetary participation and managerial performance, considering the effects of intervenient variables in this relationship. This study's focus and results show that the use of antecedents and mediating variables can improve understanding of the relationship between budgetary participation and managerial performance (Degenhart et al., 2022; Lunardi et al., 2020; Macinati et al., 2016; Ni et al., 2009; Zonatto et al., 2020a). Therefore, we seek to understand performance constraints (self-efficacy, work engagement, and budget goal commitment) that influence the relationship between BP and MP. Figure 1 presents a synthesis of the theoretical relationships.

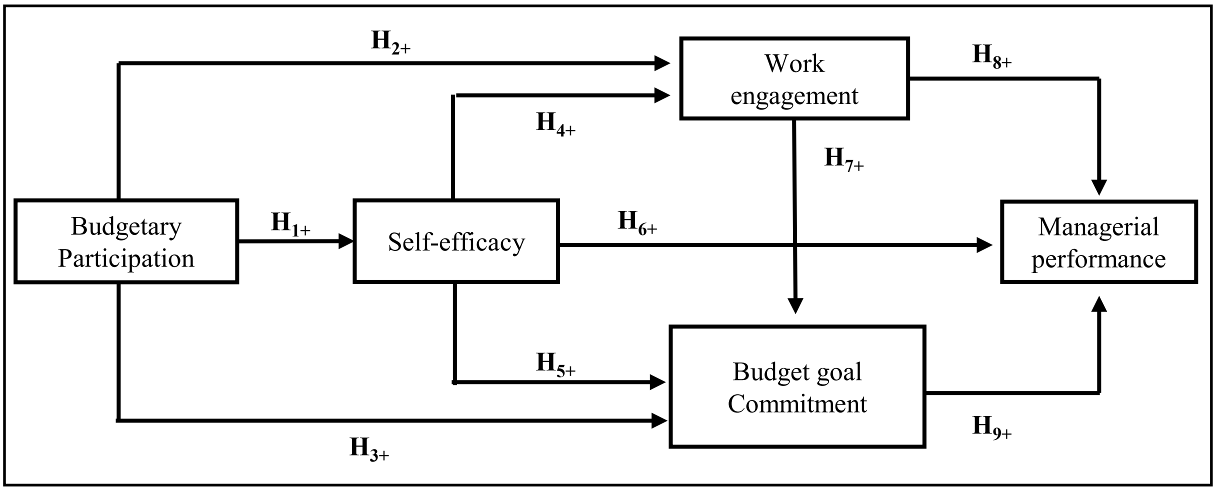

Figure 1. Theoretical model and hypotheses

Source: Developed by the authors.

2.1 Budget participation effects

The participation of managers in the budgeting process can trigger self-efficacy beliefs and positive attitudes and behavior in the workplace (Degenhart et al., 2022; Lunardi et al., 2019b). When these aspects are encouraged, they concur with improving managerial performance in budget activities (Degenhart et al., 2022). Self-efficacy can be defined as an influence on the allocation of tasks and persistence in performing tasks (Macinati et al., 2016). Stajkovic and Luthans (1998) note that it consists of one's belief in his/her competence to mobilize cognitive resources and having the motivation to perform tasks successfully. Therefore, when managers participate in a budgeting process, they influence the establishment of their unit's budget goals and interact with and are encouraged by their superiors. All of which favor increased confidence and persistence to perform tasks and achieve objectives, reflected in the managers' increased self-efficacy (Venkatesh & Blaskovich, 2012).

In this sense, when managers with budget responsibilities actively participate in the definition of budget goals and objectives (Milani, 1975), they are more likely to present stronger self-efficacy beliefs (Luthans et al., 2007) to perform their work tasks (Ni et al., 2009). Budgetary participation enables an environment conducive to increasing the individuals' cognition (Yuliansyah & Khan, 2017) and their self-efficacy in the workplace. Luthans et al. (2007) note that higher levels of psychological capital enable workers to become more optimistic at work, aim to succeed (self-efficacy and hope), and be more resilient when facing adversities. These capacities are developed when managers participate in budgeting processes (Degenhart et al., 2022; Nascimento, 2017).

Various authors analyzed the relationship between budgetary participation and self-efficacy in this context and reported positive influences (Degenhart et al., 2022; Yuliansyah & Khan, 2017; Macinati et al., 2016; Ni et al., 2009; Heath & Brown, 2007). Therefore, we suggest that budgetary participation enables a positive psychological context for employees to establish challenging but achievable goals, have self-efficacy to achieve those goals, overcome adversities, and believe in positive prospects (Venkatesh & Blaskovich, 2012). Therefore, based on the previous discussion, the first hypothesis is proposed:

H_1: Budgetary participation is positively associated with self-efficacy beliefs.

Budget participation enables employees to understand the process in which budget goals are established (Dani et al., 2017; Derfuss, 2016), increasing their confidence, work engagement, and sense of control (Chong et al., 2006; Shield & Shields, 1998). The reason is that when employees participate in the process, they are more likely to experience self-respect and feelings of equality due to the opportunity to express their budget-related values and knowledge (Shield & Shields, 1998).

Lunardi et al. (2019) report that budgetary participation positively influences work engagement among controllers because WE refers to a cognitive belief that workers' needs are satisfied by work (Lunardi et al., 2019b) and is also the workers' level of identification with the work performed (Siqueira, 2008). Therefore, budgetary participation (Milani, 1975) tends to trigger affective effects in managers with budget responsibilities, making them feel more engaged and connected to and satisfied with their jobs, experiencing their work tasks intensively (Siqueira, 2008; Moynihan & Pandey, 2007; Lodahl & Kejner, 1965). Hence, the second hypothesis is proposed:

H_2: Budgetary participation is positively associated with work engagement.

Budgetary participation can result in positive behaviors in the organizational environment (Chong et al., 2006), such as goal commitment, which concerns the involvement of managers in the establishment of budget goals and their willingness (effort) to attain such goals (Chong & Johnson, 2007). In addition, Birnberg et al. (2007) argue that budgetary participation influences an individual's behavior and mindset. In this sense, through various (cognitive and affective) mechanisms, budgetary participation tends to lead to greater budget goal commitment and improved performance (Derfuss, 2016; Jermias & Yigit, 2013).

According to Chong and Johnson (2007), when individuals participate in the budgeting process, they are more likely to accept and commit to attaining a certain level of budget goals. Therefore, organizations should allow managers to participate in the establishment of budget goals to encourage greater commitment toward the organization and improved performance (Guidini et al., 2020).

Studies report a positive relationship between budgetary participation and goal commitment (Zonatto et al., 2019; Macinati & Rizzo, 2014; Jermias & Yigit, 2013; Breaux et al., 2011; Sandalgaard et al., 2011; Wentzel, 2002). Hence, the involvement of controllers in the budgeting process is believed to promote commitment and effort to achieve goals:

H_3: Budgetary participation is positively associated with budget goal commitment.

2.2 Cognitive effects on self-efficacy beliefs

SCT takes into account psychological (cognitive) aspects when considering the relationship between cognitive and personal behavioral aspects, which influence human action and behavior (Bandura, 1977). Psychological capital is a positive state associated with attitude, behavior, and performance (Alessandri et al., 2018). Bitmis and Ergeneli (2013) consider that an individual's performance must be improved to increase his/her psychological capital by sharing information and encouraging work engagement. Alessandri et al. (2018) found a positive relationship between psychological capital and work engagement, revealing that personal resources support work engagement.

Macinati et al. (2016) report that self-efficacy is positively associated with work engagement, budget, and managerial performance. Because self-efficacy refers to an individual's belief in his/her ability to perform specific tasks and functions (Nouri & Parker, 1998), believing in one's own ability to mobilize cognitive and motivational resources encourages individuals to successfully perform their tasks (Stajkovic & Luthans, 1998). Self-efficacy beliefs tend to positively reflect work engagement because it is conditioned to a work-related motivational state and well-being (Bakker et al., 2008; Schlup et al., 2021).

Given the positive results found between psychological capital and work engagement (Alessandri et al., 2018; Bitmis & Ergeneli, 2013) and between self-efficacy and engagement (Macinati et al., 2016; Moynihan & Pandey, 2007), we present the fourth hypothesis:

H_4: Self-efficacy beliefs are positively associated with work engagement.

Budget goal commitment concerns behavior and effort on the part of managers toward achieving goals (Chong & Johnson, 2007) and can be enhanced by individuals through self-efficacy beliefs. Studies indicate a positive relationship between psychological capital and budget goal commitment (Degenhart et al., 2022; Nascimento, 2017). In addition, individuals with a strong sense of self-efficacy challenge themselves continually and choose to perform tasks that demand greater effort (Venkatesh & Blaskovich, 2012; Luthans et al., 2007). Hence, the stronger a controller's self-efficacy beliefs, the more committed s/he will be with budget goals:

H_5: Self-efficacy beliefs are positively associated with budget goal commitment.

Many studies report the positive relationship between self-efficacy beliefs and management performance (Macinati et al., 2016; Heath & Brown, 2007; Ni et al., 2009), and positive evidence has also been found for the relationship between psychological capital and management performance (Degenhart et al., 2022; Alessandri et al., 2018; Nascimento, 2017; Saithong-In & Ussahawanitchakit, 2016; Venkatesh & Blaskovich, 2012). Hence, an individual's positive personal characteristics (self-efficacy), which support the motivational process (Alessandri et al., 2018), tend to positively impact management performance (Degenhart et al., 2022; Schlup et al., 2021).

Individuals with high levels of self-efficacy who opt for challenging tasks make a greater effort to achieve their goals successfully and persevere when facing difficulties and obstacles (Luthans & Youssef, 2004). SCT (Bandura, 1977) suggests that employees with high levels of self-efficacy apply greater effort in their work. Therefore, the sixth hypothesis is

H_6: Self-efficacy beliefs are positively associated with managerial performance.

2.3 The affective effects of work engagement and goal commitment

AET postulates a connection between work events and affective and emotional responses. This theory's primary purpose is to consider events as causes of emotions and other phenomena at work (Weiss & Cropanzano, 1996). For example, budget goal commitment and involvement in the budgeting process result from the opportunity to become involved with and influence the process in which budget goals and objectives are established (Shields & Shields, 1998). In this sense, when managers become intensively engaged with their work, they are more likely to become committed to budget goals (Lunardi et al., 2019b) and obtain positive performance results (Breaux et al., 2011).

Engagement determines the degree to which an individual is psychologically identified with his/her work and its relevance to his/her self-image (Siqueira, 2008; Moynihan & Pandey, 2007; Lodahl & Kejner, 1965). Therefore, when individuals are engaged with their work, they are committed to attaining budget goals, considering that BGC refers to the involvement of managers in establishing goals and being determined to achieve them (Erez & Arad, 1986). Therefore, the seventh hypothesis assumes that:

H_7: Work engagement is positively associated with budget goal commitment.

Evidence suggests a potential influence of work engagement on management performance (Alessandri et al., 2018). One of the reasons for workers obtaining improved performance is related to work engagement (Bakker et al., 2008). The managers' involvement is a behavior that tends to positively impact actions at work, reflecting on performance (Lunardi et al., 2019b; Alessandri et al., 2018; Macinati et al., 2016; Hariyanti et al., 2015; Breaux et al., 2011).

As a result, managers become very involved with their work and personally connected with their jobs, intensively experiencing their responsibilities (Moynihan & Pandey, 2007; Siqueira, 2008). Consequently, they make a greater effort to perform tasks linked to planning, investigating, coordinating, assessment, supervising, selecting, negotiating, and representing budget activities (Mahoney et al., 1965). Hence, a controller's greater work engagement will reflect on his/her performance, which constitutes the following hypothesis**:**

H_8: Work engagement is positively associated with managerial performance.

Cognitive aspects influence human decisions, and the level of effort individuals are willing to make to perform their tasks, which tend to reflect their management attitude, commitment, and performance (Degenhart et al., 2022). Therefore, an individual's level of goal commitment will influence his/her actions and performance (Chong & Johnson, 2007). For example, Macinati and Rizzo (2014) explain that managers tend to become more motivated at work when they participate in the budgeting process and will also be more committed to budget goals, presenting improved performance, considering that their actions are guided by the information obtained in the budgeting process. Therefore, budgetary participation and managers' cognition (self-efficacy) tend to promote affective, cognitive effects, such as a greater commitment to the budget goals. This commitment reflects greater performance in budget activities (Macinati et al., 2016; Macinati & Rizzo, 2014).

The direct and positive influence of goal commitment on management performance corroborates other studies' findings (Jermias & Yigit, 2013; Breaux et al., 2011; Chong & Johnson, 2007; Marginson & Ogden, 2005; Shields & Shields, 1998; Wentzel, 2002). Additionally, goal commitment mediates the relationship between budgetary participation and management performance (Jermias & Yigit, 2013). The last hypothesis is proposed in this context:

H_9: Budget goal commitment is positively associated with managerial performance.

3. Research Method and Procedures

This descriptive and quantitative study was conducted through a survey. To analyze the objective proposed here, we addressed professionals from the 500 largest companies (according to the *Revista Amanhã* ranking) located in southern Brazil. Therefore, the population comprised controllers from the largest companies listed in this ranking. Furthermore, this population was chosen because controllers can play different roles; hence, they are strategy players in companies and produce high-quality information (Palomino & Frezatti, 2016).

The *Revista Amanhã* ranking of the 500 largest companies (revenue) located in the states in southern Brazil was chosen due to its relevance to the regional context. These companies were also chosen because they are audited by the Big Four, which lends greater reliability to the information used by the magazine. Additionally, being the largest companies in southern Brazil, the organizations have already consolidated the budgeting process (Santos et al., 2021).

The sample is characterized as a non-probabilistic, intentional, and accessible sample. The individuals were contacted from November 2020 to January 2021 via LinkedIn. The controllers were initially invited to participate in the study, and an electronic form was sent via LinkedIn and e-mail after they provided consent. At the end of this process, we obtained the voluntary participation of 225 controllers from selected companies.

The instrument used to collect data consisted of a questionnaire addressing 33 objective multiple-choice questions based on the constructs presented in Table 3.

Table 1
Research constructs

Variables	Definition	Questions/ Scales	Authors
Budgetary Participation	It concerns the involvement of individuals in setting budget goals and objectives and their influence in establishing their unit's budgets.	6 statements/ 7-point Likert scale	Milani (1975).
Self-efficacy	It concerns an individual's belief in his/her capacity to mobilize cognitive resources to perform tasks successfully.	6 statements/ 6-point Likert scale	Luthans et al. (2007).
Work engagement	It determines an individual's psychological identification with his/her work and its importance for self-image.	7 statements/ 7-point Likert scale	Lodahl & Kejner (1965); Moynihan & Pandey (2007); Siqueira (2008).
Budget goal Commitment	It concerns the involvement of managers in setting goals and their resolve to attain such goals.	5 statements/ 7-point Likert scale	Latham & Steele (1983), Erez & Arad (1986).
Managerial performance	It concerns how the individuals assess their performance regarding budget activities.	9 statements/ 7-point Likert scale	Mahoney et al. (1963; 1965), Zonatto (2014).

Source: developed by the authors

After identifying and establishing which instruments best suited this study, two experienced professionals who specialized in English translated and back-translated them. Additionally, two professors with a Ph.D. in Accounting Sciences, who are experts and researchers in the topics addressed here, assessed the instruments. Finally, a pretest was applied among three managers responsible for budgeting in their (Brazilian) companies to verify the instrument's clarity. Next, data collection was initiated. According to the G*Power software, a minimum sample of 77 valid responses would be needed. This study obtained 225 responses, i.e., a number that is sufficient to analyze the theoretical model proposed here.

Regarding data analysis procedures, exploratory factor analysis was conducted with the measurement constructs, using the following criteria: Cronbach's alpha >0.70, Kaiser-Meyer Olkin (KMO) >0.50, Bartlett's test of sphericity p<0.05, indicators' factor loadings >0.35, and communalities >0.60 (Hair Jr. et al., 2009). Next, the common method bias and discriminant validity tests were performed according to the criteria proposed by Bagozzi and Philips (1982). Finally, confirmatory factor analysis was performed, and the relationships were investigated using SEM with AMOS® software. Criteria for validating the models are presented in Table 2.

Table 2
Criteria to assess the measurement constructs

Indicator	Recommended	Reference	Expected
Chi-square/DF	< 5	Hair Jr. et al. (2009)	< 5
Statistical significance (p)	< 0.05		< 0.05
CFI	< 0 and < 1 (The closest to 1)		> 0.90
TLI			> 0.90
NFI			> 0.90
RMSEA	< 0.10		< 0.10
Cronbach's alpha (construct)	> 0.70		> 0.70
Factor loadings (indicators)	> 0.40		> 0.40
Composite Reliability	> 0.50		> 0.50
Extracted validity	> 0.50		> 0.50

Source: adapted from Lunardi et al. (2020, p. 21).

4. Results

The results of the exploratory factor analysis indicated the validation of measurement models for all the constructs analyzed. Cronbach's alpha coefficients were greater than 0.7 in all the cases. The KMO values were higher than 0.870, and the measurement models were statistically significant. The total variance explained was above 64%, which indicates a high explanatory power. Regarding the frequency of responses obtained in the survey, we found that they varied from minimum and maximum degrees of disagreement and agreement in all the constructs analyzed. Such evidence shows that the organizations where the respondents work have different budget planning configurations, and not all controllers actively participate in the budgeting processes. The results also reveal that the levels of self-efficacy, work engagement, and budget goal commitment are different, reinforcing the need to investigate these relationships and their effects on managerial performance.

As Bido et al. (2018) recommended, the Harman single-factor test was performed to analyze existing method bias (Common Method Bias), and the results revealed that together, the construct generated five factors. The first factor explains only 35.87% of the total explained variance, suggesting the non-occurrence of method bias. Likewise, according to Bagozzi and Phillips (1982), we verified the discriminant validity of the structural model. The free model with unfixed parameters to obtain Chi² totaled 1236,577. The fixed model obtained 1128,984; the difference of 107,593 was statistically significant. Next, MEE was performed to analyze the relationships proposed here. Figure 2 presents the results of the measurement used to assess these relationships.

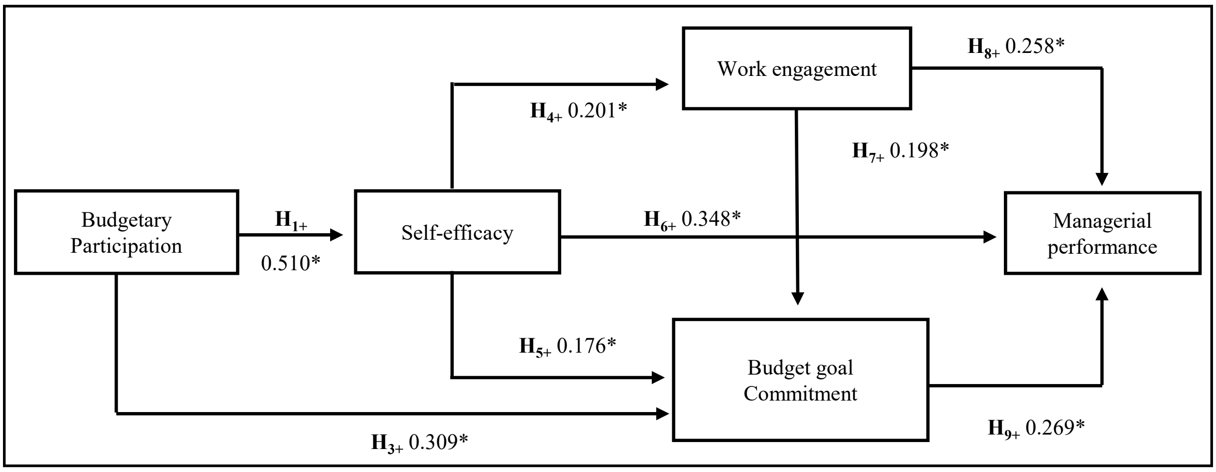

Figure 2. Structural model paths estimates
Model's goodness of fit: Chi² 1135,376; Degrees of Freedom 487; Chi²/Degrees of Freedom 2.331; CFI 0.894; TLI 0.885; NFI 0.828; RMSEA 0.077.

Source: study's data.

The results concerning the goodness of fit indexes indicate that the proposed measurement model presented acceptable values within the expected parameters, confirming the measurement model's validity. In addition, these results indicate that self-efficacy beliefs and budget goal commitment are factors conditioning improved management performance when controllers participate in budgeting processes and are engaged with their work.

5. Discussion

Table 3 presents the coefficients and significance of the relationships proposed.

Table 3
Standard coefficients and significance of the relationships in the models tested

Results of the Initial Model								
Structural Paths			**Estimate**	**E.P.**	***t – values***	***ρ***	**Standardized coefficient**	**R^2**
AE	←	BP	0.347	0.050	6.901	***	0.510	0.260
WE	←	BP	0.041	0.062	0.661	0.509ns	0.055	0.055
WE	←	AE	0.219	0.093	2.349	0.019	0.201	0.055
BGC	←	BP	0.258	0.063	4.086	***	0.309	0.257
BGC	←	AE	0.216	0.092	2,351	0.019	0.176	0.257
BGC	←	WE	0,222	0.074	2,997	0.003	0.198	0.257
MP	←	WE	0.280	0.071	3.948	***	0.258	0.411
MP	←	BGC	0.260	0.063	4.140	***	0.269	0.411
MP	←	AE	0.413	0.080	5.141	***	0.348	0,411

Source: study's data.

The established model initially investigates the direct effects of budgetary participation on the controllers' self-efficacy, showing a positive and significant relationship (λ = 0.510). Given this result, we can say that budgetary participation positively influences their self-efficacy beliefs, which confirms the study's first hypothesis. Similar results are reported by Degenhart et al. (2022), Yuliansyah and Khan (2017), Macinati et al. (2016), Ni et al. (2009), and Heath and Brown (2007).

This evidence suggests that when controllers are entirely involved in the budgeting process of their unit and obtain information from superiors about budget reviews, and have the autonomy to express opinions and suggestions, influencing the final budget, they believe that their contributions are valuable and are sought out by their superiors to share information on budget forecasts (Milani, 1975). Consequently, they believe in their ability to mobilize positive cognitive resources to successfully carry out activities (Luthans et al., 2007). Therefore, budgetary participation can be considered a means to motivate managers to put effort into their activities and develop positive beliefs that they will successfully achieve the budget results (Ni et al., 2009; Schlup et al., 2009; Schlup et al. al., 2021).

The model's path that assesses the direct effects of budgetary participation on work engagement does not express a significant relationship (λ = 0.055), which does not support this study's second hypothesis. Although several studies indicate that a positive and significant influence of budgetary participation reinforces the individuals' work engagement (Chong et al., 2006; Lunardi et al., 2019b), this was not confirmed in this study.

Contrary to what was expected, the controllers addressed in this study indicated that budgetary participation does not directly influence work engagement. Therefore, budgetary participation does not, by itself, satisfies the worker's cognitive needs, or promote identification with their work; rather, it indicates that other variables interfere with the controllers' degree of psychological identification with their work and how important it is for self-image (Lodahl & Kejner, 1965). These results indicate that cognitive effects (self-efficacy) are important for controllers to be intensely involved with budget-oriented work activities when they participate in setting budget goals and objectives.

The relationship between budgetary participation and budget goal commitment was positive and significant (λ = 0.309). Hence, these findings confirm the third hypothesis, corroborating the findings of previous studies (Zonatto et al., 2019; Derfuss, 2016; Macinati & Rizzo, 2014; Jermias & Yigit, 2013; Sandalgaard et al., 2011; Breaux et al., 2011; Chong & Johnson, 2011; 2007; Chong et al., 2006; Wentzel, 2002).

Such effects are generated by participation in the budgeting process, considering that the knowledge obtained in this process helps determine the budget and makes controllers feel more involved in setting goals and become resolved to achieve such goals. In this sense, budgetary participation makes individuals more likely to accept and become committed to the budget goals and objectives (Guidini et al., 2020). Chong and Johnson (2007) explain that individuals are more likely to accept and work toward achieving goals when participating in the process. When managers realize the importance of a budget for their companies and feel they are active participants in the budgeting process, they tend to be more committed to attaining goals and show greater concern for achieving better performance (Wentzel, 2002). Thus, the affective effects of goal commitment are enhanced through budgetary participation.

The positive influence of the cognitive effects of self-efficacy beliefs in work engagement and budget goal commitment was confirmed (λ = 0.201 and λ = 0.176). These results support the fourth and fifth hypotheses. They are also in line with the positive evidence reported in the literature for the relationship between self-efficacy beliefs and work engagement (Macinati et al., 2016) and between psychological capital and engagement (Alessandri et al., 2018; Bitmis & Ergeneli, 2013). These findings reveal that controllers have self-efficacy, trust in their ability to perform tasks (Nouri & Parker, 1998), and become intensively committed to successfully performing their assignments because they are motivated and mobilize cognitive resources. (Stajkovic & Luthans, 1998). These findings confirm SCT assumptions, which recognize the role of human cognition in the construction of reality, self-regulation, coding information, and individuals' behaviors (Bandura, 1977; 2001). Therefore, it can be inferred that self-efficacy beliefs are an important factor influencing the budgetary context so that controllers become involved in this process to achieve better performance.

Previous studies also suggest a positive relationship between psychological capital and budget goal commitment (Degenhart et al., 2022; Nascimento, 2017). For example, as a component of psychological capital, self-efficacy enables individuals with high levels of self-efficacy to increase their budget goal commitment because these managers present behaviors and make a greater effort to achieve goals (Chong & Johnson, 2007). Therefore, controllers with high levels of "confidence (self-efficacy) take on and put in the necessary effort to succeed at challenging tasks" (Luthans et al., 2007, p. 3); consequently, they are more involved in the budgeting process and exert greater effort to achieve them (Chong & Johnson, 2007).

This relationship between cognitive (self-efficacy) and affective factors (work engagement and budget goal commitment) confirms the SCT's assumptions, which postulate that a set of (cognitive and personal, behavioral and environmental) factors influences human development and action. These factors influence each other when acting interactively, determining human action and behavior in the context of social interaction (Bandura, 1977). Therefore, when cognitive and personal factors (self-efficacy) and behavioral factors (work engagement and goal commitment) interact in a budgetary context, they influence controllers' actions, impacting their managerial performance.

This study's findings confirm this relationship. Self-efficacy beliefs influence managerial performance (λ = 0.348), which supports the sixth hypothesis and the analysis of the indirect effects of self-efficacy beliefs on the relationship between budgetary participation and managerial performance. These results show that managers with high levels of self-efficacy (Luthans et al., 2007) perform better in planning and coordinating activities, assessing subordinates' activities, investigating their area's problems, supervising the team, obtaining and maintaining the appropriate personnel, negotiating, representing the interests of their area of responsibility, and complying with budget goals. These factors tend to impact their overall performance (Milani, 1975).

Additionally, these results indicate that high budgetary participation levels positively influence controllers' self-efficacy and, subsequently, their performance in budget activities. Thus, cognitive effects tend to enhance the relationship between budgetary participation and managerial performance through interactions between these beliefs, work engagement, and budget goal commitment. The SCT indicates that employees with high levels of self-efficacy will exert greater effort and be more resilient in overcoming obstacles at work (Bandura, 1977). For this reason, they will present superior managerial performance (Degenhart et al., 2022). These results support the interactive effects of the cognitive and affective aspects addressed here.

Studies corroborate the positive relationship between psychological capital and managerial performance (Degenhart et al., 2022; Nascimento, 2017; Saithong-In & Ussahawanitchakit, 2016; Venkatesh & Blaskovich, 2012). Furthermore, the studies used self-efficacy beliefs separately to explain the relationship between budgetary participation and managerial performance, reporting a positive relationship (Macinati et al., 2016; Ni et al., 2009; Heath & Brown, 2007). These results corroborate the need to analyze the effects of intervening variables in the relationship between budgetary participation and managerial performance (Zonatto et al., 2019; Dani et al., 2017), which is in line with Bandura's SCT (1977), considering that when cognitive and personal factors (self-efficacy beliefs) interact with environmental factors (level of budgetary participation), they enable controllers to perform better in budget activities.

These results also align with the affective approach of the Affective Events Theory (AET). The results suggest a positive influence of work engagement on budget goal commitment ($\lambda = 0.198$), confirming the seventh hypothesis. These findings indicate that the degree to which controllers are psychologically identified with their work and its relevance to their self-image (Siqueira, 2008; Moynihan & Pandey, 2007; Lodahl & Kejner, 1965) make them involved with budget goals setting and resolved to achieve such goals (Erez & Arad, 1986; Latham & Steele, 1983).

As for the effects of the affective variables analyzed on performance, both work engagement ($\lambda = 0.258$) and budget goal commitment ($\lambda = 0.269$) positively influenced managerial performance. These results confirm budget goal commitment's positive and significant intervening effects on the relationship between budgetary participation and managerial performance. Jermias and Yigit (2013) also identified that goal commitment intercedes the relationship between budgetary participation and managerial performance.

These results suggest that high budgetary participation levels lead to higher budget goal commitment levels and improved budget activities performance, corroborating SCT (Bandura, 1977). Human action and behavior are influenced by a set of factors, and environmental (budgetary participation) and behavioral factors (budget goal commitment) stand out in this relationship. These results also contribute to AET as, according to this theory, some characteristics of the work environment influence behavioral responses and the behavior of employees (Weiss & Cropanzano, 1996), determined by their choices. In this case, the level of budgetary participation influences the controllers' resolve and goal commitment, which reflect on their performance. Concerning involvement at work, this is enhanced through self-efficacy beliefs and, subsequently, has positive impacts on performance. Therefore, under conditions in which budgetary participation increases and self-efficacy beliefs are enhanced, these professionals tend to present better performances.

These results confirm the eighth and ninth hypotheses. Evidence shows that work engagement is one of the reasons controllers present better managerial performance (Lunardi et al., 2019b; Alessandri et al., 2018; Macinati et al., 2016; Hariyanti et al., 2015; Breaux et al., 2011; Bakker et al., 2008). Therefore, work engagement should be encouraged in companies to obtain improved managerial performance from employees in budget activities. Likewise, these results indicate convergence with studies concerning the positive relationship between budget goal commitment and managerial performance (Jermias & Yigit, 2013; Breaux et al., 2011; Chong & Johnson, 2007; Marginson & Ogden, 2005; Wentzel, 2002; Shields & Shields, 1998). Thus, these results indicate that cognitive aspects (self-efficacy) influence human decisions and the degree of effort controllers put into their activities, which reflects their commitment and work performance (Degenhart et al., 2022).). An individual's goal commitment will influence his/her actions and performance (Chong & Johnson, 2007).

The analyses show that self-efficacy beliefs and budget goal commitment are intervening variables that positively affect the relationship between budgetary participation and managerial performance. Likewise, they reveal that such beliefs influence the individuals' work engagement level, which impacts their managerial performance. Thus, cognitive (according to the SCT) and affective effects (according to the AET) should be encouraged among controllers by enabling their participation in budgeting processes due to their positive effects on managerial performance. This study's results indicate that the effect of budgetary participation is not restricted to achieving control and establishing better budget forecasts, but it also influences cognition, behavior, and the managerial performance of professionals with budgetary responsibilities (Degenhart et al., 2022; Lunardi et al., 2020; Zonatto et al., 2020a).

6. Conclusions

The results confirmed the effects of budgetary participation on self-efficacy and budget goal commitment, suggesting that the level of participation enhances the controllers' development of positive psychological capacities and increases their commitment to achieving budget goals. As for work engagement, budgetary participation did not present a direct influence, indicating that, according to the controllers' self-efficacy beliefs, work engagement may be influenced by other factors, as identified in this study.

Regarding the cognitive effects of self-efficacy beliefs, the results show positive effects on the affective variables addressed here (work engagement and budget goal commitment) and managerial performance. Furthermore, indirect effects were also found on self-efficacy beliefs in the relationship between budgetary participation and managerial performance. Therefore, the self-efficacy beliefs of managers with budgetary responsibilities enhanced their behaviors and the results obtained under their responsibility through their active participation in budgeting processes and improved managerial attitudes. These results validate SCT (Bandura, 1977) because, in this study, human action and behavior were influenced by cognitive and personal factors (self-efficacy) and environmental factors (budgetary participation), which consequently reflect on managerial performance.

As for the affective effects analyzed in this study, the results show that work engagement positively influences budget goal commitment, improving the controllers' performance in their budget activities. This study suggests that budget goal commitment indirectly and positively influences the relationship between budgetary participation and managerial performance. In this sense, actions are needed to encourage the controllers' budget goal commitment and improve their participation and performance. This affective behavior influences the budgeting process and the effort managers put in to achieve improved performance in these activities. Hence, environmental characteristics also influence the controllers' behaviors and performance, results supported by AET and SCT.

Overall, these findings support an understanding of the cognitive effects and affective responses that mediate the relationship between budgetary participation and managerial performance, showing that the effects of this relationship (BP x MP) are not the result of simple causality. On the contrary, these effects occur through the mediating role of cognitive and affective factors. Additionally, the results confirmed SCT and AET, showing that this study deepened the analysis of the relationship between BP x MP, providing theoretical contributions to the field. Based on these results, we infer that there is no single factor influencing the relationship between participation and performance, but a set of factors (self-efficacy and budget goal commitment) determines this relationship. Self-efficacy enables the controllers the ability to carry out their actions confidently, and commitment makes it possible for them to reach goals diligently.

Regarding this study's theoretical contribution, it advances in the literature by presenting new evidence concerning the relationship between BP x MP, considering that the aspects addressed here had not yet been discussed together in the scope of accounting management, that is, the analysis between BP, AE, WE, BGC and MP is innovative in the theoretical model we proposed. The controllers' better managerial performance may result from how budgetary participation is driven by better budget forecasts and high levels of work engagement (Lunardi et al., 2019a). Furthermore, it presents the implications of using SCT and AET to explain the effects of budget planning configurations (Ni et al., 2009).

As for practical contributions, the results reveal the effects of the budget planning configurations adopted by the companies, allowing managers to understand the effects of cognitive (self-efficacy) and affective factors (work engagement and budget goal commitment). These factors should be considered within the work environment so that the managers' participation and influence in the budgeting process positively reflect on managerial performance and the accomplishment of the tasks. Furthermore, this study's results contribute to other companies to identify the conditioning factors of participatory budgeting and managerial performance since the presence of employees committed and involved with the budgeting process and presenting high levels of self-efficacy improve performance as a whole (Degenhart et al., 2022; Lunardi et al., 2020; Zonatto et al., 2020a).

One of this study's limitations concerns the fact that inferences are limited to those responsible for budgeting and who were willing to participate in this study. Therefore, the results are restricted to this sample and respondents. Note that the sample comprises a group of professionals, not all professionals, from a specific region and companies with the largest revenue. Furthermore, the instrument disregarded other variables in the budgeting context that may explain the relationship between BP x MP.

Although the results cannot be generalized, evidence encourages further research, as there are indications of variables that affect the controllers' behaviors and actions in a budgetary context. Since there is scarce evidence of potential behavioral variables that mediate the relationship between budgetary participation and managerial performance, further studies, including other psychological capacities and managerial assets not addressed in this study and other intervening variables, are suggested.

References

Alessandri, G., Consiglio, C., Luthans, F., & Borgogni, L. (2018). Testing a dynamic model of the impact of psychological capital on work engagement and job performance. *Career Development International, 23*(1), p. 33-47. Doi: https://doi.org/10.1108/CDI-11-2016-0210

Bakker, A. B., Schaufeli, W. B., Leiter, M. P., & Taris, T. W. (2008). Work engagement: An emerging concept in occupational health psychology. *Work & Stress*, *22*(3), p. 187-200. Doi: https://doi.org/10.1080/02678370802393649

Bandura, A. (1977). *Social learning theory.* Englewood Cliffs, N. J.: Prentice-Hall.

Birnberg, J. G., Luft, J., & Shields, M. D. (2007). Psychology theory in management accounting research. *Handbook of Management Accounting Research*, *1*(4), p. 113-135. Doi: https://doi.org/10.1016/S1751-3243(06)01004-2

Bitmiş, M. G., & Ergeneli, A. (2013). The role of psychological capital and trust in individual performance and job satisfaction. *Procedia Social and Behavioral Sciences, 99*, p. 173-179. Doi: https://doi.org/10.1016/j.sbspro.2013.10.483

Chong, V. K., Eggleton, I. R., & Leong, M. K. (2006). The multiple roles of Budgetary Participation on job performance. *Advances in Accounting, 22*, p. 67-95. Doi: https://doi.org/10.1016/S0882-6110(06)22004-2

Chong, V. K., & Johnson, D. M. (2007). Testing a model of the antecedents and consequences of budgetary participation on job performance. *Accounting Business Research, 37*(1), p. 3-19. Doi: https://doi.org/10.1080/00014788.2007.9730055

Dani, A. C, Zonatto, V. C. S., & Diehl, C. A. (2017). Participação orçamentária e managerial performance: Uma meta-análise das relações encontradas em pesquisas desenvolvidas na área comportamental da contabilidade. *Advances in Scientific & Applied Accounting*, *10*(1), p. 54-72. Doi: https://asaa.anpcont.org.br/index.php/asaa/article/view/307

Degenhart, L., Lunardi, M. A., & Zonatto, V. C. S. (2019). Antecedentes que Determinam os níveis de Participação Orçamentária e seus efeitos na Assimetria de Informação e Managerial performance. *Contabilidade Vista & Revista, 30*(2), p. 22-51. Doi: https://doi.org/10.22561/cvr.v30i2.4742

Degenhart, L., Zonatto, V. C. S., & Lavarda, C. E. F. (2022). Efeitos do capital psicológico e atitudes gerenciais na relação entre participação orçamentária e desempenho. *Revista de Contabilidade & Finanças, ahead of print*. Doi: https://doi.org/10.1590/1808-057x202113790

Derfuss, K. (2016). Reconsidering the Budgetary Participation– performance relation: A meta-analysis regarding the impact of level of analysis, sample selection, measurement, and industry influences. *The British Accounting Review*, *48*(1), p. 17-37. Doi: https://doi.org/10.1016/j.bar.2015.07.001

Erez, M., & Arad, R. (1986). Participative goal-setting: Social, motivational, and cognitive factors. *Journal of Applied Psychology*, *71*(4), p. 591. Doi: https://doi.org/10.1037/0021-9010.71.4.591

Etemadi, H., Dilami, Z. D., Bazaz, M. S. & Parameswaran, R. (2009). Culture, management accounting and managerial performance. *Advances in Accounting, 25*(1), p. 216-225. Doi: https://doi.org/10.1016/j.adiac.2009.08.005

Guidini, A. A., Zonatto, V. C. S., & Degenhart, L. (2020). Evidence of the Relationship between Budgetary Participation, Organizational Commitment and Managerial Performance. *Revista de Administração da UFSM, 13*(5), p. 997-1016. Doi: https://doi.org/10.5902/1983465938283

Hariyanti, W., Purnamasari, P., & Lestira, M. (2015). Relationships to budgeting participation and managerial performance. *Procedia-Social and Behavioral Sciences*, *211*(1), p. 836-843. Doi: https://doi.org/10.1016/j.sbspro.2015.11.110

Hannan, R. L., Rankin, F. W., & Towry, K. L. (2010). The effect of organizational reporting structure on budgeting effectiveness. *Review of Accounting Studies, 15*(3), p. 503-536. Doi: https://doi.org/10.1007/s11142-010-9132-5

Heath, R. S., & Brown, J. F. (2007). A re-examination of the effect of job-relevant information on the budgetary participation - job performance relation during an age of employee empowerment. *Journal of Applied Business Research, 23*(1), p. 111-124. Doi: https://doi.org/10.19030/jabr.v23i1.1412

Jermias, J., & Yigit, F. (2013). Budgetary participation in Turkey: The effects of information asymmetry, goal commitment, and role ambiguity on job satisfaction and performance. *Journal of International Accounting Research, 12*(1), 29-54. https://doi.org/10.2308/jiar-50385

Latham, G. P., & Steele, T. P. (1983). The motivational effects of participation versus goal setting on performance. *Academy of Management Journal, 26*(3), p. 406-417. Doi: https://doi.org/10.5465/256253

Lodahl, T. M.; Kejnar, M. (1965). The definition and measurement of job involvement. *Journal of Applied Psychology, 49*(1), p. 24-33. Doi: https://doi.org/10.1037/h0021692

Lunardi, M. A., Degenhart, L., & Zonatto, V. C. S. (2019b). Estilo de liderança, assimetria de informação e uso avaliativo do orçamento constituem-se antecedentes a participação orçamentária? *Revista Contemporânea de Contabilidade*, *16*(38), p. 03-34. Doi: http://dx.doi.org/10.5007/2175-8069.2019v16n38p3

Lunardi, M. A., Zonatto, V. C. S., & Nascimento, J.C. (2019a). Efeitos do Work engagement em Atitudes Gerenciais, Compartilhamento de Informação e no Desempenho de 'Controllers' no Contexto Orçamentário. *Revista Brasileira de Gestão de Negócios*, *21*(3), p. 540-562. Doi: https://doi.org/10.7819/rbgn.v21i3.4000

Lunardi, M. A., Zonatto, V. C. S., & Nascimento, J.C. (2020). Efeitos cognitivos mediadores do compartilhamento de informação na relação entre participação orçamentária e managerial performance. *Revista Brasileira de Gestão de Negócios*, *31*(82), p. 14-32. Doi: https://doi.org/10.1590/1808-057x201908610

Luthans, F., Youssef, C. M., & Avolio, B. J. (2007). *Psychological capital:* developing the human competitive edge. Oxford: Oxford University Press.

Luthans, F., & Youssef, C.M. (2004). Human, social, and now positive psychological capital management: Investing in people for competitive. *Organizational Dynamics, 33*(2), p. 143-160. Doi: https://doi.org/10.1016/j.orgdyn.2004.01.003

Macinati, M. S., Bozzi, S., & Rizzo, M. G. (2016). Budgetary participation and performance: The mediating effects of job engagement and self-efficacy. *Health Policy*, *120*(9), p. 1017-1028. Doi: https://doi.org/10.1016/j.healthpol.2016.08.005

Macinati, M. S., & Rizzo, M. G. (2014). Budget goal commitment, clinical managers " use of budget information and performance". *Health Policy, 117*(2), p. 228-238. Doi: https://doi.org/10.1016/j.healthpol.2014.05.003

Mahoney, T. A., Jerdee, T. H., & Carroll, S. J. (1965). The job(s) of management. *Industrial Relations: A Journal of Economy and Society, 4*(2), p. 97-110. Doi: https://doi.org/10.1111/j.1468-232X.1965.tb00922.x

Milani, K. (1975). The relationship of participation in budget-setting to industrial supervisor performance and attitudes: A field study. *The Accounting Review, 50*(2), p. 274-284. Doi: https://www.jstor.org/stable/244709

Moynihan, D. P., & Pandey, S. K. (2007). Comparing job satisfaction, job involvement, and organizational commitment. *Administration & Society, 39*(7), p. 803-832. Doi: https://doi.org/10.1177/0095399707305546

Nascimento, J. C. (2017). *Efeitos do capital psicológico de controllers em atitudes, comportamentos e no managerial performance sob o contexto orçamentário.* Dissertação (Mestrado em Ciências Contábeis). Universidade Regional de Blumenau, Blumenau.

Ni, F.-Y., Su, C. C., Chung, S.-H., & Cheng, K.-C. (2009). Budgetary participation's effect on managerial outcomes: Mediating roles of self-efficacy and attitudes toward budgetary decision makers. *NTU Management, 19*(2), p. 321-347.

Nouri, H., & Parker, R. J. (1998). The relationship between budget participation and job performance: the roles of budget adequacy and organizational commitment. *Accounting, Organizations and Society, 23*(5/6), p. 467-483. Doi: https://doi.org/10.1016/S0361-3682(97)00036-6

Palomino, M. N., & Frezatti, F. (2016). Role conflict, role ambiguity and job satisfaction: Perceptions of the Brazilian controllers. *Revista de Administração, 51*(2), p. 165-181. Doi: https://doi.org/10.5700/rausp1232

Saithong-In, S., & Ussahawanitchakit, P. (2016). Psychological capital and job performance: an empirical research of certified public accountants (CPAs) in Thailand. *The Business & Management Review, 7*(5), p. 499-506.

Sandalgaard, N., Bukh, P. N., & Poulsen, C. S. (2011). The interaction between motivational disposition and Budgetary Participation: Evidence from a bank. *Journal of Human Resource Costing & Accounting, 15*(1), p. 7-23. Doi: https://doi.org/10.1108/14013381111125297

Santos, V., Beuren, I. M., & Marques, L. (2021). Desenho e uso justos do processo orçamentário e managerial performance. *Revista de Contabilidade & Finanças, 32*(85), p. 29-45. Doi: https://doi.org/10.1590/1808-057x202010750

Schlup, D., Beck, F., & Zonatto, V. C. da S. (2021). Mediating effects of psychological capital and burnout syndrome on the relationship between budgetary participation and management performance. *Advances in Scientific and Applied Accounting*, 14(1), p. 297–314/315. Doi: https://doi.org/10.14392/asaa.2021140109

Shields, J. F., & Shields, M. D. (1998). Antecedents of Budgetary Participation. *Accounting, Organizations and Society, 23*(1), 49-76. https://doi.org/10.1016/S0361-3682(97)00014-7

Siqueira, M. M. M. (2008). Envolvimento com o trabalho. In Siqueira, M. M. M. *Medidas do comportamento organizacional: ferramentas de diagnóstico e gestão* (8), p. 141-146, Artmed.

Stajkovic, A. D., & Luthans, F. (1998). Social cognitive theory and self-efficacy: Going beyond traditional motivational and behavioral approaches. *Organizational Dynamics, 26*(4), p. 62-74. Doi: https://doi.org/10.1016/S0090-2616(98)90006-7

Weiss, H. M., & Cropanzano, R. (1996). A theoretical discussion of the structure, causes and consequences of affective experiences at work. *Research in Organizational Behavior, 18*, p. 1-74.

Wentzel, K. (2002). The influence of fairness perceptions and goal commitment on managers' performance in a budget setting. *Behavioral Research in Accounting, 14*(1), p. 247-271. Doi: https://doi.org/10.2308/bria.2002.14.1.247

Venkatesh, R. & Blaskovich, J. (2012). The mediating effect of psychological capital on the budget participation-job performance relationship. *Management Accounting Research, 24*(1), p. 159-175. Doi: https://doi.org/10.2308/jmar-50202

Yuliansyah, Y., & Khan, A. A. (2017). A revisit of the Budgetary Participation and employees' self-efficacy interrelationship–empirical evidence from Indonesia's public sector. *International Review of Public Administration, 22*(3), p. 213-230. Doi: https://doi.org/10.1080/12294659.2017.1325584

Zonatto, V. C. da S., Bauer, L., Degenhart, L., & Nascimento, J. C. (2020b). Efeitos cognitivos, motivacionais e do valor de realização da participação orçamentária sobre o desempenho no trabalho. *Enfoque: Reflexão Contábil*, 39(3), p. 133-150. Doi: https://doi.org/10.4025/enfoque.v39i3.46835

Zonatto, V. C. S., Nascimento, J. C., Lunardi, M. A., & Degenhart, L. (2020a). Effects of Budgetary Participation on Managerial Attitudes, Satisfaction, and Managerial Performance. *Revista de Administração Contemporânea, 24*(6), p. 532-549. Doi: https://doi.org/10.1590/1982-7849rac2020200047

Zonatto, V. C. S., Weber, A., & Nascimento, J. C. (2019). Efeitos de participação orçamentária na assimetria de informação, estresse ocupacional e managerial performance. *Revista de Administração Contemporânea, 23*(1), p. 67-91. Doi: https://doi.org/10.1590/1982-7849rac2019170327

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How financial information about joint ventures is being disclosed and processed by the market

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Resumo

Objective: This research aims to evaluate how the joint ventures' financial information is being disclosed in the notes to the joint venturer's financial statements and how this disclosed information is being processed by the market, exploring the mediating effect of investors' level of sophistication.
Methods: Using a sample of 1,858 financial statements from 551 firms from 26 countries, we hand collected the financial information of interests in joint ventures from the notes to the financial statements. Using a descriptive analysis, we first analyzed how firms are disclosing this information. Following, using a value relevance model, we evaluated whether this information is incorporated into stock prices.
Results: We show that IFRS 11 adoption and the elimination of proportionate consolidation resulted in a loss of information given that firms are not disclosing in the notes the financial information of their joint ventures as required by IFRS 12, and, even for those firms that are disclosing (57%), this information is only absorbed by more sophisticated investors.
Contributions: This research contributes not only to the previous literature (joint ventures' accounting treatment, disclosure compliance and recognition versus disclosure), but also to investors in the capital market and to the IASB during the Post-Implementation Review (PIR) of IFRS 11/12 and the Disclosure Initiative.
Keywords: Joint ventures; IFRS 11/12; Disclosure; Investor sophistication.

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1. Introduction

The purpose of this research is to evaluate how the joint ventures' financial information is being disclosed in the notes to the joint venturer's financial statements and how this disclosed information is being processed by the market. Specifically, this research aims first to provide evidence on whether the financial information on joint ventures previously recognized in the joint venturer's financial statements prepared using the proportionate consolidation can now be obtained in the notes to the financial statements, after the adoption of International Financial Reporting Standards (IFRS) 11 and IFRS 12. Following, we evaluate whether this joint ventures' financial information disclosed in the notes is being processed by investors in a value relevance analysis, in which we also analyze the mediating effect of the investor's level of sophistication in incorporating financial information disclosed in the notes into stock prices.

A joint venture is defined as a joint arrangement in which the parties that have the joint control of the arrangement (joint venturers) have rights to the net assets of the arrangements (IASB, 2011b). Before the adoption of IFRS 11 in 2013 (or 2014 in European Union countries), the previous international accounting standard (International Accounting Standard (IAS) 31) allowed the joint venturer to choose between the proportionate consolidation method and the equity method to measure its interests in joint ventures. After the adoption of IFRS 11, only the equity method is allowed.

The process of issuing IFRS 11 was quite controversial (Sarquis & Santos, 2019), given that there was a divergence of opinions about which of these two methods (proportionate consolidation or equity method) would be more appropriate for recognizing interests in joint ventures. The academic literature, for instance, provided evidence that the accounting information obtained by using the proportionate consolidation was more value relevant to users than the accounting information obtained by using the equity method (Bauman, 2007; Gavana, Gottardo, & Moisello, 2020; Graham, King, & Morrill, 2003; Stoltzfus & Epps, 2005).

Nevertheless, the International Accounting Standards Board (IASB) argued that the existence of this accounting choice was impairing the comparability of accounting information and that the proportionate consolidation method was inconsistent with the definition of assets and liabilities of the Framework (IASB, 2011a). Consequently, the IASB issued the IFRS 11 – Joint Arrangements, requiring that all interests in joint ventures should be accounted for using the equity method. The consequence is that the financial information of joint ventures is no longer being recognized, line by line, in the joint venturers' financial statements. This can encourage firms to use interests in joint ventures to keep off-balance-sheet liabilities and, therefore, it may provide a distorted view of the financial and economic performance of the joint venturers.

In addition to IFRS 11, the IASB also issued the IFRS 12 – Disclosure of Interests in Other Entities in order to consolidate and improve the disclosure requirements of interests in controlled entities, associated investments, joint arrangements, and unconsolidated entities. Therefore, in the Basis for Conclusion on IFRS 11, the IASB explains that the elimination of the proportionate consolidation should not result in information loss for users of accounting information because the IFRS 12 improved the disclosure requirements regarding interests in joint ventures. Consequently, joint ventures' financial information that could be previously obtained in the joint venturer's financial statements prepared using proportionate consolidation can now be obtained in the notes to the financial statements (IASB, 2011a, BC45).

However, the previous literature argues that firms do not always comply with disclosure requirements (Che, Azmi, & English, 2016; Glaum, Schmidt, Street, & Vogel, 2013; Izzo, Luciani, & Sartori, 2013; Lucas & Lourenço, 2014; Mazzi, André, Dionysiou, & Tasalavoutas, 2017; Sarquis, Santos, Lourenço, &Braunbeck, 2021; Tsalavoutas, Tsoligkas, & Evans, 2020). A second issue is that, even for firms that comply with the disclosure requirements of IFRS Standards, the previous literature provides evidence that investors do not evaluate in the same way information that was recognized in the financial statements and information that was only disclosed in the notes. Specifically, investors assign a discount to information that is disclosed in the notes compared to information that is recognized in the financial statements (Ahmed, Kilic, & Lobo, 2006; Michels, 2017; Müller, Rield, & Sellhorn, 2015; Schipper, 2007; Yu, 2013). The information disclosed in the notes is perceived by investors as less reliable than the information recognized in the financial statements (Ahmed et al., 2006; Müller et al., 2015; Schipper, 2007; Yu, 2013) and the investors face higher costs to process a disclosed information in comparison to a recognized information (Müller et al., 2015; Schipper, 2007; Yu, 2013).Based on these arguments, there is a tension in the literature about whether the elimination of proportionate consolidation did not result in informational loss for users, as argued by the IASB. Despite the increase in the disclosure requirements of IFRS 12, firms may not be complying with these requirements and, even if they are, investors may not be absorbing this information disclosed in the notes.

This research aims to empirically explore this tension in the literature by assessing (i) whether firms are disclosing in the notes the financial information (assets, liabilities, revenues, and expenses) of joint ventures that could be previously obtained in the financial statements prepared using proportionate consolidation, (ii) whether this disclosed information is being processed by the market in a value relevance context, and (iii) whether it depends on the investor's level of sophistication.

To achieve these purposes, our sample is composed by those firms that were most affected by the adoption of IFRS 11, that is, those that had to change from proportionate consolidation to the equity method when adopting IFRS 11. The period of analysis starts in the year each firm adopted IFRS 11 and IFRS 12 (2013 or 2014, depending on the country) and ends in 2016. Therefore, our sample is composed by 551 firms from 26 countries and 1,858 financial statements that were hand collected and analyzed. We built a unique and quite comprehensive database composed by financial information of interests in joint ventures, hand collected from the notes to the financial statements.

After the data collection and using descriptive statistics, we found that firms are not complying with the disclosure requirements of IFRS 12, given that only 316 firms (of the total of 551 – 57%) are disclosing in the notes the same financial information of joint ventures (assets, liabilities, revenues, and expenses) that could be previously obtained in the financial statements prepared by proportionate consolidation. This finding is aligned with the previous literature that argues that firms do not always comply with disclosure requirements (Glaum et al., 2013; Mazzi et al., 2017; Sarquis et al., 2021; Tsalavoutas et al., 2020) and indicates that information was lost when adopting IFRS 11 and the improvement in disclosure requirements of IFRS 12 are not compensating the information loss caused by the elimination of proportionate consolidation.

Next, using only these 316 firms that disclosed in the notes the financial information of their interests in joint ventures, we found that joint ventures' financial information disclosed in the notes are value relevant and are absorbed by the market, being able to explain the joint venturer's stock prices. However, this value relevance depends on the investor's level of sophistication, given that the joint ventures' financial information disclosed in the notes is absorbed only by more sophisticated investors (measured by the proportion of institutional ownership). It means that less sophisticated investors are not able to process the joint ventures' financial information disclosed in the notes.

These results are supported by the previous literature that argues that disclosure and recognition are not substitutes (Ahmed et al., 2006; Müller et al., 2015; Schipper, 2007; Yu, 2013) and indicate that there was a loss of information with the adoption of IFRS 11 and the elimination of proportionate consolidation, given that firms are not disclosing in the notes the financial information of joint ventures, as required by IFRS 12, and even for those firms that are disclosing (57% of our total sample), this disclosed information is only absorbed and processed by sophisticated investors.

This research has important contributions to the academic literature, to investors in the capital market, as well as to accounting regulatory bodies. First, this research is expected to contribute to the literature on the accounting treatment of interests in joint ventures (Bauman, 2007; Gavana et al., 2020; Graham et al., 2003; Lourenço, Fernandes, & Curto, 2012; Richardson, Roubi, & Soonawalla, 2012; Sarquis, Santos, Lourenço, & Braunbeck, 2020; Stoltzfus & Epps, 2005), by providing evidence that the recent change in the accounting treatment (from proportionate consolidation to the equity method) may have resulted in an information loss, especially for less sophisticated investors. It is also expected to contribute to the literature that aims to explore the firm's level of compliance with disclosure requirements (Che Azmi & English, 2016; Glaum et al., 2013; Izzo et al., 2013; Lucas & Lourenço, 2014; Mazzi et al., 2017; Sarquis et al., 2021; Tsalavoutas et al., 2020) and also with the literature that discusses the differences between recognizing an item in the financial statements or only disclosing it in the notes to the financial statements (Ahmed et al., 2006; Michels, 2017; Müller et al., 2015; Schipper, 2007; Yu, 2013).

Second, our findings are also important to investors in the capital market, especially less sophisticated investors, as they provide evidence that such investors are not properly absorbing and processing the financial information of joint ventures, which were previously recognized in the financial statements and are now only being disclosed in the notes. This informational loss can affect the investment decisions of these investors and, consequently, the efficiency in the allocation of resources.

Third, our findings also provide relevant insights to the accounting standards setters, by providing evidence that the adoption of IFRS 11 and IFRS 12 may not have had the effect that was expected by the IASB. Therefore, this research may contribute not only to the Post-Implementation Review (PIR) of IFRS 11 and IFRS 12 currently in progress, but also to the Disclosure Initiate project of the IASB.

2. Literature review

The literature that supports the development of this research is segregated into two sections. The first section (2.1) describes the adoption of IFRS 11 and 12 and the changes in the accounting treatment of interests in joint ventures, as well as the main studies related to this topic. The second section (2.2) explains the theories that support this research and also presents the development of the hypotheses.

2.1 Interests in Joint Ventures and the adoption of IFRS 11 and IFRS 12

In 2013 the IASB issued a package of three accounting standards, which came into force in 2013 (or 2014 in European Union countries): IFRS 10 – Consolidated Financial Statements, IFRS 11 – Joint Arrangements, and IFRS 12 – Disclosure of Interests in Other Entities. While IFRS 10 is about interests in controlled entities, IFRS 11 is about interests in entities with joint control, which can be classified in joint operations or joint ventures, and IFRS 12 consolidates the disclosure requirements of interests in all other entities (controlled entities, joint arrangements, associated investments, and unconsolidated entities).

Before the adoption of IFRS 11, under the previous international accounting standard (IAS 31), firms should choose to account for their interests in joint arrangements classified as joint ventures by either the equity method or the proportionate consolidation method. While in the equity method the joint venturer should recognize its interest in the net assets (net income) of the joint venture in a single line of the balance sheet (income statement), in the proportionate consolidation the joint venturer should recognize in its own financial statements its percentage of interests in each of the joint ventures' assets, liabilities, revenues, and expenses. Although the joint venturer's net income and equity are usually the same in both methods, the joint venturer's total assets, liabilities, revenues, and expenses are lower under the equity method than under the proportionate consolidation method (Lourenço et al., 2012; Richardson et al., 2012; Sarquis & Santos, 2018).

However, academics and accounting regulatory bodies (mainly the Financial Accounting Standards Board (FASB) and the IASB) have divergent opinions about which of these two methods would be more appropriate for accounting interests in joint ventures. There are arguments in favor and against both methods. Namely, while the proportionate consolidation method may be inconsistent with the definitions of assets and liabilities of the Framework, given that it may allow the recognition of assets (liabilities) that are not fully controlled by (present obligations of) the joint venturer, the equity method can provide a distorted view about the financial and economic performance of the joint venturer, by allowing them to use interests in joint ventures to keep off-balance-sheet liabilities (Graham et al., 2003; Richardson et al., 2012; Sarquis et al., 2020).

Consequently, the process of issuing IFRS 11 was quite controversial. Of the total of 111 comment letters received by the IASB during the public consultation period of the Exposure Draft (ED) 09 – Joint Arrangements, 68 (i.e., 61%) clearly stated disagreement with the elimination of proportionate consolidation, arguing that this method provides more relevant accounting information than the equity method (Sarquis & Santos, 2019). Notwithstanding, the IASB issued IFRS 11 in 2011, eliminating the option of using proportionate consolidation and requiring that all interests in joint ventures should be accounted for by the equity method. The IASB argued that the existence of this accounting choice was impairing the comparability of accounting information across firms (IASB, 2011a, BC8).

For those firms that previously used proportionate consolidation, the adoption of IFRS 11 had a significant impact on their financial statements and financial ratios, given that the change from proportionate consolidation to the equity method led to material reductions in the joint venturer's assets, liabilities, revenues, and expenses (Richardson et al., 2012; Sarquis & Santos, 2018). In addition, the academic literature does not provide support to the IASB's decision to eliminate proportionate consolidation. There is evidence that the joint venturer's share of joint ventures' assets and liabilities are considered by investors as being similar to the assets and liabilities of the joint venturer (Lourenço et al., 2012) and, therefore, the joint venturer's financial statements prepared using the proportionate consolidation method should have incremental information content over those using the equity method (Bauman, 2007; Graham et al., 2003; Stoltzfus & Epps, 2005). In this context, Gavana et al. (2020) provide evidence that the value relevance of joint venturer's assets and liabilities decreased after the adoption of IFRS 11, since the financial information of the joint ventures is no longer being recognized in the joint venturer's financial statements.

In addition to IFRS 11, the IASB also issued IFRS 12, which improves the quality of the disclosure about interests in other entities, including interests in joint ventures. Therefore, in the Basis for Conclusions on IFRS 11, the IASB argues that the elimination of proportionate consolidation would not cause information loss for the users of financial statements, given that IFRS 12 improved the quality of the disclosure about interests in joint ventures and that all the information that could be previously obtained in the financial statements prepared using proportionate consolidation can now be obtained in the notes to the financial statements (IASB, 2011a, BC45). Additionally to information that enables users to assess the nature, extension, and the risks associated with their interests in joint ventures, IFRS 12 also requires the joint venturer to disclose in the Notes to the financial statements a summary of the joint ventures' financial information (such as, for example, assets, liabilities, revenues, expenses, and net income). This financial information should be disclosed individualized for each material joint ventures and aggregated for joint ventures that are individually immaterial.

Therefore, this is an interesting setting to evaluate how information that was previously recognized in financial statements and that is now only disclosed in the notes to the financial statements is being absorbed by the market.

2.2 Theoretical Background and hypotheses development

Based on the Theory of the Firm, proposed by Coase (1937), the firm should be understood as a set of contracts between different agents. These agents, which include not only managers and investors, but also auditors, government, employees, suppliers, customers, among others, establish contracts with the firm in which they contribute with some input (capital, products, services, labor, etc.) in exchange for some return on the contribution offered to the firm (Watts & Zimmerman, 1986, Sunder 1997).

Given that these agents are rational and each one aims to maximize their own utility, these contracts will only be efficient if there are some control mechanisms which allow to identify when any of the agents is not complying with the contract. It is in this context that accounting plays an important role as a control mechanism for these contracts and, consequently, accounting numbers are frequently used in contracts established between agents who transact with the firm (Christie & Zimmerman, 1994; Holthausen, 1990; Sunder, 1997; Watts, 1992; Watts & Zimmerman, 1986).

As a consequence of this important role that accounting plays in establishing and monitoring these contracts, accounting practices have economic consequences. Therefore, managers have economic incentives to choose certain accounting practices (Christie & Zimmerman, 1994; Fields, Lys, & Vincent, 2001; Holthausen, 1990). In this context, the Positive Accounting Theory is intended to explain variations in accounting practices between firms and how managers choose between different accounting practices (Watts & Zimmerman, 1986, Collins, Tagesson, Andersson, Cato, & Hansson, 2009; Scott, 2015).

There are two perspectives of the Positive Accounting Theory: (i) contractual efficiency and (ii) opportunistic behavior. The contractual efficiency perspective argues that managers perceive that their utility also depends on the survival of the firm and, therefore, the accounting practices are chosen with the purpose of reducing the agency cost among the various agents of the firm and, consequently, maximizing the firm's value (Watts & Zimmerman, 1986; Holthausen, 1990; Scott, 2015). The opportunistic behavior perspective, on the other side, argues that managers are rational and, therefore, will choose accounting practices that maximize only their own utility, even if this choice reduces the firm's value and its chance of survival (Christie & Zimmerman, 1994; Scott, 2015; Watts & Zimmerman, 1986).

In this contractual relationship between various agents that interact with the firm, it is expected that some agents have more information than others, giving rise to the problem of information asymmetry. Specifically, agents that are inside the firm have more information than the agents that are outside the firm. In the agency relationship, the investor (principal) is outside the firm and, therefore, has less information than the manager (agent). Consequently, the information asymmetry between the principal and the agent hinders the principal to fully supervise the agent's actions. The consequence of the information asymmetry is that some parties may take advantage through privileged information, causing problems in the market, such as moral hazard and adverse selection (Jensen & Meckling, 1976; Eisenhardt, 1989; Scott, 2015).

The Efficient Market Hypothesis (EMH) argues that prices are a result of all available information (Malkiel & Fama, 1970) and, therefore, the existence of information asymmetry violates one of the main assumptions of the Efficient Market Hypothesis (EMH). One of the mechanisms to reduce the information asymmetry is the increase of financial reporting quality and disclosure. Healy and Palepu (2001) mention that the increased in corporate disclosure, not only in quantity but also in quality, is crucial for the functioning of an efficient capital market.

Verrecchia (2001) is one of the precursors of the Theory of Disclosure. The author argues that information asymmetry should be used as a vehicle to integrate the efficiency of disclosure choice, the incentives to disclosure, and the endogeneity of the capital market, being the starting point for a comprehensive Theory of Disclosure. Verrecchia (2001) also proposed a taxonomy of the accounting literature on disclosure, classifying it into three categories: (i) association-based disclosure; (ii) discretionary-based disclosure; and (iii) efficiency-based disclosure.

Considering the importance of corporate disclosure for the functioning of the capital market, this issue is also one of the main concerns of the IASB. There is a project currently being developed by the IASB, called *Disclosure Initiative* project, with the objective of proposing a new approach to developing and drafting disclosure requirements in IFRS Accounting Standards.

In this context, there are several studies analyzing not only the level of compliance with the disclosure requirements of IFRS Accounting Standards, but also the behavior of the manager regarding disclosure and the reasons some firms disclosure more information than others (e.g. Baloria, Klassen, & Wiedman, 2019; Bamber, Jiang, & Wang, 2010; Bepari, Rahman, & Mollik, 2014; Carlin & Finch, 2010; Che Azmi & English, 2016; Glaum, Schmidt, Street, & Vogel; 2013; Haddad, Shibly, & Haddad, 2020;Izzo, Valerio, & Elisa, 2013; Lazar & Velte, 2018; Lucas & Lourenço, 2014; Mazzi, André, Dionysiou & Tsalavoutas, 2017; Mazzi, Slack, & Tsalavoutas, 2018; Wang, 2019).

This literature provides strong evidence that firms do not always comply with IFRS mandatory disclosure requirements and that the level of compliance varies significantly across firms (Che Azmi & English, 2016; Glaum et al., 2013; Izzo et al., 2013; Lucas & Lourenço, 2014; Mazzi et al., 2017; Sarquis et al., 2021; Tsalavoutas et al., 2020). The first objective of this research, which is to evaluate how the joint ventures' financial information is being disclosed in the notes to the joint venturer's financial statements should give inputs to argue that the increase in disclosure requirements of IFRS 12 are not compensating the information loss caused by the elimination of proportionate consolidation, given that firms may not be complying with it. Therefore, the first hypothesis of this research is that:

H_1: Firms are not disclosing in the notes the same financial information of joint ventures (assets, liabilities, revenues, and expenses) that could be previously obtained in the financial statements prepared by proportionate consolidation.

This first hypothesis is important to allow us to identify whether firms are complying with the disclosure requirements of IFRS 12 and disclosing in the notes the financial information of their interests in joint ventures. Using only firms that are complying with the disclosure requirements, it is possible to evaluate how the disclosed information is being processed by the market (second objective of this research). Based on the Efficient Market Hypothesis (EMH), we expect that the joint ventures' financial information disclosed in the notes are absorbed by (and value relevant to) the market. Therefore, the second hypothesis of this research is that:

H_2: The joint ventures' financial information disclosed in the notes to the joint venturers' financial statements are value relevant for financial market players.

The importance of improving disclosure is unquestionable. However, it is important to note the paragraph 18 of the IAS 01, which clearly states that firms cannot rectify inappropriate accounting policies by increasing the disclosure requirements (IASC, 2007). And this might be the case of the accounting treatment and disclosure of interests in joint ventures. If the proportional consolidation method provided more relevant accounting information to users than the equity method (Bauman, 2003, 2007; Graham et al., 2003; Richardson et al., 2012; Soonawalla, 2006; Stoltzfus & Epps, 2005), compensating for its elimination with the increase in IFRS 12 disclosure requirements on interests in joint ventures does not align with paragraph 18 of the IAS 01.

Given that the financial information of interests in joint ventures was previously recognized in the financial statements and now, after the adoption of IFRS 11 and IFRS 12, is only disclosed in the notes to the financial statements, it is also important to explain that recognition and disclosure are not substitutes. In efficient markets, the information recognized in the financial statements should be priced in exactly the same way as the information disclosed in the notes to the financial statements. Given that the information is publicly available, it should be processed by investors in the same way, regardless of the presentation format (in the financial statements or in the notes to the financial statements) (Ahmed et al., 2006; Schipper, 2007; Yu, 2013).

However, the literature suggests that recognition is different from disclosure in terms of value relevance and that investors assign a discount to information that is disclosed in the notes compared to information that is recognized in the financial statements (Ahmed et al., 2006; Michels, 2017; Müller et al., 2015; Schipper, 2007; Yu, 2013). Ahmed et al. (2006), for example, provide evidence that information on fair values of derivatives is more value relevant to investors when it is recognized in the financial statements than when it is disclosed in the notes. Similarly, Müller et al. (2015) show that the association between equity prices and investment properties' fair values is higher when the fair value is recognized in the financial statements than when it is disclosed in the notes. Yu (2013) also provide evidence that disclosed pension liabilities (instead of recognized) are value relevant only for firms with a higher level of institutional ownership or analyst following.

There are at least two possible explanations for why investors and other users of accounting information process disclosed and recognized information differently. The first one is that the information recognized in the financial statements is seen as more reliable than the information disclosed in the notes (Ahmed et al., 2006; Müller et al., 2015; Schipper, 2007; Yu, 2013). Disclosed information is perceived by the market as less reliable than recognized information because managers can be less careful in preparing disclosed items (Schipper, 2007; Yu, 2013) and auditors are also more likely to allow for more misstatements in disclosed items (Libby, Nelson, & Hunton, 2006). In addition, recognized information tends to be more precise and accurate than disclosed information, given that the information needs to be reliably measured to be recognized in the financial statements (Michels, 2017).

The second explanation is related to information processing factors, since users face higher costs to process a disclosed information in comparison to a recognized information (Müller et al., 2015; Schipper, 2007; Yu, 2013). In addition, Müller et al. (2015) explain that this information processing cost depends on several factors, such as firms' institutional environment, disclosure quality, and investors' competence, cognition, and attention.

Based on this previous literature that suggests that information processing costs depend on the firm's information environment and on the market's ability to process the information disclosed, we expect that the joint ventures' financial information disclosed in the notes to the joint venturer's financial statements is better absorbed by sophisticated investors. Consequently, the third hypothesis aims to explore the mediating effect of the investor's level of sophistication on the value relevance of joint ventures' financial information disclosed in the notes:

H_3: More sophisticated investors perceive the financial information of joint ventures disclosed in the notes of the joint venturer's financial statements better than less sophisticated investors.

3. Data and methods

This section presents information on our data collection procedures and describes our sample (section 3.1), followed by the empirical methods we use (section 3.2).

3.1 Sample and data collection

Our sample is composed by firms with interests in joint ventures that used proportionate consolidation before the adoption of IFRS 11. After the adoption, these firms had to change to the equity method and the financial information of joint ventures that were previously recognized in their financial statements are now only disclosed in the notes. Of all countries available in the Worldscope that have adopted IFRS Standards prior to 2012 (one year before the adoption of IFRS 11 and IFRS 12), we maintained only those countries in which the financial statements are disclosed in a written language derived from the Latin Alphabet (26 countries).

Next, of all publicly listed firms in these 26 countries, we identified 5,618 firms that had an investment account in their 2016 consolidated financial statements, using the Worldscope database. In order to identify how many of these 5,618 firms had interests in joint ventures, we hand collected and analyzed the 2016 financial statements of each firm and found 2,059 (37%) with interests in joint ventures. Finally, we identified the year in which each of these 2,059 firms adopted IFRS 11 and IFRS 12, what accounting practice was used and how the transition was. Based on this analysis, we found 551 firms with interests in joint ventures that were affected by the adoption of IFRS 11, given that they had to change from proportionate consolidation to the equity method.

The period of analysis starts in the year each firm adopted IFRS 11 and IFRS 12 (2013 or 2014, depending on the country) and ends in 2016. Therefore, our sample is composed by 551 firms from 26 countries and 1,858 financial statements that were hand collected and analyzed, as shown in Table 1.

Table 1
Sample distribution

Countries	Firms	Financial Statements	Countries	Firms	Financial Statements
Australia	5	16	Mexico	16	63
Belgium	12	42	Netherlands	18	63
Brazil	70	272	New Zealand	3	9
Canada	41	154	Norway	19	63
Chile	11	41	Philippines	7	28
Denmark	11	34	Poland	13	38
Finland	11	37	South Africa	26	84
France	76	244	Spain	30	98
Germany	33	108	Sri Lanka	19	40
Hong Kong	24	84	Sweden	10	32
Ireland	3	7	Turkey	18	71
Italy	32	103	United Kingdom	33	92
Kuwait	1	4			
Malaysia	9	31	Total	551	1,858

To test our first hypotheses, we need to assess whether these 551 firms (1,858 financial statements) are disclosing in the notes, after the adoption of IFRS 11 and IFRS 12, the same financial information of joint ventures that were previously recognized in the financial statements under the proportionate consolidation. In other words, we evaluate whether the joint ventures' financial information being disclosed in the notes allows the investors to recompose the financial statements prepared by using the proportionate consolidation.

Therefore, to achieve the first objective of this research and to test the first hypothesis, we hand collected and analyzed each of these 1,858 financial statements (551 firms) in order to evaluate the financial information of the joint ventures that is being disclosed in the notes and, specifically, whether the assets, liabilities, revenues, and expenses of the joint ventures are being disclosed. Specifically, we seek to identify which firms disclosed all this financial information (assets, liabilities, revenues, and expenses) to at least one of their joint ventures.

3.2 *Value Relevance* analyses

With the issuance of IFRS 11 and IFRS 12, all firms had to move from the joint ventures' accounting proportional consolidation method to the equity method. Therefore, after IFRS 11 and IFRS 12, we have joint ventures' accounting values presented only in the joint venturers' notes to the financial statements.

To test our second hypothesis, we analyze whether joint ventures' information, which only appears in the notes to the financial statements, are incorporated into stock prices, that is, whether joint ventures' information is value relevant. To do so, we rely on the value relevance model from Feltham and Ohlson (1995) who derive a valuation model in which stock prices are determined by net income and book value per share. We follow the same approach, but with a few modifications. First, we disaggregate net income into revenues and expenses and book value into assets and liabilities, as in Sarquis et al (2020), given that the net income and the book value of the equity are generally the same in both the equity method and the proportionate consolidation, but the total assets, liabilities, revenues, and expenses are higher under proportionate consolidation than under the equity method. Second, as explained in section 2.1, under the equity model of joint venture accounting (our sample), joint venturers' assets, liabilities, revenues, and expenses do not include the joint ventures' values, they are only present in the Notes to the Financial Statements, not in the Balance Sheet and Income Statement. Therefore, we add in the model the joint venturer's own stock prices as the dependent variable and its assets, liabilities, revenues, and expenses as explanatory variables (collected from their Balance Sheet and Income Statement), in addition to the data on their joint ventures, collected from the joint venturers' Notes to the Financial Statements. Besides, to better comply with the error term normality assumption of regression analysis, we apply the natural logarithm to stock price values.

If the joint ventures' values are important to firms' valuation, then adding them to the value relevance model should mean adding valuable information, so they should be significant. Therefore, we test their significance along with the joint venturers' using Equation (1), where the dependent variable is log stock prices:

$$\begin{aligned} p_{it} = \beta_0 + \beta_1 Assets_{it} + \beta_2 Liabilities_{it} + \beta_3 Revenues_{it} + \beta_4 Expenses_{it} + \beta_5 JVAssets_{it} + \\ \beta_6 JVLiabilities_{it} + \beta_7 JVRevenues_{it} + \beta_8 JVExpenses_{it} + \epsilon_{it}. \end{aligned} \tag{1}$$

In Equation (1), the variables *Assets*, *Liabilities*, *Revenues* and *Expenses* are the values taken from the joint venturers' balance sheet and income statement, while the variables *JVAssets*, *JVLiabilities*, *JVRevenues* and *JVExpenses* are the values of their interests in joint ventures, collected from the joint venturers' Notes to the Financial Statements. All values are in the local currency and are scaled by the number of outstanding shares of the joint venturer' firms.

Further, we evaluate whether joint ventures' value relevance varies according to investors' levels of sophistication, measured by the percentage of institutional ownership for each firm at each year. We hypothesize that institutional ownership, which work as a proxy to the firms' information environment quality since it measures investors' sophistication, is related to the market's ability to process accounting information only available in the notes. We expect more sophisticated investors to be better able to process information from the notes to the financial statements.

To test this, we partition our sample between observations with higher levels of institutional ownership (above median values) and with lower levels of institutional ownership (below median values), and reestimate Equation (1) to analyze whether the two samples generate different results or not.

We account for firms' fixed effects in all estimations applying a first-difference transformation in the variables. Fixed effects can be controlled by either the first-difference or the within transformation, but taking first-differences works better when the original residuals are autocorrelated. We used Wooldridge (2010)' test for serial correlation in panel data and the test indicated taking first-differences works better in our model. This is expected, since our dependent variable is the logarithm of stock prices, which usually suffer from unit roots.

4. Results

This section presents and discuss the results. Section 4.1 presents the descriptive analyses to test Hypothesis 1, that is, that firms are not disclosing in the notes the same financial information of joint ventures that could be previously obtained in the financial statements prepared by proportionate consolidation. Section 4.2, on its turn, presents the value relevance analyses to test Hypotheses 2 and 3, which propose that the joint ventures' financial information disclosed in the notes to the joint venturer's financial statements are value relevant for financial market players (H2), but only for more sophisticated investors (H3).

4.1 Descriptive analyses

From the total of 551 firms (1,858 financial statements), we identified only 316 firms – 57% (959 financial statements – 52%) that disclosed in the notes the same financial information of joint ventures that were previously recognized in the financial statements (i.e., assets, liabilities, revenues, and expenses). Table 2 presents the number of financial statements in which the financial information of joint ventures was disclosed ("disclosing" column) in relation to the total sample ("sample" column), segregating by country and industry. In addition, Figure 1 also shows the distribution of the 316 firms (959 financial statements) by countries, industries and years (2013–2016).

Table 2

Number of financial statements disclosing the joint ventures' financial information in relation to the total sample

Countries	Mining and Construction		Manufacturing		Utilities		Wholesale and Retail Trade		Finance, Insurance		Services		Other		Total	
	Sample	Disclosing	Sample	Disclosing	Sample	Disclosing	Sample	Disclosing	Sample	Disclosing	Sample	Disclosing	Sample	Disclosing	Sample	Disclosing
Australia	7	5	3	0	3	1	0	0	0	0	3	0	0	0	16	6
Belgium	4	0	15	11	13	9	0	0	7	3	0	0	3	3	42	26
Brazil	12	0	64	29	95	66	13	13	76	25	4	4	8	4	272	141
Canada	48	20	44	24	26	12	6	0	24	22	4	1	2	0	154	79
Chile	6	2	4	4	8	0	0	0	19	12	4	4	0	0	41	22
Denmark	11	6	10	4	11	4	0	0	2	2	0	0	0	0	34	16
Finland	8	5	23	11	0	0	3	0	0	0	3	3	0	0	37	19
France	25	11	80	20	38	17	25	7	44	19	29	4	3	2	244	80
Germany	4	4	41	20	30	6	7	7	8	8	16	16	2	2	108	63
Hong Kong	4	4	18	16	14	2	16	13	14	8	14	14	4	0	84	57
Ireland	0	0	5	0	0	0	0	0	0	0	0	0	2	0	7	0
Italy	16	6	28	16	40	21	6	3	10	8	3	3	0	0	103	57
Kuwait	0	0	0	0	0	0	0	0	0	0	4	0	0	0	4	0
Malaysia	4	4	7	3	7	7	6	6	7	1	0	0	0	0	31	21
Mexico	8	4	19	8	16	12	0	0	12	2	0	0	8	4	63	30
Netherlands	13	7	21	3	3	0	0	0	8	7	15	3	3	0	63	20
New Zealand	0	0	0	0	3	3	0	0	3	3	3	2	0	0	9	8
Norway	18	17	22	14	13	6	0	0	6	3	0	0	4	4	63	44
Philippines	0	0	4	4	12	9	0	0	4	0	0	0	8	8	28	21
Poland	8	2	7	7	0	0	0	0	13	5	10	5	0	0	38	19
South Africa	27	16	27	25	7	4	5	0	5	5	6	0	7	4	84	54
Spain	23	14	17	5	26	18	3	3	19	9	10	7	0	0	98	56
Sri Lanka	0	0	8	8	8	2	4	2	7	5	7	4	6	4	40	25
Sweden	3	0	9	0	10	0	0	0	4	1	6	0	0	0	32	1
Turkey	4	0	32	20	16	12	0	0	12	0	0	0	7	7	71	39
United Kingdom	19	14	12	7	13	6	2	2	25	19	21	7	0	0	92	55
Total	272	141	520	259	412	217	96	56	329	167	162	77	67	42	1,858	959

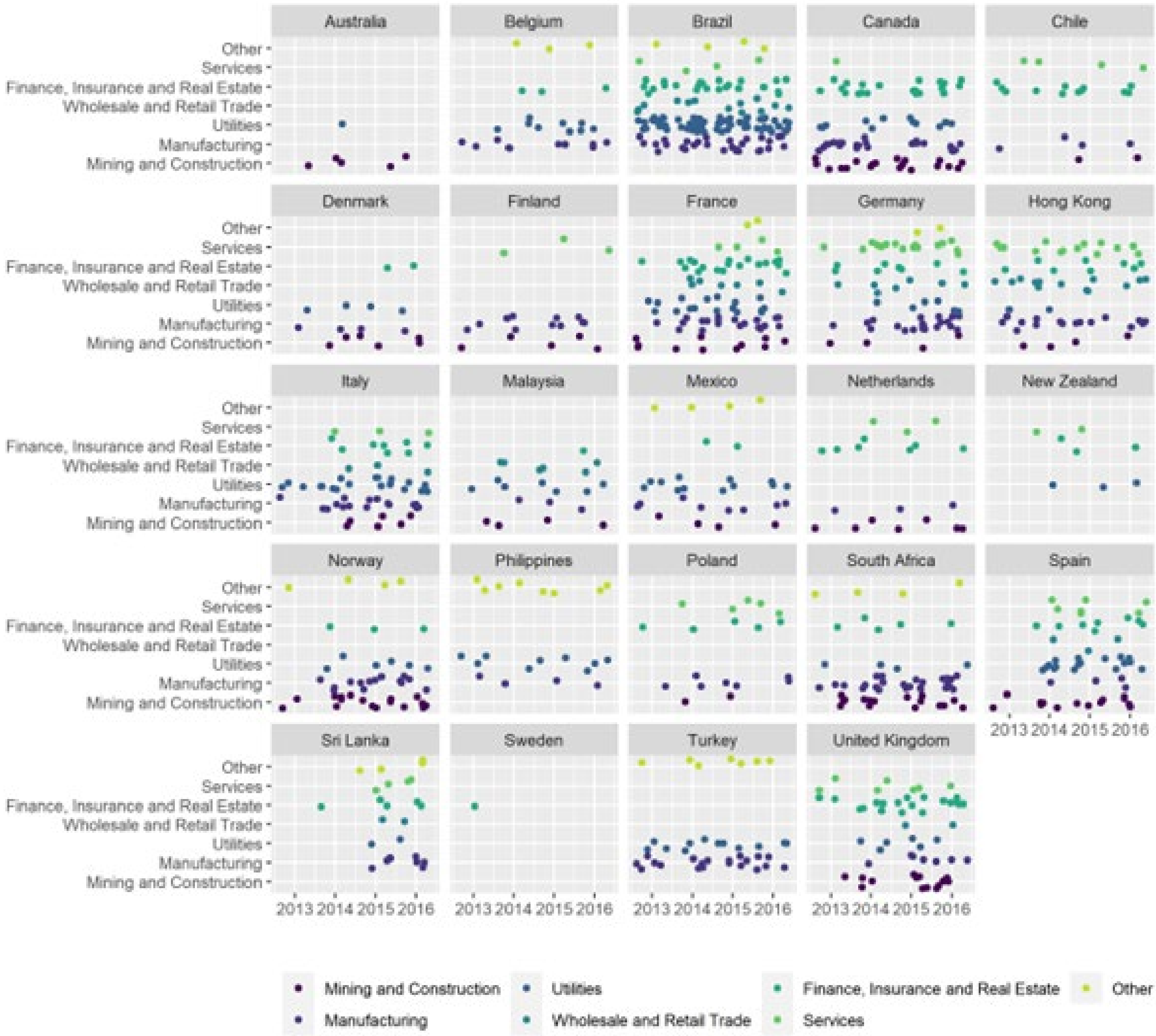

Figure 1. Distribution of firms that disclose the joint ventures' financial information in the notes – 316 firms and 959 financial statements

In general, we found that firms are not disclosing in the notes the same financial information of joint ventures that previously recognized in the financial statements, but that this varies widely among countries. Specifically, the countries with the highest percentages of disclosure are New Zealand (89%), the Philippines (75%), Hong Kong (68%), Malaysia (68%), and Norway (70%). On the other side, the countries with the lowest percentages are Ireland (0%), Kuwait (0%), Sweden (3%), Netherlands (32%), and France (33%).

Among industries, these differences are not that significant, given that the percentage of disclosure ranges from 48% (Services) to 58% (Wholesale and Retail Trade). Figure 1 also indicates that this percentage of disclosure has not improved over time (from 2013 to 2016), as the plots indicate a horizontal rather than increasing behavior[1].

1 For a more detailed analysis of the level of compliance with the IFRS 12 disclosure requirements, see Sarquis et al. (2021).

In summary, these descriptive analyses allow us to confirm our first hypothesis, that is, firms are not disclosing in the notes the same financial information of joint ventures (assets, liabilities, revenues, and expenses) that could be previously obtained in the financial statements prepared by proportionate consolidation. This finding is aligned with the previous literature, which provides evidence that firms do not always comply with disclosure requirements (Che Azmi & English, 2016; Glaum et al., 2013; Izzo et al., 2013; Lucas & Lourenço, 2014; Mazzi et al., 2017; Sarquis et al., 2021; Tsalavoutas et al., 2020). In addition, this finding gives rise to the concern that information was lost when moving from the proportional consolidation method to the equity method for accounting for interests in joint ventures.

We compute accounting values (assets, liabilities, revenues, expenses) for joint venturers' and for all (disclosed) joint ventures investments. Considering median values, joint

ventures' assets amount to 4.9% of the joint venturers' assets, 4.6% of liabilities, 4.1% of revenues, and 3.5% of expenses. Therefore, in general, the joint ventures values are relatively low compared to the joint venturers' accounting values. However, there is considerable variation. For instance, 9.6% (9.9%) of the observations have joint ventures' liabilities (revenues) representing more than 50% of the investor firm's liabilities (revenues). Further, revenues is the figure with higher joint ventures values, 6.5% of the sample have joint ventures' revenues higher than the investor's. Figure 2 shows this distribution by country and by industry. Since the variation is very high, Figure 2 presents 5% winsorized data.

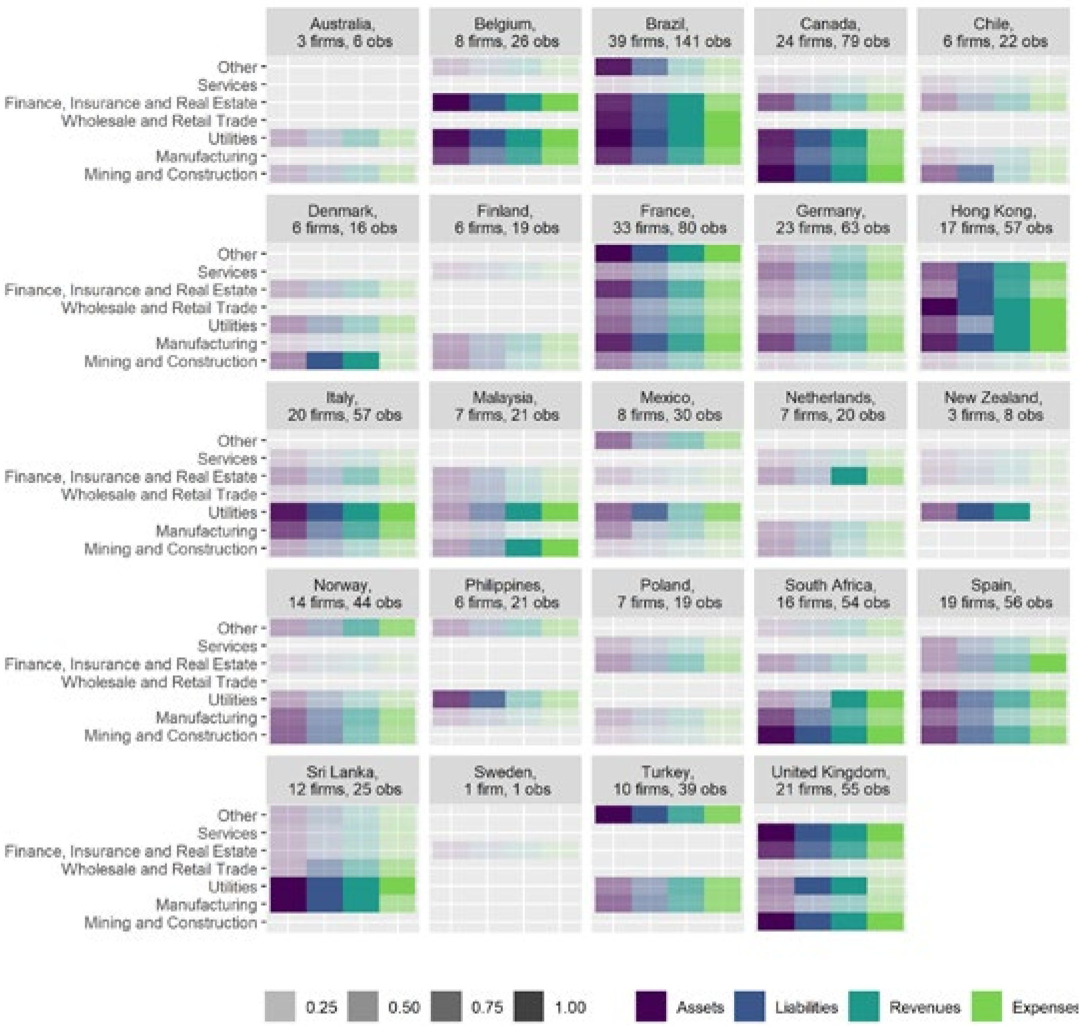

Figure 2. Joint ventures' value relative to joint venturers

From Figure 2 one can see that in Brazil, the country with the highest number of observations (131), Utilities firms have the higher joint ventures values relative to the joint venturers. In France, the second country in number of observations (77), joint ventures in the Finance, Insurance, and Real State and in the Mining and Construction industries are the largest ones. These are the two industries where joint ventures are the largest for most of the countries.

Therefore, firms that invest in joint ventures mainly use them to obtain revenues. TVI Pacific Inc., a mining and construction firm from Canada has no revenue from its own during the sample period, only from its joint ventures. The same happens to China Ever Grand Financial Leasing in 2015, from Hong Kong. Considering the difference between assets and liabilities, more than three thirds of the sample's joint ventures present negative equity and negative net income (considering the total sum of joint ventures for each investor firm). Therefore, in general, joint ventures present unhealthy accounting numbers.

We also simulate the joint venturers' proportional consolidated financial statements to evaluate the differences in firms' assets, liabilities, revenues, and expenses. Table 3 shows the original (equity method) and proportionally consolidated values for joint venturers' assets, liabilities, revenues, and expenses per share, alongside with a mean test between each accounting figure. Since the data varies a lot across firms, Table 3 shows 5% winsorized values, indicating statistically significant differences between proportionally consolidated and unconsolidated revenues and expenses. It is important to note, however, that the numbers presented in Table 3 are conservative, since the proportionally consolidated values considers only all disclosed joint ventures, that is, firms do not disclose accounting information for all their joint ventures. If they did so, the difference would be much larger.

Table 3
Actual versus proportionally consolidated accounting values

	Original values	Proportionally Consolidated values	t test	
Assets	100.032	104.094	-0.462	
Liabilities	67.493	73.453	-0.885	
Revenues	45.515	51.839	-1.721	*
Expenses	44.199	50.756	-1.802	*

4.2 Value Relevance analyses

Table 4 shows the descriptive statistics by industry of the variables used in Equation (1). Panel A of Table 4 shows log-prices and joint venturers' assets, liabilities, revenues and expenses per share, and Panel B shows their joint ventures' assets, liabilities, revenues, and expenses per share. Comparing Panel A to Panel B, one can also see how small are joint ventures relative to their joint venturers, as discussed in the previous section.

Table 4
Descriptive statistics by industry

Industry	Stat	log-Price	Assets	Liabilities	Revenues	Expenses
		Panel B: Joint Ventures				
Mining and Construction	Mean	2.80	136.90	96.00	68.90	68.70
	Std. Dev.	2.20	227.00	171.10	91.80	91.00
	N	126	136	136	136	136
Manufacturing	Mean	3.00	82.30	45.70	61.40	59.60
	Std. Dev.	1.70	139.00	86.70	80.70	79.20
	N	229	250	250	250	250
Utilities	Mean	2.20	47.20	29.80	19.00	18.10
	Std. Dev.	1.40	97.60	65.30	33.30	32.20
	N	199	211	211	211	211
Wholesale and Retail Trade	Mean	2.00	64.80	42.80	53.50	51.80
	Std. Dev.	2.00	155.60	114.40	88.80	87.00
	N	56	56	56	56	56
Finance, Insurance and Real Estate	Mean	2.70	180.40	137.10	30.20	28.90
	Std. Dev.	2.10	277.80	217.30	66.20	65.20
	N	144	161	161	161	161
Services	Mean	2.10	44.30	33.40	28.40	28.10
	Std. Dev.	1.60	89.50	79.30	49.70	49.40
	N	71	76	76	76	76
Other	Mean	4.10	198.50	126.10	90.50	84.70
	Std. Dev.	1.30	245.80	185.40	105.50	102.30
	N	40	39	39	39	39
		Panel B: Joint Ventures				
Mining and Construction	Mean	2.80	10.50	6.80	7.00	6.60
	Std. Dev.	2.20	17.40	11.20	13.30	12.30
	N	126	136	136	136	136
Manufacturing	Mean	3.00	5.60	2.70	4.50	4.20
	Std. Dev.	1.70	11.50	5.80	8.60	8.00
	N	229	250	250	250	250
Utilities	Mean	2.20	6.30	4.10	2.80	2.60
	Std. Dev.	1.40	11.90	7.90	7.10	6.70
	N	199	211	211	211	211
Wholesale and Retail Trade	Mean	2.00	5.60	3.30	5.70	5.20
	Std. Dev.	2.00	13.60	7.90	12.50	11.50
	N	56	56	56	56	56
Finance, Insurance and Real Estate	Mean	2.70	7.70	4.80	2.30	1.90
	Std. Dev.	2.10	15.10	9.60	7.00	6.30
	N	144	161	161	161	161
Services	Mean	2.10	1.70	1.30	0.80	0.70
	Std. Dev.	1.60	5.20	4.80	1.80	1.70
	N	71	76	76	76	76
Other	Mean	4.10	18.40	10.90	11.20	10.60
	Std. Dev.	1.30	18.00	12.30	11.80	11.10
	N	40	39	39	39	39

Table 5 shows the estimation results for three different models. Model (1) is the traditional basic value relevance model, which shows both equity and net income are positive and statistically significant, being, therefore, relevant to explain stock prices. This is in line with the previous value relevance literature (Collins, Maydew, & Weiss, 1997; Chen, Chen, & Su, 2001), which shows net income and equity are important to explain stock prices, that is, accounting values are value relevant to the stock market. Model (2) is the decomposed value relevance model, in which equity is decomposed into assets and liabilities and net income is decomposed into revenues and expenses. This decomposition is important given that moving from proportionate consolidation to the equity method in general results in the same net income and in the same equity, but smaller assets, liabilities, revenues and expenses, as discussed by Sarquis et al. (2020). Our results indicate that once equity and net income are decomposed, total assets and revenues appear highly statistically significant with the expected signals, while liabilities also have the expected signal but is significant only at the 10% level, and expenses are not significant.

Since the estimations are in first-differences, only 565 observations remain for the regressions. As explained in Section 3.2, we estimate the value relevance models including firms fixed effects, since their omission could lead to endogeneity and, therefore, biases in the estimated coefficients that could result in mistaken conclusions. For instance, joint ventures' accounting values may not appear significant because they are not important to some firms and only to others, and controlling for firm-fixed effects allows us to avoid this. Firm fixed effects can be included by either the within transformation (equivalent to adding firm dummies) or the first difference transformation. Wooldridge (2010) explains that both are equally valid to avoid biases due to omitted time-constant variables but taking first-differences is more efficient when the errors are autocorrelated and suggests a test to evaluate this. For all models, the test indicated first-differences to be more appropriated, which is expected when the dependent variable is log-prices (more prone to autocorrelation and unit roots than differences in log-prices). Therefore, the variables are all time-variations, which usually lead to lower R-squared values. While the traditional literature on value relevance models usually yields high R-squared values and rely on that to evaluate how important accounting values are to the market, this measure is not appropriate for first-difference models. Actually, some papers show the R-squared of value relevance models with variables in levels suffer from scale bias (Brown, Lo, & Lys, 1999; Bartov, Goldber, & Kim, 2005). Therefore, we rely on variables' individual statistical significance to evaluate whether they are important or not to explain stock prices.

Finally, when including the joint ventures values in the model (Model (3)), interesting results appear. First, neither joint ventures' assets or liabilities are value relevant, but only the joint venturers' assets and liabilities are relevant. While in Model (2) joint venturers' revenues were relevant, when adding joint ventures' revenues and expenses, only the latter appear significant. Therefore, the results suggest joint ventures' income information presented in the Notes to the Financial Statements of the joint venturers are absorbed by the market, being able to explain the investors' stocks prices. The R^2 is low for all three models, but this is expected since the variables are in first-differences, as previously explained.

This result is in line with the previous literature that analyzed the value relevance of information disclosed in the Notes to the Financial Statements, such as Al Jifri and Citron (2009), who found goodwill information in the Notes able to explain stock prices in the UK market. This is not always the case, however. The literature usually present mixed results about the value relevance of information presented in the Notes. For instance, Valfaei, Taylor, and Ahmed (2011), found intellectual capital disclosures in the Notes were value relevant in Britain and Australia but not so much in Hong Kong and Singapure, and Davis-Friday, Folami, Liu, and Mittelstaedt (1999) found that pension liability information is more value relevant when presented in the balance sheet rather than in the Notes.

Table 5
Value relevance models

	Dependent variable:		
	log Prices		
	(1)	(2)	(3)
Equity	0,004***		
	(0,001)		
Net Income	0,038***		
	(0,005)		
Assets		0,003***	0,003***
		(0,001)	(0,001)
JV Assets			-0,008
			(0,007)
Liabilities		-0,003*	-0,003**
		(0,002)	(0,002)
JV Liabilities			0,010
			(0,009)
Revenues		0,003**	0,002
		(0,001)	(0,002)
JV Revenues			0,060**
			(0,030)
Expenses		-0,002	-0,001
		(0,002)	(0,002)
JV Expenses			-0,060**
			(0,029)
Constant	-0,030**	-0,024*	-0,023*
	(0,013)	(0,013)	(0,013)
First-differenced Variables	Sim	Sim	Sim
Clustered Std. Errors	Sim	Sim	Sim
Observations	565	565	565
R^2	0,087	0,035	0,041
Adjusted R^2	0,084	0,028	0,027
F Statistic	26,792***	5,046***	2,944***

Note: *p<0.1; **p<0.05; ***p<0.01

Next, we evaluate whether and how the joint ventures' value relevance depends on the level of investor sophistication. We proxy investor sophistication by the percentage of institutional investors for each firm at each year. On average, firms have 28.8% of institutional ownership and for three fourths of the sample this percentage is smaller than 40%. Therefore, in general, institutional ownership is low. Figure 3 shows the average percentage of institutional ownership by industry and country, where it is possible to see that it is much higher for firms in the United Kingdom than in the other countries. In fact, the average percentage of institutional ownership in the United Kingdom is 73.9%, followed by South Africa with an average of 61.7%. The next country is Norway, with 41.6%. The countries with the lowest levels of institutional ownership are The Philippines (3.6%), Hong Kong (7%), and Sweden (11.8%).

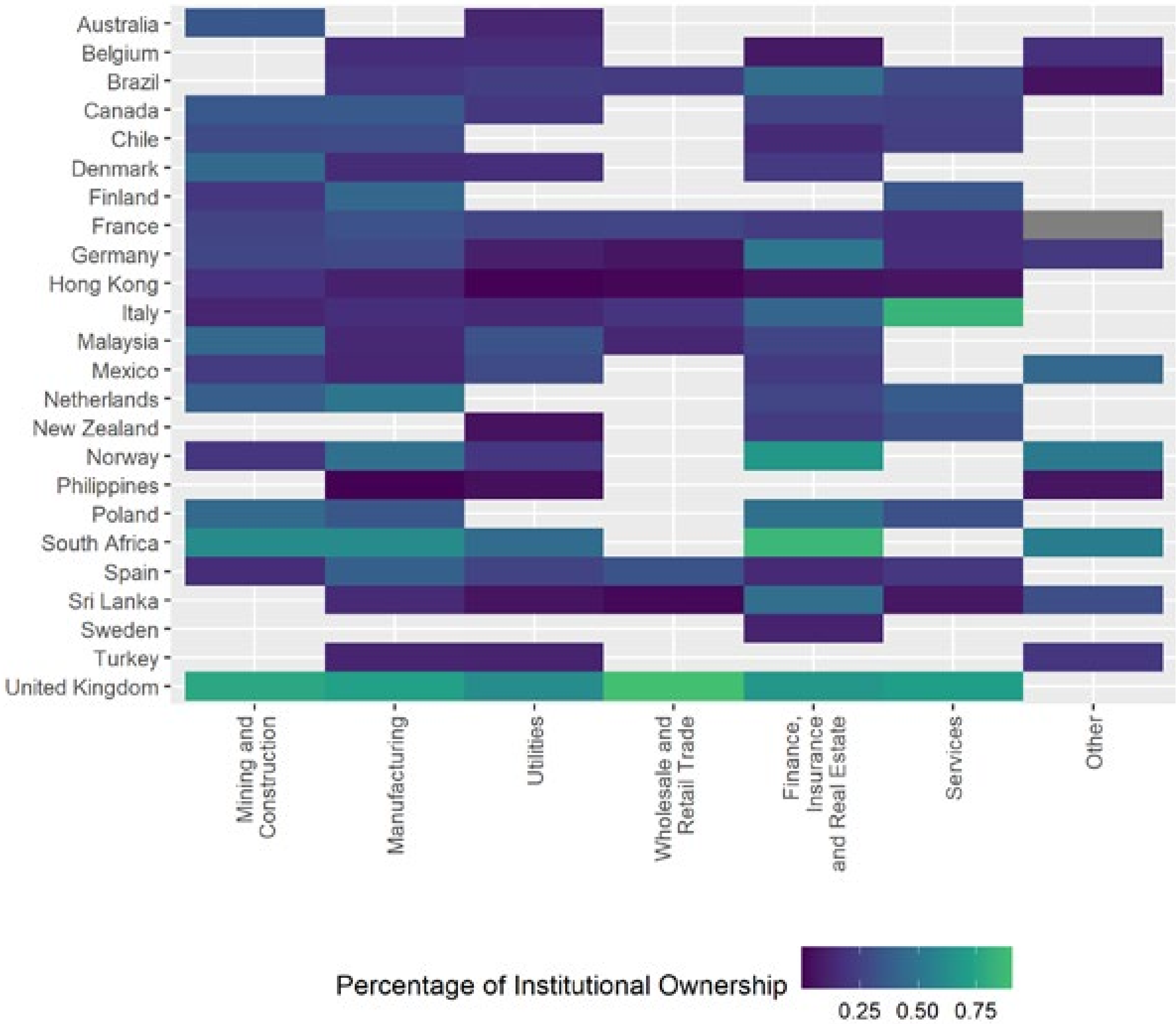

Figure 3. Institutional ownership by industry and country

Table 6 shows the estimation results of Equation (1) for two splitted samples. The first one (Model (1)) shows the results for observations with high (above median) institutional ownership levels, while the second one (Model (2)) shows the results considering the observations with low levels of institutional environment. The results in Table 6 indicates that the value relevance of joint ventures' revenues and expenses are only valid for the high institutional ownership sample, that is, investors only incorporate information from the notes to the financial statements regarding joint ventures' interest when they are sophisticated. For less sophisticated investors, only the joint venturers' assets and liabilities are incorporated into stock prices. This is consistent with the literature that analyses differences in value relevance according to the level of institutional ownership. For instance, Song, Thomas, and Yi (2010) find evidence that the value relevance of fair values is greater for firms with strong corporate governance (including the percentage of shares held by institutional investors) in the US, Yu (2013) finds that institutional ownership (along with analyst following) can explain pension liabilities' value relevance also in the US, and Rehman, Riaz, Cullinan, Zhang, and Wang (2020) found institutional ownership moderates the value relevance of corporate social responsibility disclosure in China.

Table 6
Value relevance models: investor sophistication

	Variável dependente: log-Preços	
	Propriedade institucional alta	Propriedade institucional baixa
	(1)	(2)
Assets	0,002 (0,002)	0,008** (0,004)
JV Assets	-0,017 (0,012)	0,007 (0,020)
Liabilities	0,0004 (0,004)	-0,009** (0,004)
JV Liabilities	0,015 (0,012)	-0,012 (0,028)
Revenues	0,0005 (0,001)	0,009 (0,006)
JV Revenues	0,106*** (0,039)	0,001 (0,045)
Expenses	-0,001 (0,001)	-0,006 (0,007)
JV Expenses	-0,099** (0,043)	-0,0004 (0,049)
Constant	-0,045** (0,020)	-0,008 (0,023)
First-differenced Variables	Sim	Sim
Clustered Std. Errors	Sim	Sim
Observations	259	253
R^2	0,067	0,057
Adjusted R^2	0,037	0,026
F Statistic	2,256**	1,843*

Note: *p<0.1; **p<0.05; ***p<0.01

Therefore, our results are consistent with the hypothesis that the change from the proportional consolidation method to the equity method in joint ventures' interests accounting represents an information loss for less sophisticated investors who are not fully able to incorporate information from the notes to the financial statements into their investment decisions. This finding is supported by the previous literature, which argues that recognition and disclosure are not substitutes and that users face higher costs to process a disclosed information in comparison to a recognized information (Müller et al., 2015; Schipper, 2007; Yu, 2013). Therefore, only sophisticated investors are able to absorb this information disclosed in the notes. This is an important result when considering accounting normatization that takes place in a wide range of countries with widely different levels of institutional environment quality, as is case for the IFRS issued by the IASB. As previous studies show, the ability of the market to incorporate information only disclosed in the Notes vary according to the institutional environment (see, e.g., Kang & Pang, 2005; Chebaane & Othman, 2014; Fiechter & Novotny-Farkas, 2017) and to the level of investor sophistication, as in Song et al (2010), Yu (2013), Rehman et al (2020) and in the present research.

5. Concluding remarks

In this research, we analyzed the information of joint ventures on the notes to the joint venturers' financial statements following the application of IFRS 11 and IFRS 12. We investigate how firms are disclosing such information and then, whether it is value relevant to the market. Before IFRS 11 and IFRS 12, joint ventures' information was part of the joint venturer's financial statements via the proportionate consolidation method (when this method was chosen), but after the issuance of those standards, joint venturers could only use the equity method to account for their interests in joint ventures and the financial information of joint ventures is only disclosed in the notes to the joint venturers' financial statements.

We hand-collect and analyze 1,858 financial statements from 551 firms from 26 countries for the period from 2013 or 2014 (depending on the year of adoption) to 2016. From the 551 firms, only 316 firms (totaling 959 financial statements) have joint ventures' assets, liabilities, revenues, and expenses disclosed in their notes to the financial statements. In general, these values are relatively low compared to the joint venturers' accounting values, but there is considerable variation. With the available information we simulate joint venturers' financial statements as if they used the proportional consolidation method and we found statistically significant differences between the actual disclosed revenues and expenses (equity method) and the simulated ones considering the proportional consolidated values, which includes firms' joint ventures information.

Next, we found that joint ventures' revenues and expenses are value relevant to explain the joint venturers' stock prices. This suggests joint venture' income information presented in the notes are absorbed by the market. However, this only holds for firms with higher levels of institutional investors. For firms with lower levels of institutional investors, none of the joint venture's information appears relevant in our estimations, which suggests they are absorbed only by more sophisticated investors.

In summary, we present evidence consistent with a loss of information with the adoption of IFRS 11. Firms are not disclosing in the notes the same financial information of joint ventures that could be previously obtained in the financial statements and that even for those firms that are disclosing, the disclosed information is absorbed only by sophisticated investors.

Our findings have important contributions not only to the previous academic literature, but also to investors in the capital market and to the accounting standard setter (IASB). Specifically, this research contribute to the literature on the accounting treatment of interests in joint ventures, on the firm's level of compliance with disclosure requirements, and on the discussion about the differences of recognizing an item in the financial statements or disclosing it in the notes to the financial statements. Regarding the practical contribution, our findings are important to investors in the capital market, especially less sophisticated investor, by providing evidence that they are not properly absorbing the financial information of interests in joint ventures. Finally, this research is also relevant to the IASB during the Post-Implementation Review (PIR) of IFRS 11 and IFRS 12 currently in progress and to the Disclosure Initiative project.

References

Ahmed, A. S., Kilic, E., & Lobo, G. J. (2006). Does recognition versus disclosure matter? evidence from value-relevance of banks' recognized and disclosed derivative financial instruments. *The Accounting Review*, 81 (3), 567–588.

Al Jifri, K., & Citron, D. (2009). The value-relevance of financial statement recognition versus note disclosure: Evidence from goodwill accounting. *European Accounting Review*, 18(1), 123-140.

Baloria, V. P., Klassen, K. J., & Wiedman, C. I. (2019). Shareholder activism and voluntary disclosure initiation: The case of political spending. *Contemporary Accounting Research*, 36(2), 904-933.

Bamber, L. S., Jiang, J., & Wang, I. Y. (2010). What's my style? The influence of top managers on voluntary corporate financial disclosure. *The Accounting Review*, 85(4), 1131-1162.

Bartov, E., Goldberg, S. R., & Kim, M. (2005). Comparative value relevance among German, US, and international accounting standards: A German stock market perspective. *Journal of Accounting, Auditing & Finance*, *20*(2), 95-119.

Bauman, M. P. (2003). The impact and valuation of off-balance-sheet activities concealed by equity method accounting. *Accounting Horizons*, 17 (4), 303–314.

Bauman, M. P. (2007). Proportionate consolidation versus the equity method: Additional evidence on the association with bond ratings. *International Review of Financial Analysis*, 16 (5), 496–507.

Bepari, M. K., Rahman, S. F., & Mollik, A. T. (2014). Firms' compliance with the disclosure requirements of IFRS for goodwill impairment testing: Effect of the global financial crisis and other firm characteristics. *Journal of Accounting & Organizational Change*, 10(1), 116-149.

Brown, S., Lo, K., & Lys, T. (1999). Use of R2 in accounting research: measuring changes in value relevance over the last four decades. *Journal of Accounting and Economics*, *28*(2), 83-115.

Carlin, T. M., & Finch, N. (2010). Resisting compliance with IFRS goodwill accounting and reporting disclosures: Evidence from Australia. *Journal of Accounting & Organizational Change*, 6(2), 260-280.

Che Azmi, A., & English, L. M. (2016). IFRS disclosure compliance in Malaysia: Insights from a small-sample analytical study. *Australian Accounting Review*, 26 (4), 390–414.

Chebaane, S., & Othman, H. B. (2014). The impact of IFRS adoption on value relevance of earnings and book value of equity: the case of emerging markets in African and Asian regions. *Procedia-Social and Behavioral Sciences*, *145*, 70-80.

Chen, C. J., Chen, S., & Su, X. (2001). Is accounting information value-relevant in the emerging Chinese stock market? *Journal of International Accounting, Auditing and Taxation*, *10*(1), 1-22.

Christie, A. A., & Zimmerman, J. L. (1994). Efficient and opportunistic choices of accounting procedures: Corporate control contests. *The Accounting Review*, 69(4), 539-566.

Coase, R. H. (1937). The nature of the firm. *Economica*, 4(16), 386-405.

Collins, D. W., Maydew, E. L., & Weiss, I. S. (1997). Changes in the value-relevance of earnings and book values over the past forty years. *Journal of Accounting and Economics*, 24(1), 39-67.

Collins, S.O.Y., Tagesson, T., Andersson, A., Cato, J. & Hansson, K. (2009). Explaining the choice of accounting standards in municipal corporations: Positive Accounting Theory and Institutional Theory as competitive or concurrent theories. *Critical Perspectives on Accounting,* 20(2), 141-174.

Davis-Friday, P. Y., Folami, L. B., Liu, C.-S., & Mittelstaedt, H. F. (1999). The value relevance of financial statement recognition vs. disclosure: Evidence from SFAS nº106. *The Accounting Review*, 74 (4), 403–423.

Eisenhardt, K. M. (1989). Agency theory: An assessment and review. *Academy of management review*, 14(1), 57-74.

Feltham, G. A., & Ohlson, J. A. (1995). Valuation and clean surplus accounting for operating and financial activities. *Contemporary accounting research*, *11*(2), 689-731.

Fiechter, P., & Novotny-Farkas, Z. (2017). The impact of the institutional environment on the value relevance of fair values. *Review of accounting studies*, *22*(1), 392-429.

Fields, T. D., Lys, T. Z., & Vincent, L. (2001). Empirical research on accounting choice. *Journal of Accounting and Economics*, 31(1-3), 255-307.

Gavana, G., Gottardo, P., & Moisello, A. M. (2020). Did the switch to IFRS 11 for joint ventures affect the value relevance of corporate consolidated financial statements? evidence from France and Italy. *Journal of International Accounting, Auditing and Taxation*, 38, 100300.

Glaum, M., Schmidt, P., Street, D. L., & Vogel, S. (2013). Compliance with IFRS 3 and IAS 36 required disclosures across 17 European countries: Company-and country-level determinants. *Accounting and Business research*, 43 (3), 163–204.

Graham, R. C., King, R. D., & Morrill, C. K. (2003). Decision usefulness of alternative joint venture reporting methods. *Accounting Horizons*, 17 (2), 123–137.

Haddad, A. E., Shibly, F. B., & Haddad, R. (2020). Voluntary disclosure of accounting ratios and firm-specific characteristics: the case of GCC. *Journal of Financial Reporting and Accounting*, 18(2), 301-324.

Healy, P. M., & Palepu, K. G. (2001). Information asymmetry, corporate disclosure, and the capital markets: A review of the empirical disclosure literature. *Journal of Accounting and Economics*, 31(1-3), 405-440.

Holthausen, R. W. (1990). Accounting method choice: Opportunistic behavior, efficient contracting, and information perspectives. *Journal of Accounting and Economics*, 12(1-3), 207-218.

IASB. (2011a). Basis for Conclusion on IFRS 11 Joint Arrangements. IASB – International Accounting Standard Board.

IASB. (2011b). IFRS 11 Joint Arrangements. IASB – International Accounting Standards Board.

IASC. (2007). IAS 01 – Presentation of Financial Statements. IASC – International Accounting Standard Committee.

Izzo, M. F., Luciani, V., & Sartori, E. (2013). Impairment of goodwill: Level of compliance and quality of disclosure during the crisis an analysis of Italian listed companies. *International Business Research*, 6 (11).

Izzo, M. F., Valerio, L., & Elisa, S. (2013). Impairment of goodwill: Level of compliance and quality of disclosure during the crisis-an analysis of Italian listed companies.

Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. Journal of financial economics, 3(4), 305-360.

Kang, T., & Pang, Y. H. (2005). Economic Development and the Value-Relevance of Accounting Information—A Disclosure Transparency Perspective. *Review of Accounting and Finance*.

Lazar, L., & Velte, P. (2018). Determinants of mandatory goodwill disclosure: the case of impairment testing in Germany. *International Journal of Managerial and Financial Accounting*, 10(4), 301-330.

Libby, R., Nelson, M. W., & Hunton, J. E. (2006). Recognition v. disclosure, auditor tolerance for misstatement, and the reliability of stock-compensation and lease information. *Journal of Accounting Research*, 44 (3), 533–560.

Lourenço, I. C., Fernandes, S., & Curto, J. D. (2012). How does the market view interests in jointly controlled entities? *Spanish Journal of Finance and Accounting*, 41 (153), 119–142.

Lucas, S. M. R., & Lourenço, I. C. (2014). The effect of firm and country characteristics on mandatory disclosure compliance. *International Journal of Managerial and Financial Accounting*, 6 (2), 87–116.

Malkiel, B. G., & Fama, E. F. (1970). Efficient capital markets: A review of theory and empirical work. *The Journal of Finance*, 25, 383– 417

Mazzi, F., André, P., Dionysiou, D., & Tsalavoutas, I. (2017). Compliance with goodwill related mandatory disclosure requirements and the cost of equity capital. *Accounting and Business Research*, 47 (3), 268–312.

Mazzi, F., Slack, R., & Tsalavoutas, I. (2018). The effect of corruption and culture on mandatory disclosure compliance levels: Goodwill reporting in Europe. *Journal of International Accounting, Auditing and Taxation*, 31, 52-73.

Michels, J. (2017). Disclosure versus recognition: Inferences from subsequent events. *Journal of Accounting Research*, 55 (1), 3–34.

Müller, M. A., Riedl, E. J., & Sellhorn, T. (2015). Recognition versus disclosure of fair values. *The Accounting Review*, 90 (6), 2411–2447.

Rehman, R. U., Riaz, Z., Cullinan, C., Zhang, J., & Wang, F. (2020). Institutional ownership and value relevance of corporate social responsibility disclosure: Empirical evidence from China. *Sustainability*, *12*(6), 2311.

Richardson, A. W., Roubi, R. R., & Soonawalla, K. (2012). Decline in financial reporting for joint ventures? canadian evidence on removal of financial reporting choice. *European Accounting Review*, 21 (2), 373–393.

Sarquis, R. W., & Santos, A. (2018). Impactos da eliminação da consolidação proporcional nas demonstrações contábeis da Itaúsa. *Revista Contabilidade & Finanças*, 29, 213–228.

Sarquis, R. W., & Santos, A. (2019). Eliminação da consolidação proporcional: Análise da adequação da decisão do IASB. *Revista Contemporânea de Contabilidade*, 16 (38), 207–228.

Sarquis, R. W., Santos, A., Lourenço, I., & Braunbeck, G. O. (2020). The impact of the adoption of IFRS 11 on the comparability of accounting information. *IASB Research Forum 2020*.

Sarquis, R. W., Santos, A., Lourenço, I., & Braunbeck, G. (2021). Joint venture investments: An analysis of the level of compliance with the disclosure requirements of IFRS 12. *Journal of International Financial Management & Accounting*, 32 (2), 207–232.

Schipper, K. (2007). Required disclosures in financial reports. *The Accounting Review*, 82 (2), 301–326.

Scott, W.R. (2015). *Financial Accounting Theory* (7ª ed.). Nova Jersey: Prentice Hall.

Song, C. J., Thomas, W. B., & Yi, H. (2010). Value relevance of FAS No. 157 fair value hierarchy information and the impact of corporate governance mechanisms. *The Accounting Review*, 85(4), 1375-1410.

Soonawalla, K. (2006). Accounting for joint ventures and associates in Canada, UK, and US: Do US rules hide information? *Journal of Business Finance & Accounting*, 33 (3-4), 395–417.

Stoltzfus, R. L., & Epps, R. W. (2005). An empirical study of the value-relevance of using proportionate consolidation accounting for investments in joint ventures. *Accounting Forum*, 29 (2), 169–190.

Sunder, S. (1997). *Theory of Accounting and Control.* South-Western College Pub.

Tsalavoutas, I., Tsoligkas, F., & Evans, L. (2020). Compliance with IFRS mandatory disclosure requirements: A structured literature review. *Journal of International Accounting, Auditing and Taxation*, 40, 100338.

Valfaei, A., Taylor, D., & Ahmed, K. (2011). The value relevance of intellectual capital disclosures. *Journal of Intellectual Capital.*

Verrecchia, R. E. (2001). Essays on disclosure. *Journal of Accounting and Economics*, 32(1-3), 97-180.

Wang, X. (2019). Compliance over time by Australian firms with IFRS disclosure requirements. *Australian Accounting Review*, 29(4), 679–691.

Watts, R. L. & Zimmerman, J. L. (1986). *Positive Accounting Theory.* Prentice-Hall Inc.

Watts, R. L. (1992). Accounting choice theory and market-based research in accounting. *The British Accounting Review*, 24(3), 235-267.

Wooldridge, J. M. (2010). Econometric analysis of cross-section and panel data (2nd). The MIT Press.

Yu, K. (2013). Does recognition versus disclosure affect value relevance? evidence from pension accounting. *The Accounting Review*, 88 (3), 1095–1127.

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Assessing the moderating and mediating role of affective commitment and procedural fairness in the relationship between rewards and job performance

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Abstract

Objective: This paper analyzes the effect of reward systems on job performance mediated by affective commitment, considering the potential moderator role of procedural fairness on the relationship between reward systems and affective commitment.
Method: A survey was conducted among the employees of cooperatives in the South and Southeast of Brazil. Structural equation modeling was used to analyze the 146 valid responses.
Results: The results confirm the direct effect of intrinsic rewards on job performance and extrinsic rewards on affective commitment. Affective commitment did not mediate the relationship between rewards and job performance. The complementary analysis indicates that intrinsic rewards influence the affective commitment of female employees, under 30 years old, with a bachelor's degree working in healthcare cooperatives. The perception of procedural fairness among female employees and those from healthcare cooperatives moderates the effect of intrinsic responses on affective commitment, whereas the affective commitment of employees in credit cooperatives influences job performance.
Contributions: This study contributes to the literature and managerial practice because it explores the effects of different types of rewards on employees' behavior and performance. It also reveals that the procedural fairness perception of specific groups of workers strengthens affective commitment.
Keywords: Extrinsic rewards; Intrinsic rewards; Affective commitment; Procedural fairness; Job performance.

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1. Introduction

The relationship between employees and organizations has changed over the years, and demands for superior individual performance are increasing (Rêgo, 2019). Job performance refers to the extent to which employees meet their jobs' requirements (Williams & Anderson, 1991). High employee performance (Sonnentag & Frese, 2002) is needed for organizations to achieve their goals and improve organizational performance (Campbell & Wiernik, 2015). Rewards play an important role in job performance (Wang, Lu & Sun, 2018) and are the main strategies organizations adopt to lead employees toward the desired direction (Bonner & Sprinkle, 2002; Lawler, 2000).

Reward systems are composed of extrinsic rewards, which result from factors external to the job, such as salary, bonuses, and support from supervisors, and intrinsic factors inherent to the job, such as autonomy, recognition, and feedback (Malhotra, Budhwar & Prowse, 2007). Despite a greater emphasis in the literature on the effects of extrinsic rewards (Ittner & Larcker, 2001), intrinsic rewards are also important for enhancing an employee's perception of psychological support and self-actualization (Wang et al., 2018). Thus, organizations should design and implement different types of rewards to improve employee performance (Khan, Shahid, Nawab & Wali, 2013).

Studies addressing reward systems and employee work performance report different results (Santos, Beuren & Issifou, 2019). Some studies, such as Santos et al. (2019), identified a direct and positive relationship between the variables; other studies found a direct and negative relationship (Agustiningsih Thoyib, Djumilah & Noermijati, 2016); while some results suggest an indirect relationship, mediated by other variables, such as affective commitment (Khalid, 2020). Garbers and Konradt (2014) found that the relationship between rewards and work performance is influenced by variables, such as the work environment. Therefore, further research is needed to investigate this relationship (Groen, Wouters & Wilderom, 2017; Bonner & Sprinkle, 2002). Hence, it is important to continue investigating the impacts of monetary rewards on employee behavior and other types of rewards, such as promotions, on performance (Van der Hauwaert & Bruggeman, 2015).

Rewards may also affect employees' affective commitment toward organizations, influencing exchange relationships (Malhotra et al., 2007; Vandenberghe, 2021). Affective commitment concerns the employees' affective attachment to an organization when they feel emotionally attached to it, identify themselves with it, and become engaged with its goals (Meyer & Allen, 1993). Affective commitment is the dimension most desired by managers and is expected to have the most substantial influence on job performance (Meyer, Stanley, Herscovitch & Topolnytsky, 2002). Additionally, affective commitment is relevant to explaining employee attitudes and behaviors (Langevin & Mendoza, 2014).

Research involving reward systems and affective commitment presents mixed results regarding the effects of different types of rewards. For example, Newman and Sheikh (2012) attribute more significant influence to extrinsic rewards, whereas Martin-Perez and Martin-Cruz (2015) argue that intrinsic rewards are more influential. However, other studies indicate that both extrinsic and intrinsic rewards are important and impact affective commitment (Williamson, Burnett & Bartol, 2009; Hadžiahmetović & Dinç, 2017; Malhotra et al., 2007). Thus, there is a gap that requires further research.

The employees' perception of fairness (Simon & Coltre, 2012) can influence affective commitment. Employees who perceive rewards as fair show positive attitudes towards their organizations (Nazir, Shafi, Qun, Nazir & Tran, 2016). Fair decision-making procedures, known as procedural fairness, are recognized for positively affecting the behavior and attitudes of employees toward their organizations as a whole (Lau & Lim, 2002; McFarlin & Sweeney, 1992), such as affective commitment (Langevin & Mendoza, 2014).

The connections between some of these elements allow us to assume that the organizational context and the way decisions are made reflect procedural fairness perceptions. The greater an employee's participation in organizational matters, the stronger his/her affective commitment to the organization (Vandenberghe, 2021) and procedural fairness perception tend to be (Mazzioni, Politelo & Lavarda, 2015). A work environment that favors the employees' well-being and the reward system is considered fair contributes to improving performance and strengthening affective commitment (Uraon & Gupta, 2020).

Thus, considering that research involving the constructs adopted in this study present mixed results and that procedural fairness is generally considered a consequent or antecedent variable, the following guiding question is proposed: **What is the effect of reward systems on job performance, mediated by affective commitment, considering a potential moderating effect of procedural fairness on the relationship between reward systems and affective commitment?** This study aims to analyze the effect of reward systems on job performance mediated by affective commitment, considering the potential moderating role of procedural fairness on the relationship between reward systems and affective commitment. Considering that the organization's management configuration may influence the employees' perception of procedural fairness and affective commitment, a survey was conducted among cooperative organizations.

Brazilian studies on affective commitment were restricted to specific segments of the economy (Medeiros, Albuquerque, Siqueira & Marques, 2003). However, the literature makes room for investigations in organizations other than those traditionally studied (Stecca, 2014). Thus, we propose investigating cooperative organizations, governed by principles such as democratic management and autonomy (OCB, 2020), which guide behavior and determine the organizations' routines (Mallmann, 2018). Human values are widely disseminated in these organizations, where the focus is on people and shared decision-making, whereas the needs of cooperative members are important (Stecca, 2014). Affective commitment is impacted by organizational culture, values, and strategies. For this reason, cooperatives were the "background" for the analyses performed here (Stecca, Albuquerque & Von Ende, 2016).

Cooperatives face management challenges, considering the specific legal requirements of the sector and difficulty in building a professionalized management that ensures the rights and participation of members (Stecca, 2014). The author considers that cooperatives are essentially concerned with collective well-being, in which meeting cooperative members' needs is a priority. These organizations are neither capitalist nor state-owned though and require professional management to survive. Therefore, it is interesting to investigate these organizations.

This study contributes to the literature by investigating different types of rewards and their effects on cooperative employees' behavior and work performance. The design of a reward system to manage employees is challenging for organizations because it is expected to be integrated and aligned with the organizational objectives (Câmara, 2006). It also contributes by exploring the antecedents and consequents of affective commitment and the variables influencing the relationships in non-traditional organizations.

This study's findings are expected to contribute to the literature in the accounting field, as they show that intrinsic rewards directly impact job performance. Studies in the accounting field focus on monetary incentives to align the interests of organizations and employees (Lourenço, 2016).

This study also connects with previous studies as it meets the suggestions of authors such as Medeiros, Albuquerque, Siqueira, and Marques (2003). They indicate a need for investigating commitment as a component of models that involve antecedent and consequent variables, considering that most studies mainly address variables that predict affective commitment. Additionally, it contributes to the advancement in the field, as there are no studies analyzing the interactions proposed in this study for the four constructs under study.

In practical terms, this study allows organizations to learn about the impact of different types of rewards and implement systems that encourage their workforce (Martin-Perez & Martin-Cruz, 2015). It also allows organizations to understand how decision-making procedures are perceived and how they can be reviewed to increase employees' perception of fairness. This study is also important for accounting professionals to identify the effects of different types of rewards, as these professionals usually work in the design of reward systems (Lourenço, 2016). In general, this study's results show that individuals' performance heavily depends on organizational policies and practices (Ismail, Majid & Joarder, 2018).

2. Theoretical Framework

2.1 Reward systems and job performance

Job performance is one of the main factors that generate value for individuals and organizations; therefore, it is relevant for managing organizations and the academic field (Sonnentag & Frese, 2002; Bendasolli, 2017). Organizations want to optimize their employees' performance to meet their goals, whereas employees transform their performance into a source of satisfaction, mastery, and pride (Sonnentag & Frese, 2002). Understanding how to encourage employees to deliver the expected performance is a challenge for organizational research (Garbers & Konradt, 2014).

Reward systems are instruments used to increase employee performance (Lawler, 1983; Meyer et al., 2002). Employee perceptions about how they are rewarded can affect their work-related attitudes and behaviors (Khalid, 2020), motivating them to put more effort into their jobs and, consequently, perform better (Bonner & Sprinkle, 2002; Kuvaas, 2006).

Reward systems are composed of extrinsic and intrinsic rewards (Flamholtz, Das & Tsui, 1985). Extrinsic rewards result from factors external to the job itself (Câmara, 2006), e.g., salaries, promotions, benefits, and support from supervisors and colleagues (Malhotra et al., 2007). On the other hand, intrinsic rewards result from the content of the work itself; that is, they are inherent to the activity one performs (Camara, 2006), e.g., autonomy, feedback, and role clarity (Malhotra et al., 2007).

Understanding the most efficient rewards to encourage performance implies designing more effective reward systems (Chiang & Birtch, 2012). Rewards have different effects on work performance when applied to employees at different levels and in different contexts (Stajkovic & Luthans, 2001). Extrinsic rewards allow organizations to reward employee performance for maintaining results, while intrinsic rewards lead employees to perceive psychological support, satisfying their need for success and self-actualization (Wang et al., 2018). Both types of rewards support organizations toward the achievement of higher employee performance.

Wang et al. (2018) note that both types of rewards impact employee performance in Chinese energy companies, but intrinsic rewards play a more significant role. Tippet and Kluvers (2009) identified that intrinsic rewards also played a more important role in non-profit companies. In turn, Stajkovic and Luthans (2001) verified that money has greater instrumental value, leading manufacturing employees to put more effort into their jobs. Additionally, social recognition is relevant because it indicates future rewards, while feedback presented the weakest effect, as it does not represent an explicit formal recognition. Chiang and Birtch (2012) also found that base salary, individual and team incentives, and other cash rewards have the most significant impact on performance. Despite these studies' non-congruent results, we propose the following conjecture:

H1a: Extrinsic rewards are positively related to job performance.

H1b: Intrinsic rewards are positively related to job performance.

2.2 Reward systems and affective commitment

Rewards may also influence an employee's affective commitment toward the organization (Lawler, 1983; Meyer et al., 2002). When organizations meet their employees' expectations regarding their needs, employees tend to become more committed to their organizations (Blau, 1964). Affective commitment is characterized by the degree to which an employee feels emotionally connected to an organization, experiences identification, and gets involved with its objectives (Meyer & Allen, 1991), materializing congruence and integration between organizational goals and the individuals' objectives (Teles, Lunkes & Mendes, 2021).

Rewards lead to an exchange relationship in which individuals develop a desire to stay and spend their time and energy on the organization's behalf (Martin-Perez & Martin-Cruz, 2015; Mowday, Steers & Porter, 1979). Thus, both intrinsic and extrinsic rewards contribute to affective commitment, playing a complementary role in a positive exchange relationship between employees and the organization (Vandenberghe, 2021).

Organizations may promote employee affective commitment by managing rewards (Williamson et al., 2009). However, there is no consensus on which type of reward most strongly impacts affective commitment (Newman & Sheik, 2012). Therefore, two strands are proposed in the literature: one indicates that extrinsic rewards are more important due to the organization's direct control over them, and another defends that intrinsic rewards are more important because these can be used as a supporting factor (Malhotra et al., 2007).

Martin-Perez and Martin-Cruz (2015) verified that the employees of a non-profit company placed greater value on intrinsic rewards, which led to greater employee loyalty and intention to stay in the organization. Malhotra et al. (2007) also verified that intrinsic rewards were the most significant determinants in UK call centers, while Newman and Sheikh (2012) report that only extrinsic rewards affected affective commitment. In turn, Williamson et al. (2009) and Hadžiahmetović and Dinç (2017) found that both types of rewards make employees more affectively committed. Thus, we assumed that:

H2a: Extrinsic rewards are positively related to affective commitment.

H2b: Intrinsic rewards are positively related to affective commitment.

2.3 Moderating effect of procedural fairness on the relationship between reward systems and affective commitment

Strategies aimed at teamwork, sharing organizational values, and information access may lead employees to experience affective commitment (Stecca et al., 2016). The relationship between affective commitment and intrinsic and extrinsic rewards depends on contextual, organizational, and individual-related variables (Vandenberghe, 2021). How to change the relationship between affective commitment and its antecedents requires investigation. The influence of situational and personal moderating variables that influence the strength of this relationship is seldom investigated (Cohen & Gattiker, 1994; Vandenberghe, 2021).

Cohen and Gattiker (1994) proposed that the relationship between affective commitment and its antecedents can be changed by situational and personal factors, reporting that the relationship between reward and affective commitment is stronger in private than in state-owned companies. Subsequently, studies such as Newman and Sheikh (2012b) found that affective commitment varies according to employees' values.

Vandenberghe (2021) reports that the relationship between extrinsic rewards and affective commitment may be moderated by factors such as the industry, shared decision-making, involvement, and individual differences. On the other hand, the relationship between intrinsic rewards and affective commitment may be moderated mainly by the scope of work, need for growth, employee skills, and cultural variables. These relationships were generally stronger when organizations offered opportunities for employees to participate in decision-making processes.

Greater employee participation in decision-making leads to stronger perceptions of procedural fairness (Mazzioni et al., 2015). Procedural fairness concern how fair the procedures adopted in decision-making are (Greemberg 1990; Rego, 2002). Procedural fairness perception is obtained when individuals have control over decisions and decision-making processes, e.g., employees have the right to a voice and participation, leading employees to perceive procedures as fair (Thibault & Walker, 1975).

When employees perceive the environment as fair, they become emotionally attached to the organization and put effort into performing their jobs better (Sharma & Dhar, 2016). Fairness perceptions are usually investigated as a consequence of affective commitment or as a mediating variable (Jesus & Rowe, 2015; Wu & Chaturvedi, 2009). However, no studies were found investigating its role as a variable that can influence the strength of the relationship between rewards and affective commitment. Therefore, we proposed that:

H3a: Procedural fairness moderates the relationship between extrinsic rewards and affective commitment.

H3b: Procedural fairness moderates the relationship between intrinsic rewards and affective commitment.

2.4 Affective commitment and job performance

Increased commitment levels influence employee performance (Medeiros et al., 2003; Sotomayor, 2007). The desire to belong to an organization and psychological bonds increase the likelihood that individuals will strive to perform better and collaborate with the organizational goals (Chang & Chen, 2011). Employees who are affectively committed work harder towards achieving organizational goals, perform better, and are more enthusiastic about giving back to the organization with voluntary behaviors (Wang, Weng & Jiang, 2020). Empirical studies point to a positive association between affective commitment and individual work performance (Meyer et al., 2002; Riketta, 2002).

Employees invest emotional resources in organizations when they find their interests aligned, leading them to perform better (Sharma & Dhar, 2016). These authors report that affective commitment influenced the employee performance of the nursing staff of public health institutions in India; affective bonds encouraged them to perform better even under adverse conditions.

Kim (2014) identified that the work-life balance of Korean employees tended to increase their emotional attachment to the organization, which influenced their performance. Chang and Chen (2011) verified that high-performance work systems, which include training and other rewards, directly influence work performance in beauty salons, while affective commitment plays an indirect role. The relationship between affective commitment and employee performance was positive and significant after controlling for variables such as age and time in the company.

Fonseca and Bastos (2003) found that the affectively committed employees of a bank branch presented superior performance. Uraon and Gupta (2020) verified that the employees of state-owned companies in India with high levels of affective commitment put more effort into their jobs and showed improved performance, besides presenting voluntary behaviors to the organization. Franco and Franco (2017) identified that affective commitment is associated with all performance dimensions of employees from small and medium-sized companies in Portugal. Hence, we propose that:

H4: Affective commitment is positively related to work performance.

2.5 Affective commitment in the relationship between reward systems and job performance

When organizations satisfy their employees' socio-emotional needs, e.g., with rewards, employees feel acknowledged and perform their activities better in an exchange relationship (Khalid, 2020). In addition, this perception that the company appreciates their value by allowing them to become involved in decision-making, providing training, paying better salaries, and other benefits leads employees to establish emotional bonds with the organization (Meyer & Smith, 2001).

Affective commitment is recognized in both theoretical (Meyer et al., 2002; Riketta, 2002) and empirical literature (Chang & Chen, 2011; Fonseca & Bastos, 2003; Kim, 2014; Sharma & Dhar, 2016; Uraon & Gupta, 2020) for positively impacting employee work performance. In addition, recent studies propose that affective commitment mediates the relationship between reward systems and job performance.

Khalid (2020) reports that affective commitment mediates the relationship between pay satisfaction and the performance of professors from higher education institutions in Saudi Arabia. In addition, employee work performance is improved through an affective commitment to the organization, and rewards can promote it (Newman & Sheikh, 2012). Therefore, the next proposition is:

H5a: Affective commitment mediates the relationship between extrinsic rewards and job performance.

H5b: Affective commitment mediates the relationship between intrinsic rewards and job performance.

Figure 1 presents the theoretical model with the hypotheses proposed based on the theoretical and empirical support provided by previous studies. In line with Chang and Chen (2011) and Meyer *et al.* (2002), the control variables sex, gender, educational level, time in the company, and the cooperatives' field of activity, were included in the theoretical model.

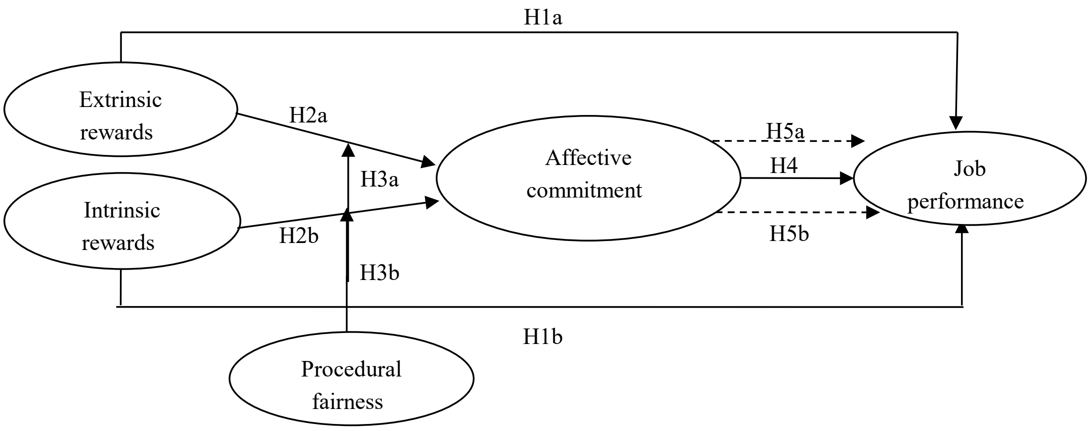

Figure 1. Theoretical model
Note: dotted lines indicate the mediating effect of affective commitment on the relationship between rewards and job performance.

Source: developed by the authors.

3. Methodological Procedures

3.1 Data Collection

This descriptive study with a quantitative approach was based on a survey conducted among the operational level employees of cooperatives in the South and Southeast of Brazil, listed in the Organization of Brazilian Cooperatives (OCB). Data on the cooperatives were obtained from the websites of the OCB state units, which provide data such as the name, address, and contact details of the cooperatives headquartered in their respective states. The names of the cooperatives were searched on the professional network LinkedIn and their employees at the operational level were randomly selected (i.e., assistants, technicians and analysts).

Some organizations were not registered, nor did their employees have a profile on the social network. Finding employees from cooperatives in the fields of consumer goods, infrastructure, work, production of goods and services, and transportation was especially challenging. Another difficulty concerns the limited number of connection requests imposed by LinkedIn. Hence, a Premium account, which allowed up to 200 connections per week, was used to collect data.

A total of 1,315 connection invitations were sent to the professionals identified from December 2021 to January 2022. The 554 (42.13%) employees who accepted the invitation received a link to access the questionnaire in Google Forms. Data collection resulted in 146 valid responses, more than the minimum required of 119 responses, calculated using the G*Power 3.1.9.4 software (Faul, Erdfelder, Buschner & Lang, 2009).

Regarding the sample's profile, more than half of the respondents (54.1%) were 19 to 29 years old; 56.2% identified themselves as women; 58.9% of the sample worked in cooperatives for four years at most; 51.4% were analysts, and 28.8% were assistants in the organizations' different areas. Regarding education, 44.5% of the respondents had an undergraduate degree, 45.2% completed a specialization or MBA, and only 1.4% had a Master's degree.

Regarding the cooperatives' characteristics, most belong to the agricultural (34.2%), credit (28.8%), and healthcare (28.1%) sectors; 65.8% are located in the South and 34.2% in the Southeast of Brazil. In addition, 62.3% of the cooperatives are linked to a central cooperative, and 67.8% have up to 10,000 members; only 9.9% have more than 50,000 members. Additionally, 39.9% of the cooperatives operate in the Brazilian market, 39.0% in the regional market, and 14.4% in the international market.

3.2 Study's constructs

The questionnaire was based on instruments translated and adapted to the Brazilian context. The constructs are presented in Table 1.

Table 1
Study's constructs

Construct	Dimension	Definition	Authors
Reward systems	Extrinsic rewards	Rewards linked to factors unrelated to the job.	Malhotra et al. (2007)
	Intrinsic rewards	Rewards related to the job content.	
Procedural fairness		Procedural fairness in decision-making.	Colquitt (2001)
Affective commitment		Affective attachment with an organization where employees choose to stay.	Meyer and Allen (1993)
Job performance		The extension in which employees meet a job's requirements.	Williams and Anderson (1991) Groen et al. (2017)

Source: developed by the authors based on the literature.

The constructs were rated on a five-point Likert scale, with semantics adapted to each construct. The adapted questionnaire from Malhotra et al. (2007) with 38 statements and an original scale ranging from 1 (strongly disagree) to 5 (strongly agree) was used to measure the reward systems. The adapted instrument from Colquitt (2001), with seven statements and a scale ranging from 1 (to a small extent) to 5 (to a large extent), was used to assess procedural fairness. This instrument was validated in Brazil by studies involving fairness perceptions and commitment (Ferreira, Assmar, Souto, Delgado, Gonzáles & Galáz, 2006).

Affective commitment was measured with the instrument proposed by Meyer and Allen (1993). It is a six-item instrument, and its original seven-point scale was adapted to a scale ranging from 1 (strongly disagree) to 5 (strongly agree). This instrument was validated in Brazil by studies such as Medeiros and Enders (1998). Job performance was measured using the instrument adapted from Groen et al. (2017), a short version of the instrument proposed by Williams and Anderson (1991) with five statements. The short scale by Groen et al. (2017) was not used in Brazilian studies, but the instrument by Williams and Anderson (1991) was validated in the context of Brazilian cooperatives by Beuren, Altoe, and Dal Vesco (2015). This instrument was adapted in this study to reflect self-assessment, and the original seven-point scale was adapted to a scale ranging from 1 (strongly disagree) to 5 (strongly agree).

A pre-test was applied to employees in the analyst position working in Brazilian credit and transportation cooperatives. Additionally, an interview was held with an employee in the management position at a credit union to validate the instrument. The pre-test participants reported that the statements were clear and used accessible language. They also stated that all questions applied to the context of cooperatives. The participants suggested changing some words so that the questionnaire would be more appropriate to the hierarchy existing in the cooperatives. Hence, the questionnaire was adjusted to meet the suggestions.

3.3 Data Analysis

Data analysis included confirmatory factor analysis and Structural Equation Modeling (SEM) estimated from Partial Least Squares (PLS) using the SmartPLS3 software. The measurement and structural models were assessed, the latter through Bootstrapping and Blindfolding.

The model's analysis included verifying its reliability using Cronbach's alpha and composite reliability; values between 0.70 and 0.95 are recommended for both indicators (Hair Jr. et al., 2019). The model's validity was assessed by convergent and discriminant validity. The construct's Average Variance Extracted (AVE) was calculated to analyze convergent validity (Hair Jr. et al., 2019); values greater than 0.50 are recommended. The constructs of extrinsic and intrinsic rewards are multidimensional and operationalized in second order; thus, the calculation of composite reliability and AVE were performed separately (Bido & Silva, 2019). The Heterotrace-Monotrace Ratio Criterion (HTMT) was used for verifying discriminant validity, and values lower than 0.90 are suggested for this indicator (Henseler et al., 2015).

The coefficient of determination (R^2), predictive relevance (Q^2), and statistical significance and relevance of the relationships were assessed to analyze the structural model (Hair Jr. et al., 2019). Additionally, the moderating role of procedural fairness in the relationship between extrinsic and intrinsic rewards and affective commitment was tested using the two-stage method. Finally, the mediation role of affective commitment in the relationship between extrinsic and intrinsic rewards and job performance was also tested. Mediation was considered total if the direct effect was not significant and the indirect effect was significant and partial if the direct and indirect effects were significant.

Data were collected from the same source in the same period, but we sought to reduce the common method bias by informing the respondents that their identities would remain confidential, that there were no right or wrong answers, and by asking the participants to provide candid answers (Podsakoff, Mackenzie, Lee & Podsakoff, 2003). Using Harman's single factor test, we identified no common method bias in the sample because no single factor individually represented more than 50.0% of the variance (Podsakoff et al., 2003).

Non-response bias (Mahama & Cheng, 2013) was also investigated using the Mann-Whitney nonparametric test, and no evidence of non-response bias was found in the sample when the responses of the first 10% (15 responses) and the last 10% (15 responses) responses were compared.

4. Analyses and Discussion of Results

4.1 Measurement model

In addition to assessing construct validity and reliability, adjustments were implemented in the assessment of the measurement model to improve these criteria (Hair Jr. et al., 2017). Hence, three reverse coding items concerning affective commitment were excluded from the questionnaire to reduce common method bias (Podsakoff et al., 2003).

The reliability of the statements in each construct was verified in the confirmatory factor analysis through factor loadings. Factor loadings must be greater than 0.70 or present values between 0.40 and 0.70, which are acceptable and would be excluded only if they do not increase AVE or CR values (Hair Jr. et al., 2017); thus, no additional statements were excluded. After analyzing the factor loadings, the model's reliability and validity were analyzed. Table 2 presents the results; the results concerning the HTMT criterion are presented at the top of the table.

Table 2
Model's Reliability and Validity

Construct	Extrinsic rewards	Intrinsic rewards	Affective commit	Job perform	Procedural
Extrinsic rewards					
Intrinsic rewards	0.849				
Affective Commitment	0.716	0.657			
Job performance	0.451	0.559	0.384		
Procedural fairness	0.733	0.891	0.602	0.491	
Cronbach's alpha	0.929	0.928	0.803	0.836	0.915
AVE	0.507	0.567	0.716	0.607	0.664
CR	0.857	0.883	0.883	0.885	0.932

Note: Affective commit = Affective commitment; Job perform = Job performance; Procedural = Procedural fairness; AVE = Average Variance Extracted; CR = Composite reliability.

Source: study's data

All indicators obtained in the model's analysis model align with the values suggested by the literature (Hair Jr. et al., 2019; Henseler et al., 2015), which enables assessing the model's reliability and validity. Finally, the multicollinearity of the variables was analyzed by the Variance Inflation Factor (VIF), which presented values below 5 in all constructs, as Hair Jr. et al. (2019) recommended. Because all the indicators presented the results suggested by the literature; we proceeded with the analysis of the structural model (Hair Jr. et al., 2019).

4.2 Structural Model

Bootstrapping was performed using SmartPLS3 (Hair Jr. et al., 2019) to test the structural model and assess the statistical significance and relevance of the path coefficients, with 5,000 resamples and Bootstrap confidence interval with corrected and accelerated bias (BCa) at a significance level of 10%. Additionally, the Blindfolding module was performed with 300 interactions. Table 3 presents the results obtained in the structural model analysis, with the beta coefficient (β), t-value, p-value, and decision for each hypothesis proposed.

Table 3
Structural Model Results

Hypothesis	Expected sign	Relationship	Beta (β)	t-value	p-value	Decision
H1a	+	ER → JP	-0.010	0.071	0.472	Reject
H1b	+	IR → JP	0.448	3.403	0.000***	Failed to reject
H2a	+	ER → AC	0.434	3.941	0.000***	Failed to reject
H2b	+	IR → AC	0.135	0.845	0.199	Reject
H3a	+	JP Modera x Extrinsic → AC	-0.178	1.446	0.074*	Reject
H3b	+	JP Modera x Intrinsic → AC	0.120	0.881	0.189	Reject
H4	+	AC → JP	0.066	0.744	0.228	Reject
H5a	+	ER → AC → JP	0.029	0.684	0.247	Reject
H5b	+	IR → AC → JP	0.009	0.455	0.324	Reject

Note 1: ER = Extrinsic Rewards; IR = Intrinsic Rewards; AC = Affective Commitment; JP = Job Performance; JP Modera x Extrinsic = Procedural fairness moderation role in the relationship between Extrinsic Rewards and Affective Commitment; JP Modera x Intrinsic = Procedural fairness moderation role in the relationship between Intrinsic Rewards and Affective Commitment. Significant at ***p<0.01; *p<0.10.
Note 2: Assessment of Determination Coefficient (R^2): Affective Commitment = 0.436; Job performance = 0.232. Predictive Relevance (Q^2): Affective Commitment = 0.276; Job Performance = 0.125

Source: study's results.

Table 3 shows that only significant hypotheses at the 1% level were accepted (p-value <0.01). The remaining hypotheses were not supported at a significance level of 10% (p-value >0.10). The hypothesis predicting the moderation role of procedural fairness in the relationship between extrinsic rewards and affective commitment was rejected because it obtained a negative Beta coefficient.

The coefficient of determination (R^2) and the Stone-Geisser indicator (Q^2) was analyzed to assess the predictive validation indicators. The Stone-Geisser indicator (Q^2) allows us to assess how close the model is to what was expected. Affective commitment and job performance showed a predictive relevance of 0.276 and 0.125, respectively, and, as recommended by Hair Jr. et al. (2017), the values were above 0. Regarding the R^2 values, which allow measuring the model's predictive power, the independent variables explain affective commitment in 43.6% and job performance in 23.2%, representing moderate and weak explanatory power, respectively.

4.3 Discussion of results

The discussion is based on the hypotheses tested. The results presented in Table 3 show that hypothesis H1a, which predicted a positive relationship between extrinsic rewards and job performance, was not confirmed. This finding diverges from the results reported by Stajkovic and Luthans (2001) and Chiang and Birtch (2012), in which extrinsic rewards lead employees to put more effort into their tasks, directly impacting their performance. Other intervening variables are believed to influence this relationship, such as the employees' cognitive ability, skills, personality, previous experiences, and task importance (Rêgo, 2019; Sonnentag & Frese, 2002). In addition, the cooperatives' peculiarities may also intervene, as the performance of the individual depends on the practices adopted by organizations (Ismail et al., 2018).

Hypothesis H1b, which predicted that intrinsic rewards have a positive relationship with job performance, failed to be rejected. This result corroborates Wang et al. (2018) and Tippet and Kluvers (2009), who found that intrinsic rewards lead to increased performance. Tippet and Kluvers (2009) report that employees of nonprofit companies were more concerned with doing a good job, giving greater importance to intrinsic rewards when it comes to job performance.

H2a, which predicted that extrinsic rewards impact affective commitment, failed to be rejected. The employees in the sample agreed that the superiors were accessible, had technical competence, and supported more pleasant work environments and work team cooperation. Leadership and support from supervisors and colleagues influence affective commitment (Simon & Coltre, 2012), which converges with the results found in this study.

Hypothesis H2b, predicting a positive relationship between intrinsic rewards and affective commitment, was not accepted. This finding diverges from the literature stating that extrinsic and intrinsic rewards affect affective commitment (Hadžiahmetović & Dinç, 2017). Martin-Perez and Martin Cruz (2015) verified that intrinsic rewards are more important for affective commitment in non-profit companies, an aspect not observed in the cooperatives addressed here. The employees agreed that cooperatives apply intrinsic rewards, but their impact on affective commitment was not confirmed. This information allows us to infer that there may be other intervening factors in this relationship, as it can be impacted by individual characteristics, work experience, and organizational variables (Vandenberghe, 2021).

Hypotheses H3a and H3b were not confirmed. These hypotheses proposed that procedural fairness moderates the relationship between rewards and affective commitment. However, cooperatives have standardized management models, especially credit unions, which are authorized and regulated by the Central Bank of Brazil (BCB), which issues the norms and resolutions to be followed by these organizations (Mallmann, 2018). Additionally, cooperatives have difficulties in professionalizing management so that the dominant political group's opinions and issues may impact personnel management strategies (Stecca, 2014). This context may lead to a perception that employees cannot express their opinions in decision-making processes, influence decisions, or contest results; consequently, procedural fairness did not moderate the relationship proposed here.

H4, which predicted that affective commitment would influence job performance, was not accepted. This result differs from that found by Franco and Franco (2017), Kim (2014), and Uraon and Gupta (2020), that employees who were more emotionally committed performed their tasks better. Differently from what was expected, affective commitment presented the lowest mean among all the constructs, though the employees agreed that they always perform their essential functions and comply with their responsibilities and the formal performance requirements demanded by their jobs. Note that the survey was applied during the covid-19 pandemic, which impacted organizational management dynamics, such as the face-to-face relationship between those involved in routines and services. Face-to-face services decreased, and employees started working in the home office (Sausen, Baggio, Dallabrida & Bussler, 2020). This context may have contributed to decreased affective commitment among cooperative employees due to suspended face-to-face organizational activities.

Hypotheses H5a and H5b, predicting the mediating role of affective commitment in the relationship between extrinsic and intrinsic rewards, respectively, and job performance, were not confirmed. Table 3 shows that the indirect effects were not significant and did not enable confirming the mediating role of affective commitment. These findings differ from the results that Khalid (2020) reported, in which the affective commitment of professors from higher education institutions in Saudi Arabia was found to mediate the relationship between pay satisfaction and performance.

Finally, the tests with the control variables revealed that intrinsic rewards were positively related to affective commitment among female ($\beta = 0.406$; $p<0.05$), younger employees – below 30 years old ($\beta = 0.361$; $p<0.05$), and holding a bachelor's degree ($\beta = 0.336$; $p<0.10$). H3b also failed to be rejected among female employees. It concerns the moderating effect of procedural fairness in the relationship between intrinsic rewards and affective commitment ($\beta = 0.216$; $p<0.10$). The impact of intrinsic rewards on the affective commitment of the female employees was strengthened in environments perceived as fair.

A direct effect of intrinsic rewards on affective commitment and the moderating role of procedural fairness in this relationship were found in healthcare cooperatives. This finding suggests the effect of intrinsic rewards is strengthened when employees perceive decision-making procedures to be fair. However, no type of rewards directly influenced job performance in these cooperatives, showing that there may be other intervening variables. H4, which predicted the relationship between affective commitment and job performance, was accepted in credit unions; credit union employees were slightly more committed than the remaining employees.

These results corroborate the literature in which the development of affective commitment may be facilitated in specific organizational contexts and impacted by individual characteristics (Langevin & Mendonza, 2014; Vandenberghe, 2021). Even though these organizations are governed by the cooperativism principles and obey the rules applied to cooperatives in general, each cooperative may present management particularities depending on the sector in which they operate. For example, França et al. (2020) report the need to establish and disseminate clearer career plans in credit and healthcare cooperatives. The staff in healthcare cooperatives often lacks an understanding regarding the experience and qualification required to compete in internal recruitment processes – such information should integrate into a career plan (França et al., 2020) – which possibly leads to a perception of insufficient promotional policies.

5. Conclusions and Recommendations

This study investigated the effect of reward systems on work performance and the intervenient role of affective commitment and procedural fairness. The results indicate that intrinsic rewards are important antecedents of employees' positive attitudes and behaviors, impacting employee work performance. Extrinsic rewards are also relevant when acting directly on employees' affective commitment, a bond desired by organizations. No mediating effect of affective commitment was found on the relationship between rewards and job performance.

The complementary analysis revealed that intrinsic rewards influence the affective commitment of female employees under 30 years of age with a bachelor's degree and working in healthcare cooperatives. Additionally, the perception of procedural fairness appeared as an important variable in the model, as it strengthened the relationship between intrinsic rewards and affective commitment among female workers from healthcare cooperatives, whereas affective commitment impacted job performance in credit unions.

The conclusion is that extrinsic and intrinsic rewards generate distinct effects on employees, which highlights the importance of implementing reward systems composed of varied rewards and appropriate to the context in which they are applied to meet the needs of employees. The effects of extrinsic and intrinsic rewards were different according to the sector, emphasizing that management particularities may contribute to different variables impacting affective commitment and job performance in each organization. The results found for the cooperatives were different from those reported in the literature for traditional companies. Both extrinsic and intrinsic rewards were found to impact the job performance and affective commitment of employees from traditional companies, a result not found among the cooperatives addressed in this study. The more emotionally committed employees of traditional companies present higher job performance, a result found only in credit unions. Furthermore, the mediating role of affective commitment in the relationship between rewards and job performance reported in the literature was not found in the cooperatives addressed here.

This study has implications for the literature addressing management because it explores gaps, proposing a model with antecedents and consequents of affective commitment, as suggested by Medeiros et al. (2003). Additionally, it addresses variables influencing the relationship between affective commitment and its antecedents, following the suggestions of Cohen and Gattiker (1994). The results show that affective commitment does not mediate the relationship between rewards and performance; though, they found interesting evidence regarding the relationship between affective commitment and its antecedents. Additionally, the results show that for some groups, procedural fairness perceptions can strengthen/weaken these relationships. Finally, the rejection of some hypotheses opens the way for the literature to investigate new variables that possibly intervene in the relationship between reward systems and work performance.

In practical terms, the results allow managers to identify how different types of rewards and decision-making procedures influence employee behaviors and attitudes and implement systems and procedures that meet the organization's objectives and the employees' needs. Additionally, this study allowed us to identify which groups of rewards impact affective commitment and job performance; thus, cooperatives can use these findings to direct the behaviors of their workforce towards their goals, granting rewards that meet their employees' needs.

This study has limitations that demand caution when interpreting results. The survey method exposes the study to the subjectivity of the respondents' interpretation. Additionally, the fact that data were collected via LinkedIn may have impacted the participants' age, considering that younger individuals more frequently use social networks. The selection of constructs and the fact that operational employees were selected also configure limitations; different results could have been reached if different choices had been made.

This study did not use the characteristics of cooperatives as control variables in the model, which also represents a limitation. Therefore, including and more deeply investigating the particularities of cooperatives management may lead to different results.

Thus, future studies could adopt different methods such as case studies; other means to collect data such as e-mail; address other constructs and/or instruments; and investigate different hierarchical levels, such as managers.

The discussions addressed here allow us to emphasize the importance of this topic, as organizations are increasingly looking for committed employees able to present superior job performance, whereas employees seek organizations that meet their needs.

References

Agustiningsih, H. N., Thoyib, A., Djumilah, H., & Noermijati, N. (2016). The effect of remuneration, job satisfaction and OCB on the employee performance. *Science Journal of Business and Management*, 4(6), p. 212-222. Doi: http://doi.org/10.11648/j.sjbm.20160406.16

Anuário do Cooperativismo Brasileiro (2020). Organização das Cooperativas Brasileiras (OCB). Cooperativismo. Recuperado em 20 mar. 2021 de https://www.ocb.org.br/numeros

Bandeira, M. L., Marques, A. L., & Veiga, R. T. (2000). As dimensões múltiplas do comprometimento organizacional: um estudo na ECT/MG. *Revista de Administração Contemporânea*, 4, p. 133-157. Doi: https://doi.org/10.1590/S1415-65552000000200008

Bendassolli, P. F. (2017). Desempenho no trabalho: Revisão da literatura. Psicologia argumento, 30(68), p. 171-186. Doi: https://doi.org/10.7213/psicol.argum.5895

Beuren, Ilse Maria; Altoe, Stella Maris Lima; Dal Vesco, Delci Grapégia. Percepção de justiça e comportamento de cidadania organizacional: um estudo na perspectiva do sistema de mensuração de desempenho estratégico. Cuadernos de Administración, v. 28, n. 51, p. 133-157, 2015. Doi: https://doi.org/10.11144/Javeriana.cao28-51.pjcc

Blau, P. M. (1964). *Exchange and power in social life*. New York: John Wiley

Bonner, S. E., & Sprinkle, G. B. (2002). The effects of monetary incentives on effort and task performance: theories, evidence, and a framework for research. *Accounting, organizations and society,* 27(4-5), p. 303-345. Doi: https://doi.org/10.1016/S0361-3682(01)00052-6

Camara, P. B. (2006). *Os sistemas de Recompensas e a Gestão Estratégica dos Recursos Humanos* (2ª ed., revista e aumentada). Lisboa: Dom Quixote

Campbell, J. P., & Wiernik, B. M. (2015). The modeling and assessment of work performance. *Annual Review of Organizational Psychology and Organizational Behavior*, 2(1), p. 47-74. Doi: https://doi.org/10.1146/annurev-orgpsych-032414-111427

Chang, P. C., & Chen, S. J. (2011). Crossing the level of employee's performance: HPWS, affective commitment, human capital, and employee job performance in professional service organizations. *The international journal of human resource management*, 22(04), p. 883-901. Doi: https://doi.org/10.1080/09585192.2011.555130

Chiang, F. F., & Birtch, T. A. (2012). The performance implications of financial and non-financial rewards: An Asian Nordic comparison. *Journal of Management Studies*, 49(3), 538-570. Doi: https://doi.org/10.1111/j.1467-6486.2011.01018.x

Cohen, A., & Gattiker, U. E. (1994). Rewards and organizational commitment across structural characteristics: A meta-analysis. *Journal of Business and Psychology*, 9(2), p. 137-157. Doi: https://doi.org/10.1007/BF02230633

Colquitt, J. A. (2001). On the dimensionality of organizational justice: a construct validation of a measure. *Journal of applied psychology*, 86(3), p. 386-400. Doi: https://doi.org/10.1037/0021-9010.86.3.386

Flamholtz, E. G., Das, T. K., & Tsui, A. S. (1985). Toward an integrative framework of organizational control. *Accounting, organizations and society*, 10(1), p. 35-50. Doi: https://doi.org/10.1016/0361-3682(85)90030-3

Fonseca, C. A. M., & Bastos, A. V. B. (2003). Criatividade e comprometimento organizacional: suas relações com a percepção de desempenho no trabalho. *Revista Psicologia: Organizações e Trabalho*, 3(1), p. 61-88.

França, H. D. L. M., Bressa, L., Estivalete, V. D. F. B., Ramadam, A. O., & Gomes, T. C. (2020). Práticas de gestão de pessoas: uma análise das melhores cooperativas para trabalhar. Revista de Gestão e Organizações Cooperativas, 7(13). Doi: https://doi.org/10.5902/2359043239163

Franco, M., & Franco, S. (2017). Organizational commitment in family SMEs and its influence on contextual performance. *Team Performance Management: An International Journal*, 23 (7/8), p. 364-384. Doi: https://doi.org/10.1108/TPM-05-2016-0020.

Garbers, Y., & Konradt, U. (2014). The effect of financial incentives on performance: A quantitative review of individual and team-based financial incentives. *Journal of occupational and organizational psychology*, 87(1), p. 102-137. Doi: https://doi.org/10.1111/joop.12039

Greenberg, J. (1990). Organizational justice: Yesterday, today, and tomorrow. *Journal of management*, 16(2), p. 399-432. Doi: https://doi.org/10.1177/014920639001600208

Groen, B. A., Wouters, M. J., & Wilderom, C. P. (2017). Employee participation, performance metrics, and job performance: A survey study based on self-determination theory. *Management Accounting Research*, 36, p. 51-66. Doi: https://doi.org/10.1016/j.mar.2016.10.001

Hadžiahmetović, N., & Dinç, M. S. (2017). The mediating role of affective commitment in the organizational rewards–organizational performance relationship. *International Journal of Human Resource Studies*, 7(3), p. 105-130. Doi: https://doi.org/0.5296/ijhrs.v7i3.11454

Hair Jr, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2017). *A primer on partial least squares structural equation modeling (PLS-SEM).* 2. ed. Thousand Oaks: Sage, 2017.

Hair Jr., J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *European business review,* 31(1), p. 2-24. Doi: https://doi.org/10.1108/EBR-11-2018-0203

Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the academy of marketing science,* 43(1), p. 115-135. Doi: https://doi.org/10.1007/s11747-014-0403-8

Ismail, A. I., Majid, A. H. A., & Joarder, M. H. R. (2018). Unpacking the'black box'in the relationship between pay-for-performance, employee benefits and performance. *Journal for Global Business Advancement*, 11(4), p. 465-490. Doi: https://doi.org/10.1504/JGBA.2018.10018205

Ittner, C. D., & Larcker, D. F. (2001). Assessing empirical research in managerial accounting: a value-based management perspective. *Journal of accounting and economics*, 32(1-3), 349-410. Doi: https://doi.org/10.1016/S0165-4101(01)00026-X

Jesus, R. G. de, & Rowe, D. E. O. (2015). Percepção de políticas de gestão de pessoas e comprometimento organizacional: o papel mediador da percepção de justiça organizacional. *Tourism & Management Studies*, 11(2), p. 211-218. Doi: https://doi.org/10.18089/tms.2015.11226

Khalid, K. (2020). The Impact of Managerial Support on the Association Between Pay Satisfaction, Continuance and Affective Commitment, and Employee Task Performance. *SAGE Open*, 10(1), 2158244020914591. Doi: https://doi.org/10.1177/2158244020914591

Khan, I., Shahid, M., Nawab, S., & Wali, S. S. (2013). Influence of intrinsic and extrinsic rewards on employee performance: The banking sector of Pakistan. *Academic Research International,* 4(1), p. 282-291.

Kim, H. K. (2014). Work-Life Balance and Employees' Performance: The Mediating Role of Affective Commitment. *Global Business & Management Research*, 6(1), p. 37-51.

Kuvaas, B. (2006). Work performance, affective commitment, and work motivation: The roles of pay administration and pay level. *Journal of Organizational Behavior: The International Journal of Industrial, Occupational and Organizational Psychology and Behavior*, 27(3), p. 365-385. Doi: https://doi.org/10.1002/job.377

Langevin, P., & Mendoza, C. (2014). The impact of results control on affective organizational commitment: the mediating effects of perceived procedural justice. *Comptabilité-Contrôle-Audit*, 20(1), p. 13-42. Doi: https://dx.doi.org/10.2139/ssrn.1908294

Lau, C. M., & Lim, E. W. (2002). The intervening effects of participation on the relationship between procedural justice and managerial performance. *The British Accounting Review*, 34(1), p. 55-78. Doi: https://doi.org/10.1006/bare.2001.0184

Lawler III, E. E. (1983). The Design of Effective Reward Systems. University of Southern California Los Angeles Center for Effective Organizations.

Lawler III, E. E. (2000). Pay strategy: New thinking for the new millennium. *Compensation & Benefits Review*, 32(1), p. 7-12. Doi: https://doi.org/10.1177/088636870003200102

Lourenço, S. M. (2016). Monetary incentives, feedback, and recognition—Complements or substitutes? Evidence from a field experiment in a retail services company. *The Accounting Review*, 91(1), p. 279-297. Doi: https://doi.org/10.2308/ACCR-51148

Mahama, H., & Cheng, M. M. (2013). The effect of managers' enabling perceptions on costing system use, psychological empowerment, and task performance. *Behavioral Research in Accounting*, 25(1), p. 89-114. Doi: https://doi.org/10.2308/bria-50333

Malhotra, N., Budhwar, P., & Prowse, P. (2007). Linking rewards to commitment: an empirical investigation of four UK call centres. *The International Journal of Human Resource Management*, 18(12), p. 2095-2128. Doi: https://doi.org/10.1080/09585190701695267

Mallmann, C. (2018). *Sistemas de controle gerencial nas cooperativas de crédito: estudo de casos.* Dissertação de Mestrado, Universidade do Grande Rio, Rio de Janeiro, RJ, Brasil.

Martin-Perez, V., & Martin-Cruz, N. (2015). The mediating role of affective commitment in the rewards–knowledge transfer relation. *Journal of Knowledge Management*, 19 (6), p. 1167-1185. Doi: https://doi.org/10.1108/JKM-03-2015-0114

Mazzioni, S., Politelo, L., & Lavarda, C. E. F. (2015). A Percepção dos Gestores em Relação à Participação Orçamentária, à Justiça Procedimental e ao Desempenho Gerencial. *Sociedade, Contabilidade e Gestão*, 9(2), p. 136-151. Doi: https://doi.org/10.21446/scg_ufrj.v9i2.13325

McFarlin, D. B., & Sweeney, P. D. (1992). Distributive and procedural justice as predictors of satisfaction with personal and organizational outcomes. *Academy of management Journal,* 35(3), p. 626-637. Doi: https://doi.org/10.2307/256489

Medeiros, C. A. F., Albuquerque, L. G. D., Siqueira, M., & Marques, G. M. (2003). Comprometimento organizacional: o estado da arte da pesquisa no Brasil. *Revista de Administração Contemporânea,* 7, p. 187-209. Doi: https://doi.org/10.1590/S1415-65552003000400010

Meyer, J. P., & Allen, N. J. (1991). A three-component conceptualization of organizational commitment. *Human resource management review*, 1(1), p. 61-89. Doi: https://doi.org/10.1016/1053-4822(91)90011-Z

Meyer, J. P., Allen, N. J., & Smith, C. A. (1993). Commitment to organizations and occupations: Extension and test of a three-component conceptualization. *Journal of applied psychology*, 78(4), p. 538-551. Doi: http://dx.doi.org/10.1037/0021-9010.78.4.538

Meyer, J. P., Stanley, D. J., Herscovitch, L., & Topolnytsky, L. (2002). Affective, continuance, and normative commitment to the organization: A meta-analysis of antecedents, correlates, and consequences. *Journal of vocational behavior*, 61(1), p. 20-52. Doi: https://doi.org/10.1006/jvbe.2001.1842

Mowday, R. T., Steers, R. M., & Porter, L. W. (1979). The measurement of organizational commitment. *Journal of vocational behavior*, 14(2), p. 224-247. Doi: https://doi.org/10.1016/0001-8791(79)90072-1

Nazir, S., Shafi, A., Qun, W., Nazir, N., & Tran, Q. D. (2016). Influence of organizational rewards on organizational commitment and turnover intentions. *Employee Relations.* 38 (4), p. 596-619. Doi: https://doi.org/10.1108/ER-12-2014-0150.

Newman, A., & Sheikh, A. Z. (2012). Organizational commitment in Chinese small-and medium-sized enterprises: the role of extrinsic, intrinsic and social rewards. *The International Journal of Human Resource Management,* 23(2), p. 349-367. Doi: https://doi.org/10.1080/09585192.2011.561229

Organização das Cooperativas Brasileiras (OCB). Cooperativismo. Recuperado em 20 mar. 2021 de https://www.ocb.org.br/o-que-e-cooperativismo

Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: a critical review of the literature and recommended remedies. *Journal of applied psychology*, 88(5), p. 879-903. Doi: https://doi.org/10.1037/0021-9010.88.5.879

Rego, A. (2002). Comprometimento afectivo dos membros organizacionais: o papel das percepções de justiça. *Revista de Administração Contemporânea*, 6, p. 209-241. Doi: https://doi.org/10.1590/S1415-65552002000200012

Rêgo, M. C. B. (2019). *Desempenho no trabalho, comprometimento, entrincheiramento, justiça e suporte organizacional: um estudo multinível.* Tese de Doutorado, Universidade de Brasília, Brasília, DF, Brasil.

Riketta, M. (2002). Attitudinal organizational commitment and job performance: a meta-analysis. Journal of Organizational Behavior: *The International Journal of Industrial, Occupational and Organizational Psychology and Behavior*, 23(3), p. 257-266.

Santos, V., Beuren, I. M., & Issifou, M. (2019). Efeitos da avaliação de desempenho na performance gerencial mediada pelo feedback e sistema de recompensas. *Journal of Accounting, Management and Governance*, 22(1), p. 38-58. Doi: http://dx.doi.org/10.21714/1984-3925_2019v22n1a3.

Sausen, J. D. F. C. L., Baggio, D. K., Dallabrida, V. R., & Bussler, N. R. C. (2020). Estratégias ecnológicas em tempos de pandemia: impactos e contribuições em cooperativas gaúchas. *Salão do Conhecimento*, 6(6), p. 1-13.

Sharma, J., & Dhar, R. L. (2016). Factors influencing job performance of nursing staff: mediating role of affective commitment. *Personnel Review*, 45 (1), p. 161-182. Doi: https://doi.org/10.1108/PR-01-2014-0007

Simon, J., & Coltre, S. M. (2012). O comprometimento organizacional afetivo, instrumental e normativo: estudo de caso de uma empresa familiar. *Qualitas Revista Eletrônica*, 13(1), p. 4-23.

Sonnentag, S., & Frese, M. (2002). Performance concepts and performance theory. *Psychological management of individual performance*, 23(1), p. 3-25. Doi: https://doi.org/10.1002/0470013419.ch1

Sotomayor, A. M. S. B. (2007). Avaliação de desempenho e compromisso organizacional: a perspectiva da justiça organizacional. *Revista Universo Contábil*, 3(3), p. 87-100. Doi: http://dx.doi.org/10.4270/ruc.20073

Stajkovic, A. D., & Luthans, F. (2001). Differential effects of incentive motivators on work performance. *Academy of management journal*, 44(3), p. 580-590. Doi: https://doi.org/10.5465/3069372

Stecca, J. P. (2014). *Estratégias genéricas na gestão de pessoas e comprometimento organizacional: um estudo em sociedades cooperativas de crédito.* Tese de Doutorado, Universidade de São Paulo, São Paulo, SP, Brasil.

Stecca, J. P., de Albuquerque, L. G., & Von Ende, M. (2016). As influências da gestão de pessoas no comprometimento. *Revista de Administração da Universidade Federal de Santa Maria*, 9(4), p. 721-737. Doi: https://doi.org/10.5902/1983465918587

Teles, J., Lunkes, R. J., Mendes, A. C. A. (2021). Efeitos interativos dos controles gerenciais, das avaliações cognitivas e reações emocionais no comprometimento afetivo. *Revista de Educação e Pesquisa em Contabilidade (REPeC)*, 15 (3), p. 271-292. Doi: http://dx.doi.org/10.17524/repec.v15i3.2762

Thibaut, J., & Walker, L. (1975). *Procedural justice: A psychological analysis*. Hillsdale, NJ: Erlbaum.

Tippet, J., & Kluvers, R. (2009). Employee rewards and motivation in non profit organisations: Case study from Australia. International *Journal of Business and Management*, 4(3), p. 7-14. Doi: https://doi.org/10.5539/IJBM.V4N3P7

Uraon, R. S., & Gupta, M. (2020, November). Does psychological climate affect task and contextual performance through affective commitment? Evidence from public sector companies. *Evidence-based HRM*, 9 (3), p. 258-275. Doi: https://doi.org/10.1108/EBHRM-09-2019-0089.

Van der Hauwaert, E., & Bruggeman, W. (2015). The effect of monetary rewards on autonomous motivation in an enabling performance measurement context. Corporate Ownership & Control, 12(3), p. 341-356.

Vandenberghe, C. (2021). On the Elusive Moderators of Affective Organizational Commitment. *The Spanish Journal of Psychology*, 24, e44, p. 1–10. Doi: https://doi.org/10.1017/SJP.2021.41

Wang, P., Lu, Z., & Sun, J. (2018). Influential effects of intrinsic-extrinsic incentive factors on management performance in new energy enterprises. *International Journal of Environmental Research and Public Health*, 15(2), p. 292-302. Doi: https://doi.org/10.3390/ijerph15020292

Wang, Q., Weng, Q., & Jiang, Y. (2020). When does affective organizational commitment lead to job performance? integration of resource perspective. *Journal of Career Development,* 47(4), p. 380-393. Doi: https://doi.org/10.1177/0894845318807581

Williams, L. J., & Anderson, S. E. (1991). Job satisfaction and organizational commitment as predictors of organizational citizenship and in-role behaviors. *Journal of management*, 17(3), p. 601-617. Doi: https://doi.org/10.1177/014920639101700305.

Williamson, I. O., Burnett, M. F., & Bartol, K. M. (2009). The interactive effect of collectivism and organizational rewards on affective organizational commitment. *Cross Cultural Management: An International Journal,* 16 (1), p. 28-43. Doi: https://doi.org/10.1108/13527600910930022.

Wu, P. C., & Chaturvedi, S. (2009). The role of procedural justice and power distance in the relationship between high performance work systems and employee attitudes: A multilevel perspective. *Journal of management*, 35(5), p. 1228-1247. Doi: https://doi.org/10.1177/0149206308331097

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- An **abstract** written in the language of origin of the article (Portuguese or English) with at least 150 and at most 200 words, single space between lines, in four paragraphs containing the following elements, highlighted: **Objective, Method, Results and Contributions**. At the end of the abstract should be placed **three to five** keywords;

Objective: this study was aimed at investigating the relevance of accounting education and research for the growth of the Brazilian economy during the first decade of the 21st century.

Method: to collect the data, a structured questionnaire was used, elaborated based on the relevant literature. The questionnaire was tested and applied to a sample of Brazilian accountants and businessmen during 2017. In the analysis of these data, content analysis was applied and statistical tests were used to establish relations between the answers obtained.

Results: the main findings of this study indicate that the expansion of accounting education and research in Brazil was essential for the growth of the economy, according to the respondents' perception, despite the impression that accountants and businessmen need to make better use of the accounting information.

Contributions: from the academic viewpoint, the evidences from this research contribute to fill of an important existing gap in the Brazilian literature. What the market is concerned, they contribute by providing evidence that, despite its perceived relevance, its users need to make better use of the accounting information.

Key words: Education: Research; Accounting.

- The article itself, written in Portuguese or English, with at least 5,000 and at most 9,000 words, including tables, figures, notes and references.
- The pages of the articles should be properly numbered in the upper right corner, typed with Word for Windows, under the following conditions:
    - A4 paper (210 x 297 mm);
    - Times New Roman, size 12;
    - Spacing: single;
    - Paragraph input: 1.25;
    - Margins: 3cm top, 2cm bottom, 3cm left, 2cm right;
    - Tables and figures in Times New Roman, size 10;
    - Citations and references must comply with current standards of the APA (American Psychological Association).

3. Tables and Figures[1]

Tables and figures should be used in articles whenever their information make text comprehension more efficient, without repeating information already described in the text.

3.1 Tables

The table should usually show numeric or textual information organized in an orderly exposition of columns and rows. Any other statement should be characterized as textual figure.

The table should be displayed with its information visible and sufficient for their understanding and should be formatted as follows:

1 Most of these guidelines were adapted from the Manual for Submissions of the *Revista de Administração Contemporânea* – RAC, available at www.anpad.org.br.

Table editor	Word for Windows 97 or superior. In case authors have drawn their tables in Microsoft Excel or in a similar program, please remake the tables using the feature in Word
Font	Times New Roman, size 10
Line spacing	Simple
Spacing before and after paragraphs	3 pt
Table colors	Use only black and white (grayscale)
Title	The table title must be brief, clear and explanatory. It should be placed above the table, in the top left corner, and on the next line, just below the word Table (with a capital initial), followed by the number that designates it. The tables are presented with Arabic numerals in sequence and within the text as a whole. Eg: Table 1, Table 2, Table 3, and so on
Citation of tables	When citing tables in the text, type only the number referring to the table, for example Table 1, Table 2, Table 3 and so on. (the word 'Table' should be presented with the first letter capitalized). Never write 'table below', 'table above' or 'table on page XX' because the page numbers of the article may change while formatting
Table notes	The font used in the notes of the table should be Times New Roman, size 10, single spaced. The notes should be described in the footnote of the table, and they serve to indicate the Source of the information of the table, and other information important to understanding the table

3.2 Figures

The figure should show a flow chart, a chart, a photograph, a drawing or any other illustration or textual representation.

The figure should be displayed with its information visible and adequate for its understanding, and should be formatted as follows:

Font	Times New Roman, size 10
Figure colors	Use only black and white (grayscale)
Format	Figures should be submitted in an editable format
Title	It explains the figure concisely, but discursively. The title should be placed under the figure and numbered with Arabic numerals in sequence, preceded by the word Figure (with initial capital). Eg: Figure 1, Figure 2, Figure 3, etc. After the title, any other information necessary for clarification of the figure or source must be added as a note
Captions	The caption is the explanation of the symbols used in the figure and must be placed within the limits of the figure
Size and proportion	Figures must fit the dimensions of the journal. Therefore, a figure should be drawn or inserted into the article so that it can be reproduced in the width of a column or page of the journal to which it will be submitted
Citations in the main text	When citing a figure in the text type only the number referring to the figure, e.g. Figure 1, Figure 2, Figure 3 and so on. (the word 'Figure' should be presented with the first letter capitalized). Never write 'figure below' figure above ', or even 'figure on page XX' because the page numbers of the article can be changed during formatting

4. Citations and References

For the full version of the standards of citations and references according to APA (American Psychological Association), access http://www.repec.org.br/index.php/repec/article/view/1607/1237.